

MONTGOMERY COUNTY HISTORIC PRESERVATION COMMISSION
STAFF REPORT

Address:	19811 Darnestown Road, Beallsville	Meeting Date:	4/12/2023
Resource:	Contributing Resource Beallsville Historic District	Report Date:	4/5/2023
Applicant:	M-NCPPC (Timothy Crump, Applicant) (Atlantida Buildings, Inc., Agent)	Public Notice:	3/29/2023
Review:	HAWP	Tax Credit:	N/A
		Staff:	John Liebertz

Permit Number: 1025418

PROPOSAL: Installation of HVAC

STAFF RECOMMENDATION

Staff recommends that the Historic Preservation Commission (HPC) **approve with one (1) condition** the HAWP application with final approval of all details delegated to staff:

1. Applicant shall submit all specification sheets for the vent models noted in the floor plans and verify that the vents are part of this HAWP.

ARCHITECTURAL DESCRIPTION

SIGNIFICANCE: Contributing Resource within the Beallsville Historic District
STYLE: Queen Anne
DATE:1921



Figure 1: The subject property (yellow star) at 19811 Darnestown Road. The red line is the historic district boundary.

PROPOSAL

The applicant proposes to install: 1) two condenser units (heat pumps) in the northwest (rear) corner of the house; and 2) hooded wall vents with screens and dampers.

APPLICABLE GUIDELINES

In accordance with section 1.5 of the Historic Preservation Commission Rules, Guidelines, and Procedures (Regulation No. 27-97) (“Regulations”), in developing its decision when reviewing a Historic Area Work Permit application for an undertaking at a Master Plan site, the Commission uses the *Montgomery County Code* (“Chapter 24A”), the *Secretary of the Interior’s Standards and Guidelines for Rehabilitation (Standards)*, and pertinent guidance in applicable master plans. [Note: where guidance in an applicable master plan is inconsistent with the Standards, the master plan guidance shall take precedence (section 1.5(b) of the Regulations).] The pertinent information in these documents, incorporated in their entirety by reference herein, is outlined below.

Montgomery County Code, Chapter 24A-8

The following guidance which pertains to this project are as follows:

- (b) The commission shall instruct the director to issue a permit, or issue a permit subject to such conditions as are found to be necessary to ensure conformity with the purposes and requirements of this chapter, if it finds that:
 - (1) The proposal will not substantially alter the exterior features of an historic site or historic resource within an historic district; or
 - (2) The proposal is compatible in character and nature with the historical, archeological, architectural or cultural features of the historic site or the historic district in which an historic resource is located and would not be detrimental thereto or to the achievement of the purposes of this chapter; or
 - (3) The proposal would enhance or aid in the protection, preservation and public or private utilization of the historic site or historic resource located within an historic district in a manner compatible with the historical, archeological, architectural or cultural value of the historic site or historic district in which an historic resource is located; or
 - (4) The proposal is necessary in order that unsafe conditions or health hazards be remedied; or
 - (5) The proposal is necessary in order that the owner of the subject property not be deprived of reasonable use of the property or suffer undue hardship; or
- (d) In the case of an application for work on an historic resource located within an historic district, the commission shall be lenient in its judgment of plans for structures of little historical or design significance or for plans involving new construction, unless such plans would seriously impair the historic or architectural value of surrounding historic resources or would impair the character of the historic district. (Ord. No. 9-4, § 1; Ord. No. 11-59.)

Secretary of the Interior’s Standards for Rehabilitation

The Secretary of the Interior defines rehabilitation as “the act or process of making possible a compatible use for a property through repair, alterations, and additions while preserving those portions or features, which convey its historical, cultural, or architectural values.” The applicable *Standards* are as follows:

2. The historic character of a property shall be retained and preserved. The removal of historic materials or alteration of features and spaces that characterize a property shall be avoided.
9. New additions, exterior alterations, or related new construction shall not destroy historic materials that characterize the property. The new work shall be differentiated from the old and shall be compatible with the massing, size, scale, and architectural features to protect the historic integrity of the property and its environment.
10. New additions and adjacent or related new construction shall be undertaken in such a manner that if removed in the future, the essential form and integrity of the historic property and its environment would be unimpaired.

STAFF DISCUSSION

The Darby House at 19811 Darnestown Road (subject house) and the adjacent Darby Store at 19801 Darnestown Road are located within the Darby Historical/Cultural Park which comprises 25.5 acres. M-NCPPC purchased the land in 2004 for its cultural resources and open space. Montgomery Parks plans to return the home—which is absent any heating systems—to a habitable condition and place it for rent. H.C. Darby built the Darby House in 1921. The two-story, wood-frame, Queen Anne-inspired house is sheathed in clapboard siding. The walls support a hipped roof with gable projections on each elevation. The house features a one-story wraparound porch supported by classical columns.

Staff finds the installation of the two condenser units (heat pumps) in the northwest (rear) corner of the house to be consistent with the applicable guidelines and recommends approval. The air condenser units would be approximately 29”(w) x 29”(l) x 25”(h). There would be minimal visibility of the units from the public rights-of-way due to their location in the rear of the house and existing foliage. In addition, visitors to the Darby Store would not see the units as they are located on the west elevation (facing away from the store). Lastly, the addition of heating systems will improve the long-term viability of the property and remedy unsafe conditions.



Figure 2: Aerial view of the rear of the Darby House (with Darby Store to the left). The red arrow points to the proposed location for the condenser units (heat pumps).

Staff finds the installation of hooded wall vents to be consistent with the applicable guidelines and recommends approval with conditions. On the east elevation of the basement, the applicant proposes to install an aluminum air inlet wall cap (14"x14"x 6.5") for a 10" round duct. On the west elevation of the first floor, the applicant proposes to install an aluminum exhaust air hood wall cap (6.5"x6.5"x2.75") for a 4" round duct and a black powder coated steel wall cap (9"x9"x5.5") for a 6" round duct. On the west elevation of the second floor, the applicant proposes to install an aluminum air inlet wall cap (14"x14"x 6.5") for a 10" round duct and two aluminum exhaust air hood wall caps (6.5"x6.5"x2.75") for a 4" round duct. On the east elevation of the second story, the applicant proposes to install an aluminum exhaust air hood wall caps (6.5"x6.5"x2.75") for a 4" round duct. Staff recommends that the applicant provide all specification sheets for the vents (in addition to the model number listed on the drawings) and confirm that the vents are part of this proposal as they are absent from the narrative.

After full and fair consideration of the applicant's submission, staff finds the proposal, as modified by the conditions, consistent with the Criteria for Issuance in Chapter 24A-8(b), (1), (2), (3), (4), and (5), having found the proposal is consistent with the *Secretary of the Interior's Standards for Rehabilitation* #2, #9, and #10 outlined above.

STAFF RECOMMENDATION

Staff recommends that the Historic Preservation Commission (HPC) **approve with one (1) condition** the HAWP application with final approval of all details delegated to staff:

1. Applicant shall submit all specification sheets for the vent models noted in the floor plans and verify that the vents are part of this HAWP.

under the Criteria for Issuance in Chapter 24A-8(b), (1), (2), (3), (4), and (5), having found that the proposal will not substantially alter the exterior features of the historic resource and is compatible in character with the district and the purposes of Chapter 24A;

and with the *Secretary of the Interior's Standards for Rehabilitation* #2, #9, and #10;

and with the general condition that the applicant shall present an electronic set of drawings, if applicable, to Historic Preservation Commission (HPC) staff for review and stamping prior to submission for the Montgomery County Department of Permitting Services (DPS) building permits;

and with the general condition that final project design details, not specifically delineated by the Commission, shall be approved by HPC staff or brought back to the Commission as a revised HAWP application at staff's discretion;

and with the general condition that the applicant shall notify the Historic Preservation Staff if they propose to make any alterations to the approved plans. Once the work is completed the applicant will contact the staff person assigned to this application at 301-563-3400 or john.liebertz@montgomeryplanning.org to schedule a follow-up site visit.



**APPLICATION FOR
HISTORIC AREA WORK PERMIT**
HISTORIC PRESERVATION COMMISSION
301.563.3400

FOR STAFF ONLY:
HAWP# 1025418
DATE ASSIGNED _____

APPLICANT:

Name: MNCPPC, Tim Crump
Address: 8301 Turkey Thicket Drive 2nd Floor
301-670-8172
Daytime Phone: _____

E-mail: timothy.crump@montgomeryparks.org
City: Gaithersburg Zip: 20879
Tax Account No.: _____

AGENT/CONTACT (If applicable):

Name: Atlantida Builders, Inc.
Address: 7628 Airpark Rd
Daytime Phone: _____

E-mail: dan@atlantidabuilders.com
City: Gaithersburg Zip: 20879
Contractor Registration No.: _____

LOCATION OF BUILDING/PREMISE: MIHP # of Historic Property _____

Is the Property Located within an Historic District? X Yes/District Name Beallsville
 No/Individual Site Name _____

Is there an Historic Preservation/Land Trust/Environmental Easement on the Property? If YES, include a map of the easement, and documentation from the Easement Holder supporting this application.

Are other Planning and/or Hearing Examiner Approvals /Reviews Required as part of this Application? (Conditional Use, Variance, Record Plat, etc.?) If YES, include information on these reviews as supplemental information.

Building Number: 19801 Street: Darnestown Road
Town/City: Beallsville Nearest Cross Street: _____

Lot: _____ Block: _____ Subdivision: _____ Parcel: _____

TYPE OF WORK PROPOSED: See the checklist on Page 4 to verify that all supporting items for proposed work are submitted with this application. Incomplete Applications will not be accepted for review. Check all that apply:

- | | | |
|---|--|---|
| <input type="checkbox"/> New Construction | <input type="checkbox"/> Deck/Porch | <input type="checkbox"/> Shed/Garage/Accessory Structure |
| <input type="checkbox"/> Addition | <input type="checkbox"/> Fence | <input type="checkbox"/> Solar |
| <input type="checkbox"/> Demolition | <input type="checkbox"/> Hardscape/Landscape | <input type="checkbox"/> Tree removal/planting |
| <input type="checkbox"/> Grading/Excavation | <input type="checkbox"/> Roof | <input type="checkbox"/> Window/Door |
| | | <input checked="" type="checkbox"/> Other: <u>HVAC installation</u> |

I hereby certify that I have the authority to make the foregoing application, that the application is correct and accurate and that the construction will comply with plans reviewed and approved by all necessary agencies and hereby acknowledge and accept this to be a condition for the issuance of this permit.

Signature of owner or authorized agent

Date

3/21/23

HAWP APPLICATION: MAILING ADDRESSES FOR NOTIFYING
[Owner, Owner's Agent, Adjacent and Confronting Property Owners]

Owner's mailing address
timothy.crump@montgomeryparks.org

Owner's Agent's mailing address
dan@atlantidabuilders.com

Adjacent and confronting Property Owners mailing addresses

19725 Darnestown Road
Beallsville, MD 20839

19801 Beallsville Road
Beallsville MD 20839

19800 Darnestown Road
Beallsville, MD 20839

19821 Darnestown Road
Beallsville, MD 20839

Description of Property: Please describe the building and surrounding environment. Include information on significant structures, landscape features, or other significant features of the property:

The Darby House, located at 19801 Darnestown Road, was built in 1921. The woodframe house has two stories with a full basement and unfinished attic, clapboard siding, a onestory front and side porch, and a rear porch. The house has a gross floor area of 3,000 square feet (per SDAT).

M-NCPPC owns the home and adjacent Darby Store. The home is being returned to a habitable state so the property may be rented.

Description of Work Proposed: Please give an overview of the work to be undertaken:

Two air conditioning units will be installed at the rear of the property.

Work Item 1: Install HVAC

Description of Current Condition:
No current heating system

Proposed Work:
Install 2 air conditioning units at the rear of the home

Work Item 2: _____

Description of Current Condition:

Proposed Work:

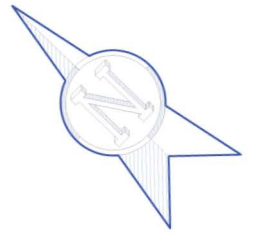
Work Item 3: _____

Description of Current Condition:

Proposed Work:

**HISTORIC AREA WORK PERMIT
CHECKLIST OF
APPLICATION REQUIREMENTS**

	Required Attachments						
Proposed Work	I. Written Description	2. Site Plan	3. Plans/Elevations	4. Material Specifications	5. Photographs	6. Tree Survey	7. Property Owner Addresses
New Construction	*	*	*	*	*	*	*
Additions/Alterations	*	*	*	*	*	*	*
Demolition	*	*	*		*		*
Deck/Porch	*	*	*	*	*	*	*
Fence/Wall	*	*	*	*	*	*	*
Driveway/Parking Area	*	*		*	*	*	*
Grading/Excavation/Landscaping	*	*		*	*	*	*
Tree Removal	*	*		*	*	*	*
Siding/ Roof Changes	*	*	*	*	*		*
Window/ Door Changes	*	*	*	*	*		*
Masonry Repair/ Repoint	*	*	*	*	*		*
Signs	*	*	*	*	*		*



STATE OF MARYLAND
 AZZAM JAWAD
 PROFESSIONAL ENGINEER
 54767
 3/21/23

I certify that these documents were prepared or approved by me, and that I am a duly licensed Engineer under the laws of the state of Maryland, license number 54767, expiration date 8/8/2023.

19811 Darnestown Rd
 Beallsville, MD 20839
 Scale: 1"=30'

Parcel No. (APN) 11-00914917

MECHANICAL LEGEND	
SYMBOL	DESCRIPTION
	DUCT WIDTH x DEPTH CLEAR INSIDE DIMENSION
	SUPPLY AIR DUCT SECTION UP - DOWN
	RETURN OR EXHAUST AIR DUCT SECTION UP - DOWN
	ROUND SUPPLY AIR DUCT SECTION UP - DOWN
	ROUND RETURN AIR DUCT SECTION UP - DOWN
	V.D. MANUAL VOLUME DAMPER
	SQUARE ELBOW W/TURNING VANES
	DROP IN DUCT (DIRECTION OF FLOW)
	RISE IN DUCT (DIRECTION OF FLOW)
	TAKE-OFF DAMPER/EXTRACTOR
	NEW CONSTRUCTION
	GAS PIPE
	CONDENSATE DRAIN PIPE
	REFRIGERANT PIPE
	REDUCER
	UNION
	PIPE DOWN
	PIPE UP
	GAS PRESSURE REDUCING VALVE
	ISOLATION VALVE
EXH	EXHAUST AIR
GR.	GRILLE
PRV	PRESSURE REDUCING VALVE
EF	EXHAUST FAN
V.D.	VOLUME DAMPER
V.I.F.	VERIFY IN FIELD
W.C.	WATER COLUMN
	THERMOSTAT
A.F.F.	ABOVE FINISHED FLOOR
B.O.D.	BOTTOM OF DUCT
BTUH	BRITISH THERMAL UNITS PER HOUR
CD	CONDENSATE DRAIN
C.O.	CLEAN OUT
CFH	CUBIC FEET PER HOUR
CFM	CUBIC FEET PER MINUTE
CLG.	COOLING
EL.	ELEVATION
FPM	FEET PER MINUTE
HP	HORSEPOWER
HTG.	HEATING
KW	KILOWATT
N.R.	NOT REQUIRED
N.T.S.	NOT TO SCALE
O.A.	OUTSIDE AIR
PSI	POUNDS PER SQUARE INCH
SQ. FT.	SQUARE FEET
AHU	AIR HANDLING UNIT
CEF	CEILING EXHAUST FAN

GENERAL NOTES

- ALL WORK PERFORMED SHALL CONFORM WITH LOCAL CITY & STATE REGULATIONS. ALL WORK SHALL BE CONDUCTED, INSTALLED AND COMPLETED IN A WORKMANLIKE AND APPROVED MANNER SO AS TO SECURE THE RESULTS INTENDED BY THESE DOCUMENTS
- ALL WORK IS TO BE FULLY COORDINATED WITH ALL OTHER TRADES.
- CONTRACTOR IS RESPONSIBLE FOR IDENTIFYING AND INCLUDING ANY ITEMS NOT INDICATED ON THE DRAWINGS BUT NECESSARY FOR PROPER OPERATION OF MECHANICAL SYSTEM.
- THE SEQUENCE FOR THE INSTALLATION OF ALL WORK SHALL BE COORDINATED BETWEEN ALL CONTRACTORS ON THE PROJECT & IN STRICT ACCORDANCE WITH ARCHITECT/ENGINEER & OWNER'S STIPULATION.
- THE CONTRACTOR SHALL COORDINATE ALL WORK WITH OTHER TRADES & SHALL MAKE NECESSARY OFF-SETS & CHANGES IN ELEVATIONS TO ACCOMMODATE OTHER TRADES & THE EXISTING CONDITIONS.
- WHERE THERE IS EVIDENCE THAT WORK OF ONE TRADE WILL INTERFERE WITH WORK OF OTHER TRADES, ALL TRADES SHALL MEET ON JOB SITE TO WORK OUT SPACE CONDITIONS & MAKE SATISFACTORY ADJUSTMENTS TO INSTALLATION OF THE NEW WORK. CONTRACTORS SHALL VERIFY EXACT LOCATIONS OF ALL DEVICES & EQUIPMENT WITH FIELD CONDITIONS, SHOP DRAWINGS, & WORK OF OTHER TRADES PRIOR TO ROUGH IN. EACH CONTRACTOR SHALL BE RESPONSIBLE, AT THEIR OWN EXPENSE, FOR THE REMOVAL & REINSTALLATION OF ANY PART OF THEIR WORK IF SAME WAS INSTALLED WITHOUT CONSULTING WITH OTHER TRADES BEFORE INSTALLING THEIR WORK.
- ALL EQUIPMENT AND MATERIALS SHALL BE U.L. LISTED.
- CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND FEES REQUIRED FOR THEIR WORK.
- CONTRACTOR SHALL REFER TO THE ARCHITECTURAL & STRUCTURAL CONTRACT DRAWINGS (BEFORE SUBMITTING THEIR BIDS) TO FAMILIARIZE THEMSELVES WITH THE EXTENT OF THE GENERAL CONTRACTORS WORK, CEILING HEIGHTS AND CLEARANCE FOR INSTALLING THEIR WORK
- INCLUDE ALL OVERTIME NECESSARY TO MAINTAIN JOB SCHEDULE UNDER NORMAL CONDITIONS OR DUE TO THIS CONTRACTOR'S NEGLIGENCE OR INABILITY TO PROPERLY STAFF THE PROJECT.
- CONTRACTORS MUST KEEP UP WITH THE PROGRESS OF THE JOB.
- ALL MAJOR PIECES OF MECHANICAL EQUIPMENT SHALL BE STARTED AND ADJUSTED AND PUT INTO OPERATION BY A FACTORY REPRESENTATIVE. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTALLATION INSTRUCTIONS.
- PRIOR TO BID, IF THE CONTRACTOR FINDS ANY DISCREPANCIES OR OMISSIONS IN THE PROJECT DOCUMENTS, THE CONTRACTOR IS TO NOTIFY THE ENGINEER IN WRITING & OBTAIN CLARIFICATION. ADDITIONAL COMPENSATION WILL NOT BE GRANTED AFTER AWARD OF CONTRACT FOR ANY ADDITIONAL WORK REQUIRED TO COMPLY WITH THESE DOCUMENTS.
- ALL CHANGE PROPOSAL REQUESTS FOR WORK ADDITIONAL TO THE BASE BID CONTRACT SHALL BE BASED ON MATERIAL, LABOR, OVERHEAD AND PROFIT AS PUBLISHED IN THE LATEST EDITION OF "MEANS MECHANICAL, ELECTRICAL, PLUMBING AND BUILDING CONSTRUCTION COST DATA." ALL CHANGE REQUESTS MUST BE BROKEN DOWN IN THE FOLLOWING MANNER.
 - MATERIAL COST: (IE. EQUIPMENT, SHEET METAL PER POUND AND PIPING PER LINEAL FOOT/FITTING)
 - LABOR COST: (NUMBER OF HOURS AT CURRENT LABOR RATE PER HOUR)
 - OVERHEAD & PROFIT: (INDICATING PERCENTAGES)
 - TOTAL CHANGE ORDER PRICE: (MATERIAL + LABOR + O&P)
 - PRICING FOR ALL ITEMS OF WORK WHICH ARE TO BE CREDITED TO THE PROJECT SHALL BE BROKEN DOWN IN A SIMILAR MANNER TO THE ADDED COSTS.
- THE ASSOCIATED COST FOR DRAFTING CHANGES (INCLUDING THREE DIMENSIONAL MODELING) SHALL NOT EXCEED 10% OF THE COST OF MATERIAL AND LABOR FOR THE CHANGE
- ALL CUTTING AND PATCHING THAT IS REQUIRED TO COMPLETE THE WORK SHALL BE THE RESPONSIBILITY OF THE INSTALLING CONTRACTOR.
- THE CONTRACTOR IS TO PROVIDE ALL LINTELS, SUPPORT STEEL AND FRAMING THAT IS REQUIRED TO COMPLETE THE WORK.
- CONTRACTOR SHALL PROVIDE SLEEVES IN BEAMS, FLOORS, AND COLUMNS AND WALLS AS SHOWN ON DRAWINGS, AS REQUIRED BY JOB SITE CONDITIONS, AND/OR SPECIFIED, WHEN INSTALLING THEIR WORK. ALL BEAMS AND COLUMNS WHICH ARE REQUIRED TO BE SLEEVED SHALL BE CUT AND REINFORCED AS REQUIRED BY FIELD CONDITIONS AND LOCATIONS AND SIZES SHALL BE CHECKED AND APPROVED BY ARCHITECTS BEFORE CONTRACTOR CUTS ANY STRUCTURAL BUILDING MEMBER.
- PROVIDE ALL COORDINATION AND MISCELLANEOUS IRON NECESSARY FOR SUITABLE ANCHORAGE OF HVAC ITEMS AND EQUIPMENT.
- CONTRACTOR IS TO INCLUDE ALL REQUIRED PREMIUM TIME IN BASE BID.
- INCLUDE ALL ESCALATION COSTS REQUIRED TO COMPLETE THE WORK.
- PROVIDE FOR SAFETY AND PROTECTION OF CONTRACTOR'S OWN WORK, INCLUDING THE COVERING OF ANY HOLES, SHAFT OPENINGS, ETC., SO AS TO AVOID ANY UNNECESSARY SAFETY HAZARDS AS REQUIRED AND OUTLINED BY OSHA AND ALL APPLICABLE REGULATIONS.
- PROVIDE DUST AND NOISE PROTECTION OF ADJOINING NON-CONSTRUCTION AREAS. PROPERLY PROTECT ALL FLOORS, ROOFS AND THE LIKE.
- MECHANICAL EQUIPMENT & APPLIANCES SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS FOR THE LABELED EQUIPMENT. CONNECTIONS TO THE MECHANICAL EQUIPMENT AND APPLIANCES, SUCH AS FUEL SUPPLY, CHIMNEY & DUCTS, SHALL CONFORM TO THE REQUIREMENTS OF THESE DOCUMENTS. MANUFACTURER'S INSTALLATION INSTRUCTIONS SHALL BE AVAILABLE ON THE JOBSITE AT ALL TIMES FOR INSPECTION.
- THE DRAWINGS, SCHEDULES, & SPECIFICATIONS HAVE BEEN PREPARED USING ONE MANUFACTURER FOR EACH TYPES OF EQUIPMENT AS THE BASIS FOR DIMENSIONAL & MECHANICAL DESIGN. SUBSTITUTIONS FOR PRODUCTS WILL ONLY BE CONSIDERED IF SUBMITTED 10 DAYS PRIOR TO BID DATE & ONLY FOR PRODUCTS EQUAL OR BETTER THAN THAT SPECIFIED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CHECKING ALL THE DIMENSIONS OF THE EQUIPMENT TO VERIFY THAT IT WILL FIT IN THE SPACE SHOWN ON THE DRAWINGS. MINOR DEVIATIONS IN DIMENSIONS WILL BE PERMITTED; PROVIDED THE RATINGS MEET THOSE SHOWN ON THE DRAWINGS AND EQUIPMENT WILL PHYSICALLY FIT INTO THE SPACE ALLOCATED WITH SUITABLE ACCESS AROUND EQUIPMENT FOR OPERATION & MAINTENANCE ON THE EQUIPMENT.
- THE MECHANICAL EQUIPMENT HAS BEEN COORDINATED WITH THE ELECTRICAL DESIGN DRAWINGS BASED ON THE ELECTRICAL CHARACTERISTICS OF THE EQUIPMENT SPECIFIED. ALL CHANGES AND/OR MODIFICATIONS TO THE ELECTRICAL DESIGN AND INSTALLATION EXPENSE, DUE TO SUBSTITUTIONS OF EQUIPMENT (I.E. AMPERAGE INCREASE) WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR.
- CONTRACTOR SHALL SUBMIT DETAILED DIMENSIONED SHOP DRAWINGS FOR ALL WORK WHICH MUST BE REVIEWED, COORDINATED & SIGNED OFF BY ALL OTHER TRADES BEFORE SUBMITTAL. IN PREPARATION OF SHOP DRAWINGS, CONTRACTOR MAY, AT HIS OPTION, OBTAIN ELECTRONIC DRAWING FILES IN AUTOCAD FORMAT ON A CD-ROM DISK FROM THE ENGINEER FOR SHIPPING & HANDLING FEE OF \$150.00 PER REQUEST. CONTRACTOR SHALL CONTACT THE ARCHITECT & ENGINEER FOR WRITTEN AUTHORIZATION & NECESSARY RELEASE AUTHORIZATION FORM & TO SPECIFY SHIPPING METHOD. IN ADDITION TO PAYMENT, ARCHITECTS WRITTEN AUTHORIZATION & ENGINEERS RELEASE AGREEMENT FORM MUST BE RECEIVED BEFORE ELECTRONIC DRAWING FILES WILL BE SENT.
- CONTRACTOR AND/OR MANUFACTURER SHALL VERIFY THAT THE CHARACTERISTICS OF THE EQUIPMENT HE SUBMITS FOR REVIEW MEETS THE CAPACITY AND DUTY SPECIFIED.
- WHEN EQUIPMENT IS SUBMITTED FOR REVIEW AND DOES NOT MEET THE PHYSICAL SIZE OR ARRANGEMENT OF THAT SCHEDULED & SPECIFIED, CONTRACTOR SHALL PAY FOR ALL ALTERATIONS REQUIRED TO ACCOMMODATE SUCH EQUIPMENT AT NO ADDITIONAL COST TO OWNER. CONTRACTOR WILL ALSO PAY ALL COSTS FOR ADDITIONAL WORK REQUIRED BY OTHER CONTRACTORS, OWNER, ARCHITECT, OR ENGINEER TO MAKE CHANGE WHICH WOULD ALLOW THE EQUIPMENT TO FIT IN THE SPACE & FUNCTION AS INTENDED.

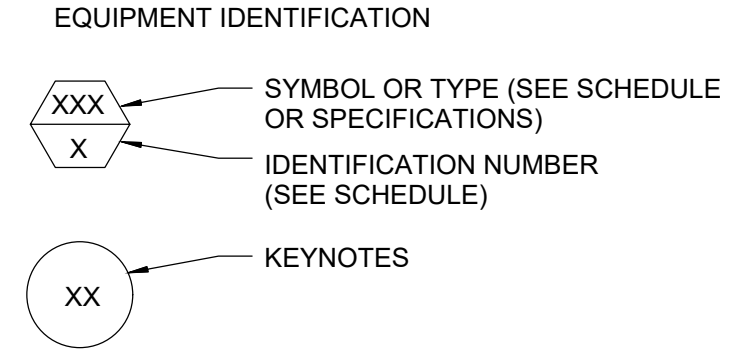
HVAC NOTES:

- ALL EQUIPMENT, DUCTWORK, PIPEWORK, ETC SHALL BE SUPPORTED.
- ALL DUCT SIZES SHOWN ARE INSIDE CLEAR DIMENSIONS.
- ALL DUCTWORK AND PIPING IS SHOWN SCHEMATICALLY. PROVIDE ALL TRANSITIONS, TURNING VANES, ELBOWS, FITTINGS, ETC. TO ALLOW SMOOTH FLOWS. ALL SPLIT DUCT FITTINGS SHALL TRANSITION TO FULL SIZE OF THE SUM OF BOTH BRANCHES UPSTREAM OF SPLIT.
- MAINTAIN A MINIMUM 6" CLEARANCE BETWEEN DUCTWORK, PIPING, EQUIPMENT, ETC. AND ALL FIRE RATED AND FIRE/SMOKE RATED PARTITIONS, TO ALLOW FOR INSPECTION OF RATED WALLS.
- SLEEVE AND SEAL ALL PIPING PENETRATIONS THROUGH BUILDING PARTITIONS.
- VERIFY AND COORDINATE ALL ROOF, WALL, AND FLOOR PENETRATIONS WITH THE STRUCTURAL AND ARCHITECTURAL DRAWINGS PRIOR TO THE START OF CONSTRUCTION.
- PROVIDE ACCESS PANELS TO ALL CONCEALED VALVES, DAMPERS, AND EQUIPMENT. COORDINATE THE LOCATION OF ACCESS PANELS TO INSURE THAT THE EQUIPMENT CAN BE MAINTAINED ADEQUATELY.
- INSTALL CONDENSATE DRAINS AT A MINIMUM SLOPE OF 1/4" PER FOOT. INDIVIDUAL UNIT CONDENSATE DRAINS SHALL BE 3/4" DIAMETER LINES AND 1" FOR COMBINED LINES UNLESS OTHERWISE INDICATED.
- THE CONTRACTOR SHALL PROVIDE ALL CONTROL COMPONENTS AND ACCESSORIES INCLUDING EQUIPMENT MOTOR STARTERS, THERMOSTATS, SENSORS, WIRING, BOXES, ETC.
- INSULATE ALL SEWER PIPING RECEIVING AIR CONDITIONING CONDENSATE DRAINS, OR ANY OTHER COLD LIQUID WHICH MAY CREATE CONDENSATION, FROM POINT OF CONNECTION TO TOP OF CONCRETE SLAB-ON-GRADE.
- MOUNT ALL ROOM THERMOSTATS AT 4'-0" ABOVE FINISHED FLOOR UNLESS OTHERWISE INDICATED.
- ALL HVAC SYSTEM THERMOSTATS IN UNITS SHALL BE EQUIPPED WITH ENERGY STAR SEVEN DAY PROGRAMMABLE THERMOSTATS WITH NIGHT SETBACK.
- PRIOR TO PERMIT BEING FINAL, A COMPLETE REPORT OF THE TESTING AND ADJUSTING SHALL BE PROVIDED TO THE OWNER/OWNER'S REPRESENTATIVE AND TO THE INSPECTOR.
- CONDENSER, EVAPORATOR COIL TO MEET CA.24 REQUIREMENTS.
- INSULATION INSPECTION AND APPROVAL SHALL BE DONE BY APPROVED HERS TESTED(AS REQUIRED).THE INSPECTION SHALL COINCIDE WITH INSULATION INSTALLATION COMPLETION, AND PRIOR TO DRY WALL INSTALLATION(AS REQUIRED BY TITLE 24 ENERGY CALCULATIONS)
- ALL HVAC EQUIPMENT SHALL BE APPROVED PRIOR TO INSTALLATION BY NATIONALLY RECOGNIZED STANDARD AND EVIDENCED BY THE LISTING AND LABEL OF AN APPROVED AGENECY(CMC 2019)
- AIR CONDITIONING EQUIPMENT SHALL NOT BE LOCATED IN SETBACK AREA.
- HEATING AND AIR CONDITIONING SYSTEM DESIGN SHALL BE SIZED, DESIGNED AND HAVE THEIR EQUIPMENT SELECTED USING THE FOLLOWING METHOD(CGBC 2019).
 - HEATING LOSS AND HEAT GAIN IS ESTABLISHED ACCORDING TO ACCA MANUAL 3, ASHRAE HANDBOOK OR OTHER EQUIVALENT DESIGN SOFTWARE OR METHOD.
 - DUCT SYSTEM ARE SIZE ACCORDING TO ACCA 29-D MANUAL D,ASHRAE HANDBOOK OR OTHER EQUIVALENT METHOD.
 - SELECT HEATING AND COOLING EQUIPMENT ACCORDING TO ACCA 36-S MANUAL S OR EQUIVALENT DESIGN SOFTWARE OR METHOD.
- EQUIPMENT INSTALLED OUTSIDE THE BUILDING SHALL BE LISTED FOR OUTDOOR INSTALLATION OR BE APPROVED WEATHER PROOF ENCLOSURE PER CMC 2019.
- COORDINATE LOCATION OF THE CONDENSATE DRAIN WITH PLUMBING CONTRACTOR. PIPE PRIMARY CONDENSATE TO AN APPROVED RECEPTACLE.
- THE PAD SUPPORTING THE CONDENSER OR COMPRESSOR FROM GROUND SHALL BE NOT LESS THAN 3" ABOVE GRADE CMC 2019.
- AIR CONDITIONING EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTION UNLESS THE EQUIPMENT IS LISTED FOR INSTALLATION ON A COMBUSTIBLE SURFACE SUCH AS A FLOOR OR ROOF OR UNLESS THE SURFACE IS PROTECTED IN APPROVED MANNER,IT SHALL BE INSTALLED ON A SURFACE OF NONCOMBUSTIBLE CONSTRUCTION WITH NO COMBUSTIBLE MATERIAL AGAINST THE UNDERSIDE THEROF(CMC 2019).
- PROVIDE REFRIGERANT SERVICE PORT WITH REQUIRE LOCKING TYPE,TAMPER PROOF REFRIGERANT CAP(CMC 2019).
- CONDENSATE FROM AIR WASHER,AIR COOLING COIL,OR SIMILAR AIR-CONDITIONING EQUIPMENT SHALL BE COLLECTED AND DISCHARGED TO AN APPROVED PLUMBING FIXTURE OR DISPOSAL AREA. (CPC 2019).
- PROVIDE SMOOTH METAL DUCT FOR DRYER EXHAUST NOT LESS THAN 4" AND SHALL TERMINATE OUTSIDE THE BUILDING PER CMC 2019.
- DUCT USED FOR KITCHEN RANGE VENTILATION SHALL BE METAL AND SHALL HAVE SMOOTH INTERIOR SURFACE. (CMC 2019)
- DUCT PENETRATION IN THE GARAGE AND DUCT PENETRATING THE WALLS OR CEILINGS SEPARATING THE DWELLING ROOM FROM THE GARAGE SHALL BE CONSTRUCTED OF A MINIMUM NO.26 GAUGE SHEET STEEL OR OTHER APPROVED MATERIAL SHALL HAVE NO OPENINGS INTO THE GARAGE.
- FASTENERS SHALL BE UL 181 APPROVED AND BE INSTALLED WITHOUT 24 ENERGY CALCULATIONS.USE MINIMUM 2" WIDE HANGER MATERIAL.(602.4).
- DUCT LINER SHALL BE FASTENED WITH BOTH APPROVED ADHESIVE AND MECHANICAL FASTENERS.EXPOSED EDGES SHALL BE TREATED AS NOT TO CAUSE DETERIORATION OF THE LINER(605.4).
- EXTERNAL DUCT INSULATION SHALL BE LABELED WITH MANUFACTURER' NAME, THE R VALUE, THE FLAME SPREAD INDEX AND THE SMOKE DEVELOPMENT INDEX(604.4)
- DUCTWORK SHALL BE CONSTRUCTED IN ACCORDANCE WITH CHAPTER 6 OF THE CMC OR APPLICABLE SMACNA STANDARDS.
- DUCT JOINTS SHALL BE SEALED WITH MATERIAL TO MEET TITLE 24 REQUIREMENTS AND CURRENT BUILDING CODES.
- THERMOSTATS WILL COMPLY WITH CAL.TITLE 24 REGULATIONS.
- THERMOSTAT AND WIRING WHICH WILL CONTROL BOTH HEATING AND AIR CONDITIONING EQUIPMENTS.EACH HVAC SYSTEM SHALL BE APPROVED WITH AT LEAST ONE AUTOMATIC TEMPERATURE CONTROL DEVICE FOR REGULATION OF TEMPERATURE AS REQUIRED IN SECTION T-1509(C) OF THE CALIFORNIA ADMINISTRATIVE CODE.
- ALL THERMOSTAT SHALL BE ELECTRONIC PROGRAMMABLE TYPE 7 DAY,INSTALL LOW VOLTAGE WIRING AS REQUIRED
- MECHANICAL EXHAUST FANS WHICH EXHAUST DIRECTLY FROM BATHROOMS SHALL BE ENERGY STAR DUCTED TO TERMINATE OUTSIDE THE BUILDING AND UNLESS FUNCTIONING AS A COMPONENT OF A WHOLE HOUSE VENTILATION SYSTEM BE CONTROLLED BE A READILY ACCESSIBLE HUMIDISTAT SHALL MAINTAIN HUMIDITY BETWEEN 50-80% RH(CGBC 2019).

- A VENTILATION FAN SHALL BE FURNISHED PER TITLE 24 ENERGY CODE TO RUN CONTINUOUS.THE CAPACITY OF THE FAN SHALL BE CALCULATED PER TITLE 24.A SIGN SHOULD STATE THAT THE FAN SHOULD RUN CONTINUOUSLY FOR PROPER RESIDENCE VENTILATION.
- NOT MORE THAN ONE APPLIANCE SHALL BE CONNECTED TO SINGLE VENT UNLESS CALCULATION SHOWING CONFORMANCE TO CMC 2019 CHAPTER & SUBMITTED TO BUILDING AND SAFETY DEPARTMENT.
- PROVIDE MIN 30" CLEARANCE ABOVE THE RANGE OR COOK TOP TO UNPROTECTED COMBUSTIBLE MATERIAL OR 24" CLEARANCE TO METAL VENTILATION HOOD(CMC 2019).

HVAC SHEET INDEX			
SR NO.	SHEET NO.	SHEET NAME	SCALE
1	M000	GENERAL NOTES AND SYMBOL	N.T.S.
2	M100	BASEMENT PLAN - HVAC	1/4"=1'-0"
3	M101	LEVEL 1 FLOOR PLAN - HVAC	1/4"=1'-0"
4	M102	LEVEL 2 FLOOR PLAN - HVAC	1/4"=1'-0"
7	M500	HVAC SCHEDULES	N.T.S.
8	M600	HVAC DETAILS	N.T.S.

REFERENCE CODES
1. BUILDING CODE 2018 OF MARYLAND
2. RESIDENTIAL CODE 2018 OF MARYLAND
3. PLUMBING CODE 2018 OF MARYLAND
3. MECHANICAL CODE 2018 OF MARYLAND
3. ENERGY CONSERVATION CODE 2018 OF MARYLAND



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SHEET TITLE

MECHANICAL COVERSHEET

SHEET NO.

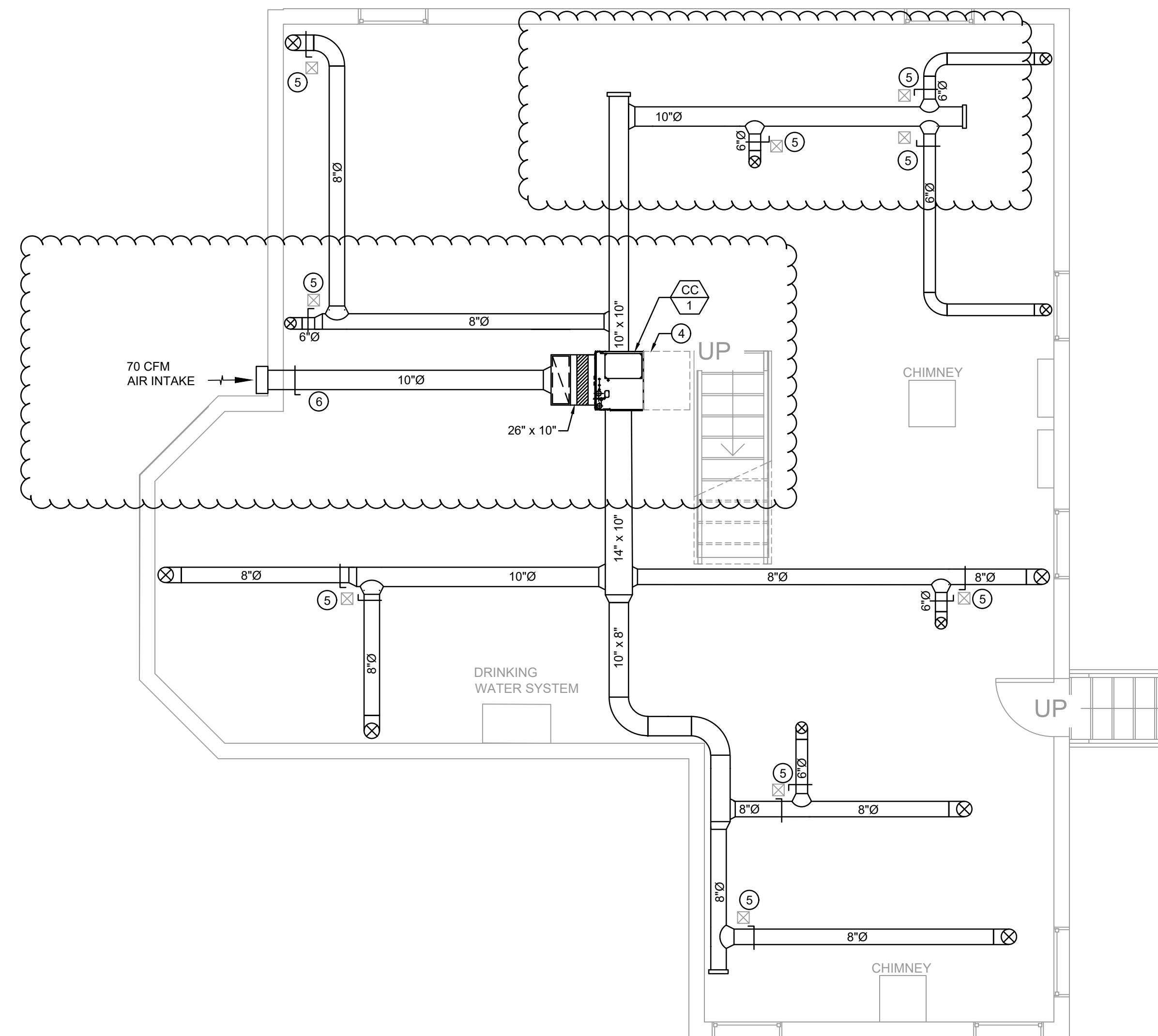
M000

HVAC GENERAL NOTES

1. ALL DUCTWORK SHALL CONFORM TO SMACNA STANDARDS. ALL DUCTWORK SIZES ARE NET INSIDE DIMENSIONS.
2. MECHANICAL CONTRACTOR TO COORDINATE DUCT LAYOUT AND DIMENSIONS WITH FIELD VERIFIED.
3. ADJUST CEILING DIFFUSER TO FIT AS PER FIELD VERIFIED.
4. DIFFUSER TO BE INSTALLED WITH SYMMETRY IN ACCORDANCE WITH LIGHTING LAYOUT DESIGN. DIFFUSER SHALL NOT BE OFF CENTER OR ALIGNMENT.
5. COORDINATE WITH GENERAL CONTRACTOR FOR ALL CONDENSATE DRAIN LINE LOCATION.
6. DUCT WORK SHALL BE INSULATED WITH R-8 FIBERGLASS DUCT WRAP WITH FSK JACKET.

KEYNOTES:

- ① 4"Ø EXHAUST AIR DUCT THROUGH WALL HOOD WITH BUILT IN BACK DRAFT DAMPER & BIRD SCREEN. (MANUFACTURER #BROAN, MODEL NO.885AL OR EQUIVALENT).
- ② 6"Ø EXHAUST AIR DUCT THROUGH WALL HOOD WITH BUILT IN BACK DRAFT DAMPER & BIRD SCREEN. (MANUFACTURER #BROAN, MODEL NO.843BL OR EQUIVALENT)
- ③ 1" UNDERCUT DOOR.
- ④ 24" SERVICE CLEARANCE FOR UNIT.
- ⑤ MANUAL AIR DAMPER WITH ACCESS PANEL.
- ⑥ 10"Ø OUTSIDE AIR DUCT THROUGH WALL HOOD WITH BIRD SCREEN. (MANUFACTURER #BROAN MODEL NO.610FA OR EQUIVALENT)
- ⑦ 4"Ø DRYER EXHAUST UP TO WALL.
- ⑧ 4"Ø DRYER EXHAUST AIR DUCT THROUGH WALL WITH GRAVITY HOOD(MANUFACTURER# DRYER WALL VENT.MODEL NO# DWV4W OR EQUIVALENT).
- ⑨ 6"Ø KITCHEN EXHAUST AIR DUCT THROUGH WALL HOOD WITH BUILT IN BACK DRAFT DAMPER & BIRD SCREEN. (MANUFACTURER# BROAN, MODEL NO# 843BL OR EQUIVALENT).
- ⑩ KITCHEN MICROWAVE COMBO VENT CONNECTION. REFER DETAIL.8 OF SHEET.M600.
- ⑪ SERVICE CLEARANCE FOR CONDENSING UNIT.



1 BASEMENT PLAN - HVAC
M100 SCALE: 1/4" = 1'-0"



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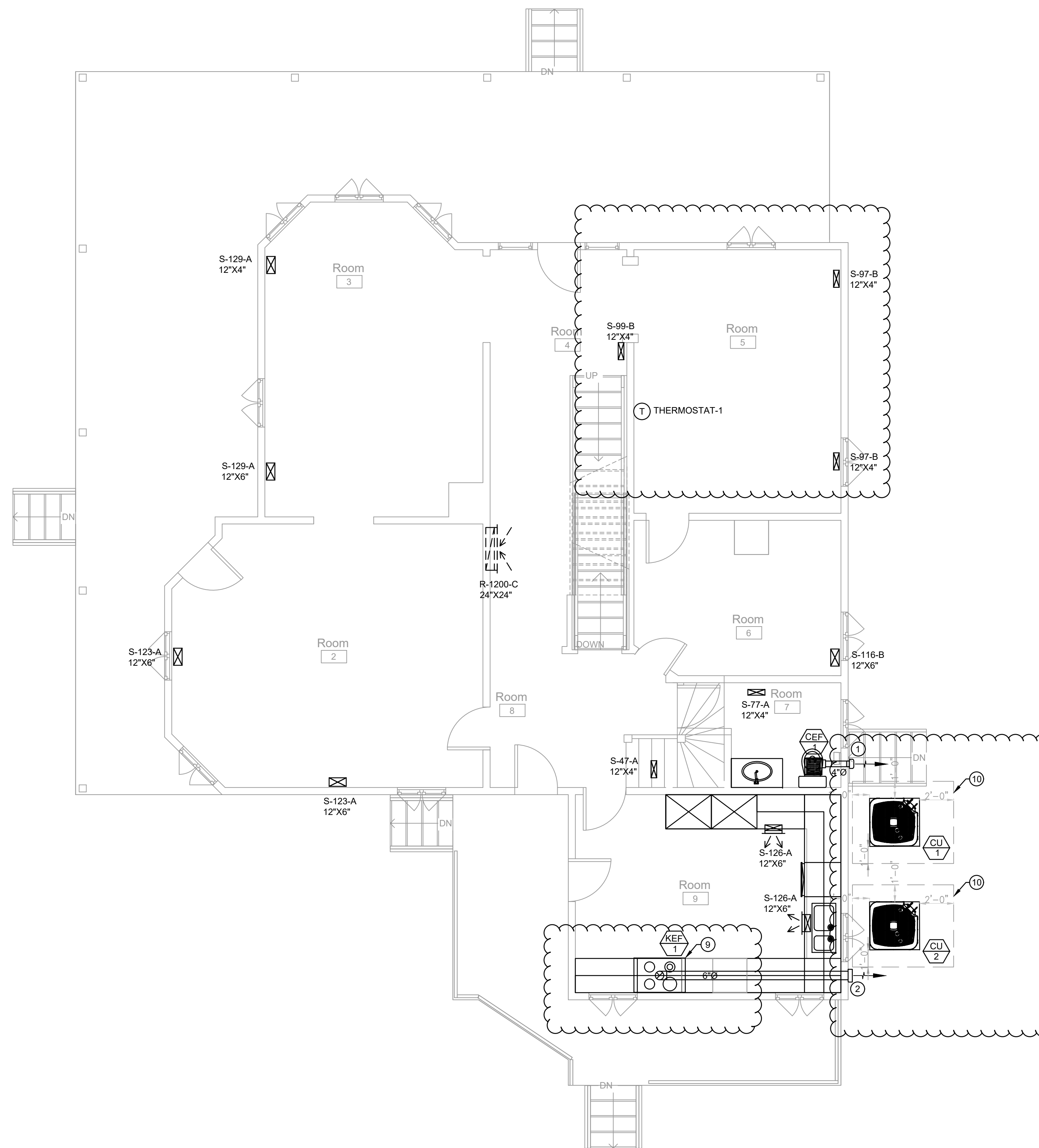
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SHEET TITLE

BASEMENT PLAN- HVAC

SHEET NO.

M100



HVAC GENERAL NOTES

1. ALL DUCTWORK SHALL CONFORM TO SMACNA STANDARDS. ALL DUCTWORK SIZES ARE NET INSIDE DIMENSIONS.
2. MECHANICAL CONTRACTOR TO COORDINATE DUCT LAYOUT AND DIMENSIONS WITH FIELD VERIFIED.
3. ADJUST CEILING DIFFUSER TO FIT AS PER FIELD VERIFIED.
4. DIFFUSER TO BE INSTALLED WITH SYMMETRY IN ACCORDANCE WITH LIGHTING LAYOUT DESIGN. DIFFUSER SHALL NOT BE OFF CENTER OR ALIGNMENT.
5. COORDINATE WITH GENERAL CONTRACTOR FOR ALL CONDENSATE DRAIN LINE LOCATION.
6. DUCT WORK SHALL BE INSULATED WITH R-8 FIBERGLASS DUCT WRAP WITH FSK JACKET.

KEYNOTES:

- ① 4"Ø EXHAUST AIR DUCT THROUGH WALL HOOD WITH BUILT IN BACK DRAFT DAMPER & BIRD SCREEN. (MANUFACTURER #BROAN, MODEL NO.885AL OR EQUIVALENT).
- ② 6"Ø EXHAUST AIR DUCT THROUGH WALL HOOD WITH BUILT IN BACK DRAFT DAMPER & BIRD SCREEN. (MANUFACTURER #BROAN, MODEL NO.843BL OR EQUIVALENT)
- ③ 1" UNDERCUT DOOR.
- ④ 24" SERVICE CLEARANCE FOR UNIT.
- ⑤ MANUAL AIR DAMPER WITH ACCESS PANEL.
- ⑥ 10"Ø OUTSIDE AIR DUCT THROUGH WALL HOOD WITH BIRD SCREEN. (MANUFACTURER #BROAN, MODEL NO.810FA OR EQUIVALENT)
- ⑦ 4"Ø DRYER DUCT EXHAUST UP TO WALL.
- ⑧ 4"Ø DRYER EXHAUST AIR DUCT THROUGH WALL WITH GRAVITY HOOD(MANUFACTURER# DRYER WALL VENT,MODEL NO# DWV4W OR EQUIVALENT).
- ⑨ 6"Ø KITCHEN EXHAUST AIR DUCT THROUGH WALL HOOD WITH BUILT IN BACK DRAFT DAMPER & BIRD SCREEN. (MANUFACTURER# BROAN, MODEL NO# 843BL OR EQUIVALENT).
- ⑩ SERVICE CLEARANCE FOR CONDENSING UNIT.



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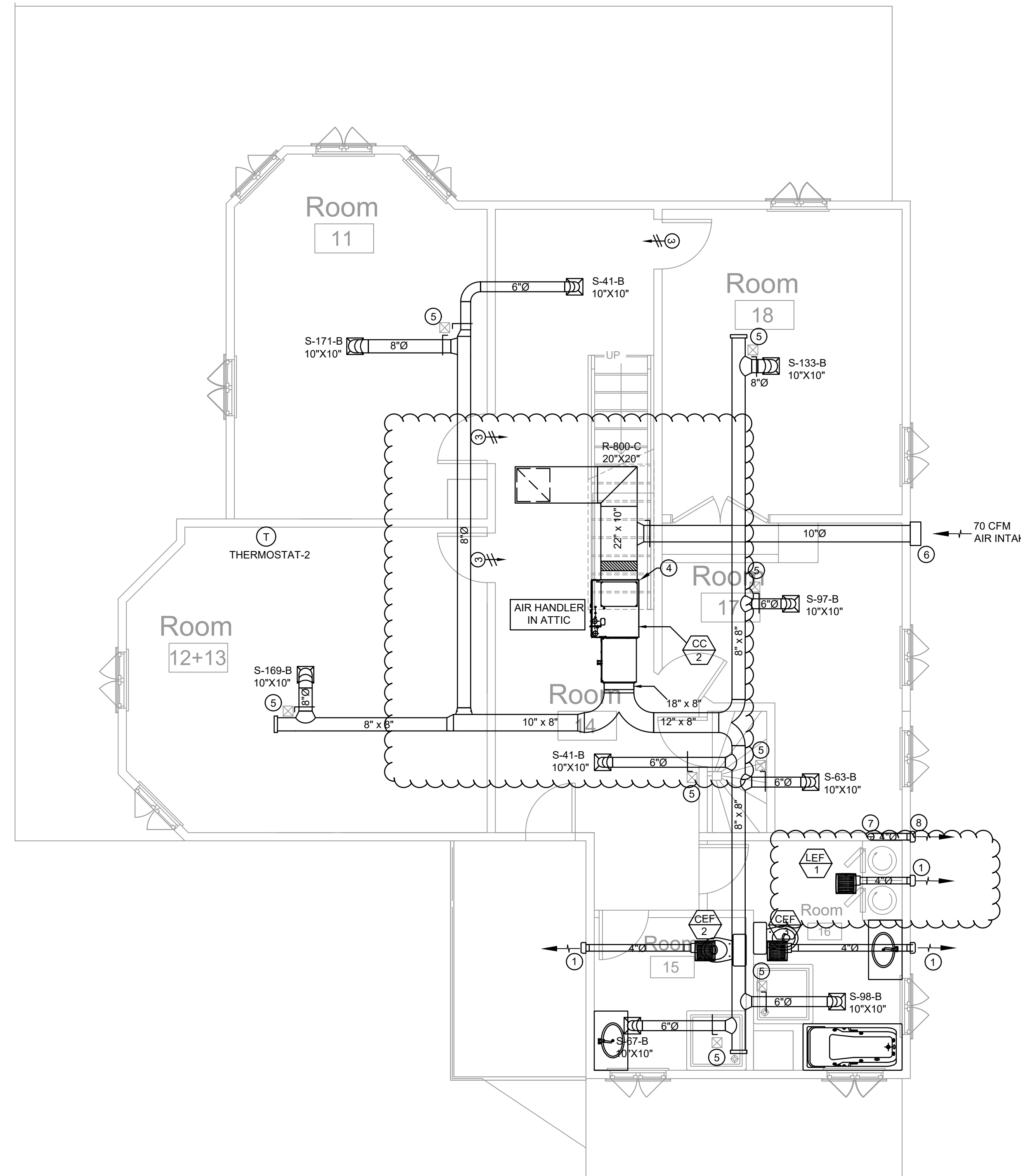
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SHEET TITLE

LEVEL 1 FLOOR PLAN- HVAC

SHEET NO.

M101



HVAC GENERAL NOTES

1. ALL DUCTWORK SHALL CONFORM TO SMACNA STANDARDS. ALL DUCTWORK SIZES ARE NET INSIDE DIMENSIONS.
2. MECHANICAL CONTRACTOR TO COORDINATE DUCT LAYOUT AND DIMENSIONS WITH FIELD VERIFIED.
3. ADJUST CEILING DIFFUSER TO FIT AS PER FIELD VERIFIED.
4. DIFFUSER TO BE INSTALLED WITH SYMMETRY IN ACCORDANCE WITH LIGHTING LAYOUT DESIGN. DIFFUSER SHALL NOT BE OFF CENTER OR ALIGNMENT.
5. COORDINATE WITH GENERAL CONTRACTOR FOR ALL CONDENSATE DRAIN LINE LOCATION.
6. DUCT WORK SHALL BE INSULATED WITH R-8 FIBERGLASS DUCT WRAP WITH FSK JACKET.

KEYNOTES:

- ① 4"Ø EXHAUST AIR DUCT THROUGH WALL HOOD WITH BUILT IN BACK DRAFT DAMPER & BIRD SCREEN. (MANUFACTURER #BROAN, MODEL NO:885AL OR EQUIVALENT).
- ② 6"Ø EXHAUST AIR DUCT THROUGH WALL HOOD WITH BUILT IN BACK DRAFT DAMPER & BIRD SCREEN. (MANUFACTURER #BROAN, MODEL NO:843BL OR EQUIVALENT)
- ③ 1" UNDERCUT DOOR.
- ④ 24" SERVICE CLEARANCE FOR UNIT.
- ⑤ MANUAL AIR DAMPER WITH ACCESS PANEL.
- ⑥ 10"Ø OUTSIDE AIR DUCT THROUGH WALL HOOD WITH BIRD SCREEN. (MANUFACTURER #BROAN MODEL NO:610FA OR EQUIVALENT)
- ⑦ 4"Ø DRYER DUCT EXHAUST UP TO WALL.
- ⑧ 4"Ø DRYER EXHAUST AIR DUCT THROUGH WALL WITH GRAVITY HOOD(MANUFACTURER# DRYER WALL VENT,MODEL NO# DWV4W OR EQUIVALENT).
- ⑨ 6"Ø KITCHEN EXHAUST AIR DUCT THROUGH WALL HOOD WITH BUILT IN BACK DRAFT DAMPER & BIRD SCREEN. (MANUFACTURER# BROAN, MODEL NO# 843BL OR EQUIVALENT).
- ⑩ KITCHEN MICROWAVE COMBO VENT CONNECTION. REFER DETAIL 8 OF SHEET:M600.
- ⑪ SERVICE CLEARANCE FOR CONDENSING UNIT.



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SHEET TITLE

LEVEL 2 FLOOR PLAN- HVAC

SHEET NO.




M102

OUTDOOR UNIT SCHEDULE																									
SYMBOL	LOCATION	QTY.	COOLING RATED CAPACITY (MBH)	ENTERING AIR DB (°F)	REFRIGERANT LINE		COMPRESSOR				OUTDOOR FAN			ELECTRIC				SHIPPING WEIGHT (LBS)	DIMENSION (IN INCH.)			SEER	MODEL	BASIS OF DESIGN	
					SUCTION (INCH.)	LIQUID (INCH.)	TYPE	STAGE	QTY.	RLA (AMPS)	FAN QTY.	MOTOR FLA	MCA	MOCp	V.	PH.	HZ.		WIDTH	LENGTH	HEIGHT				TYPE OF REFRIGERANT
CU-1	OUTSIDE BUILDING	1	34.6	92	3/4"	3/8"	ROTARY	INVERTER	1	19	1	2.5	26.3	45	208-230	1	60	180	29 1/8"	29 1/8"	24 15/16"	R-410A	20	BOVA-36HDN1-M20G	BOSCH
CU-2	OUTSIDE BUILDING	1	34.6	92	3/4"	3/8"	ROTARY	INVERTER	1	19	1	2.6	26.3	45	208-230	1	60	180	29 1/8"	29 1/8"	24 15/16"	R-410A	20	BOVA-36HDN1-M20G	BOSCH

- NOTES:
1. OUTDOOR UNITS SHALL BE MOUNTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.
2. INSTALL THE AIR CONDITIONER ON A STRONG ENOUGH TO WITHSTAND THE WEIGHT OF THE UNIT.
3. ELECTRICAL WORK MUST BE PERFORMED IN ACCORDANCE WITH RELEVANT LOCAL AND NATIONAL REGULATIONS AND WITH INSTRUCTIONS IN THIS INSTALLATION MANUAL.
4. DURING INSTALLATION, ATTACH THE REFRIGERANT PIPING SECURELY BEFORE RUNNING THE COMPRESSOR.
5. MAX. LENGTH OF REFRIGERANT LINES FROM OUTDOOR TO INDOOR UNIT MUST NOT EXCEED 60 FEET. THE VERTICAL CHANGES MUST NOT EXCEED 60 FEET.

COOLING COIL (INDOOR UNIT) SCHEDULE										
SYMBOL	QTY.	TOTAL COOLING CAPACITY (MBH)	DIMENSION (INCH.)			TYPE OF REFRIGERANT	SHIPPING WEIGHT (LBS)	MODEL	BASIS OF DESIGN	
			LENGTH	WIDTH	HEIGHT					
CC-1	1	34.6	21 5/8"	19 5/8"	46 1/2"	R-410A	132	BVA-36WN1-M20	BOSCH	
BACKUP ELECTRIC HEAT KIT - MODEL - EHK10B, RATING - 10KW										
CC-2	1	24	21 5/8"	19 5/8"	46 1/2"	R-410A	139	BVA-24WN1-M20	BOSCH	
BACKUP ELECTRIC HEAT KIT - MODEL - EHK10B, RATING - 10KW										

NOTES:
1. COOLING COIL SHALL BE MOUNTED IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.
2. REFRIGERANT PIPING SHALL RUN FROM INDOOR UNITS TO OUTDOOR UNIT AS PER MANUFACTURER'S INSTRUCTION AND BOTH REFRIGERANT PIPING SHALL BE INSULATED.

AIR DEVICE SCHEDULE											REFERENCE IMAGE
TYPE	USAGE	SERVING	NECK SIZE	NOMENCLATURE	U = USAGE (S = SUPPLY, R = RETURN, E = EXHAUST, T = TRANSFER)	EXAMPLE					
				U-CFM-T SIZE- B	CFM = AIR QUANTITY	S-150-A					
				PANEL/FACE SIZE	SIZE = NECK SIZE OF AIR DEVICE	8"Ø-4W					
					MATERIAL	DESCRIPTION	MANUFACTURER	MODEL NO.	REMARKS		
A	SUPPLY	REFER TO FLOOR PLAN	SEE PLAN	12"x4" 12"x6"	STEEL	ADJUSTABLE BLADE FOR 2WAY AIR FLOW PATTERN	SHOEMAKER	951 SERIES	1,2,3,4,5,6		
B	SUPPLY	REFER TO FLOOR PLAN	SEE PLAN	10" X 10"	ALUMINUM	4-WAY AIR DIFFUSER WITH OPPOSED BLADE DAMPER	SHOEMAKER	CB40	1,2,3,4,5,6		
C	RETURN	REFER TO FLOOR PLAN	SEE PLAN	24" X 24" 20" X 20"	STEEL	INSTALL WITH LOUVERS IN UP OR DOWN POSITION FOR BEST DUCT CONCEALMENT	SHOEMAKER	1050 SERIES	1,2,3,4		

NOTES:
1. CUSTOM FINISH & COLOR AS SELECTED BY ARCHITECT/OWNER.
2. PROVIDE OPPOSED BLADE DAMPER/MULTI SHUTTER DAMPER.
3. PROVIDE FOAM GASKET SEAL.
4. COORDINATE FRAME TYPE WITH REFLECTED CEILING PLAN & ARCHITECT.
5. INSULATED PLENUM/BACK PAN.
6. ARCHITECT/OWNER SHALL SELECT SUPPLY DIFFUSER BASE ON DRYWALL CEILING.

CEILING EXHAUST FAN SCHEDULE															
SYMBOL	TYPE	QTY.	LOCATION	FAN			PHYSICAL DATA						SOUND (Sones)	MODEL	BASIS OF DESIGN
				AIR FLOW (CFM)	E. S. P. (in. H2O)	ELECTRICAL			DIMENSION (in)			NET WEIGHT (lb)			
						VOLTAGE	Hz	AMPS	LENGTH	WIDTH	HEIGHT				
CEF- 1	CEILING MOUNTED	1	BATH RM 1	50	0.1	120	60	0.2	9 1/4	10	5 3/4	10	0.50	AE50	BROAN
CEF- 2	CEILING MOUNTED	1	BATH RM 2	50	0.1	120	60	0.2	9 1/4	10	5 3/4	10	0.50	AE50	BROAN
CEF- 3	CEILING MOUNTED	1	BATH RM 3	50	0.1	120	60	0.2	9 1/4	10	5 3/4	10	0.50	AE50	BROAN

- NOTE:
1. TO AVOID MOTOR BEARING DAMAGE AND NOISY OR UNBALANCED IMPELLERS, KEEP DRYWALL SPRAY, CONSTRUCTION DUST, ETC. OFF POWER UNIT.
2. IT SHALL BE DUCTED TO A ROOF OR WALL CAP USING ROUND DUCTWORK.
3. BLOWER ASSEMBLY SHALL BE REMOVABLE, HAVE A CENTRIFUGAL TYPE BLOWER WHEEL AND A PERMANENTLY LUBRICATED.
4. MOTOR DESIGNED FOR COUNTINUOUS OPERATION.
5. PROVIDE FIRE BLANKET AND RADIATION DAMPER.

LAUNDRY EXHAUST FAN SCHEDULE															
SYMBOL	TYPE	QTY.	LOCATION	FAN			PHYSICAL DATA						SOUND (Sones)	MODEL	BASIS OF DESIGN
				AIR FLOW (CFM)	E. S. P. (in. H2O)	ELECTRICAL			DIMENSION (in)			NET WEIGHT (lb)			
						VOLTAGE	Hz	AMPS	LENGTH	WIDTH	HEIGHT				
LEF- 1	CEILING MOUNTED	1	BATH RM3	80	0.1	120	60	0.3	9 1/4	10	5 3/4	10	0.80	AE80	BROAN

- NOTE:
1. TO AVOID MOTOR BEARING DAMAGE AND NOISY OR UNBALANCED IMPELLERS, KEEP DRYWALL SPRAY, CONSTRUCTION DUST, ETC. OFF POWER UNIT.
2. IT SHALL BE DUCTED TO A ROOF OR WALL CAP USING ROUND DUCTWORK.
3. BLOWER ASSEMBLY SHALL BE REMOVABLE, HAVE A CENTRIFUGAL TYPE BLOWER WHEEL AND A PERMANENTLY LUBRICATED.
4. MOTOR DESIGNED FOR COUNTINUOUS OPERATION.
5. PROVIDE FIRE BLANKET AND RADIATION DAMPER.

RESIDENTIAL MICROWAVE RECIRCULATION HOOD SCHEDULE																			
SYMBOL	QTY	LOCATION	TYPE	CAPACITY (CU.FT.)	VENTILATION SYSTEM				ELECTRICAL				TYPE OF LIGHTS	MICRO WAVE DIMENSION(INCH.)			MODEL	BASIS OF DESIGN	
					BLOWER TYPE	CFM	NUMBER OF SPEED	VENTILATION TYPE	FILTER TYPE	V.	PH.	HZ.		POWER (W)	WIDTH	DEPTH			HEIGHT

- NOTE:
1. INSTALL ACCORDANCE WITH MANUFACTURER'S INSTRUCTION.



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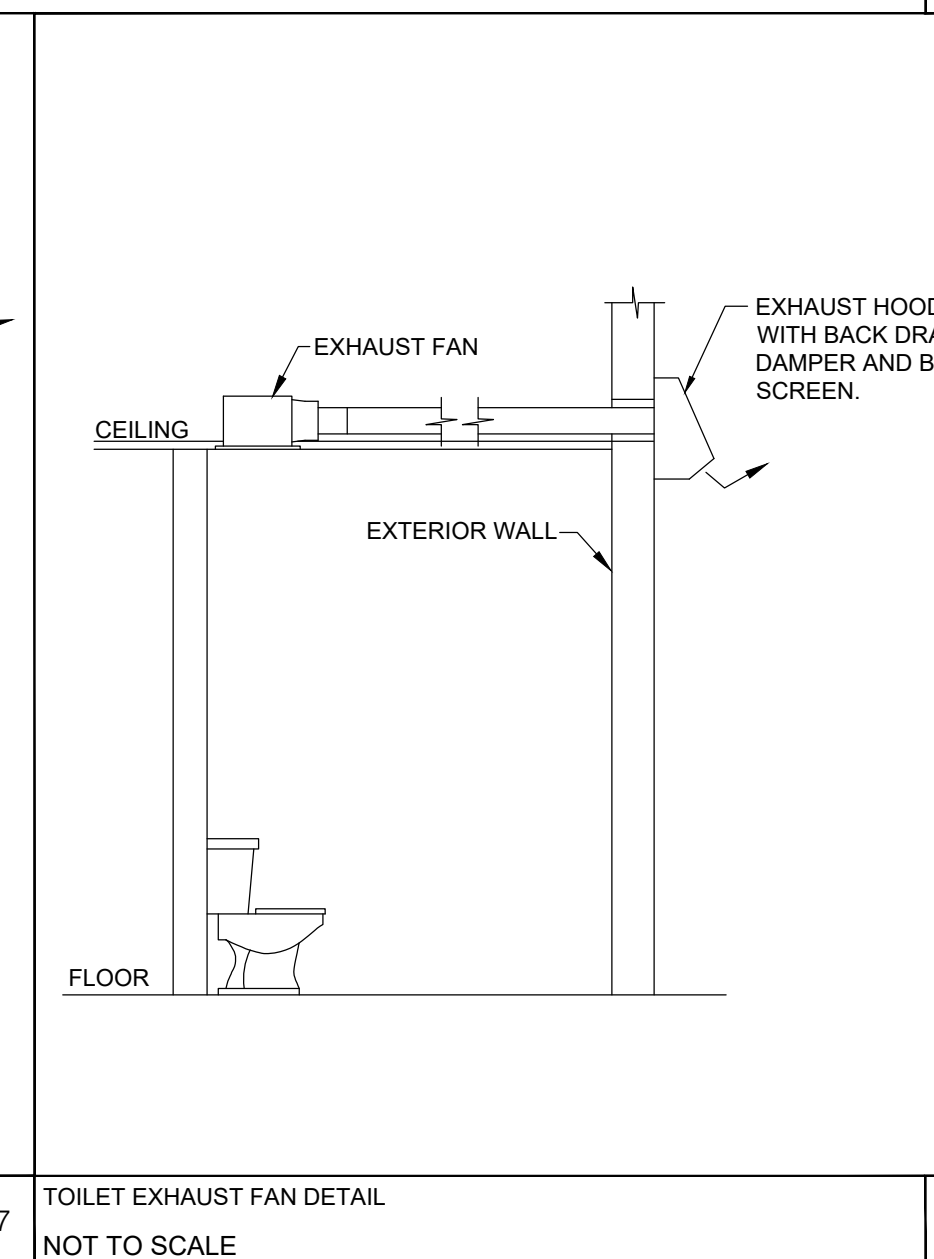
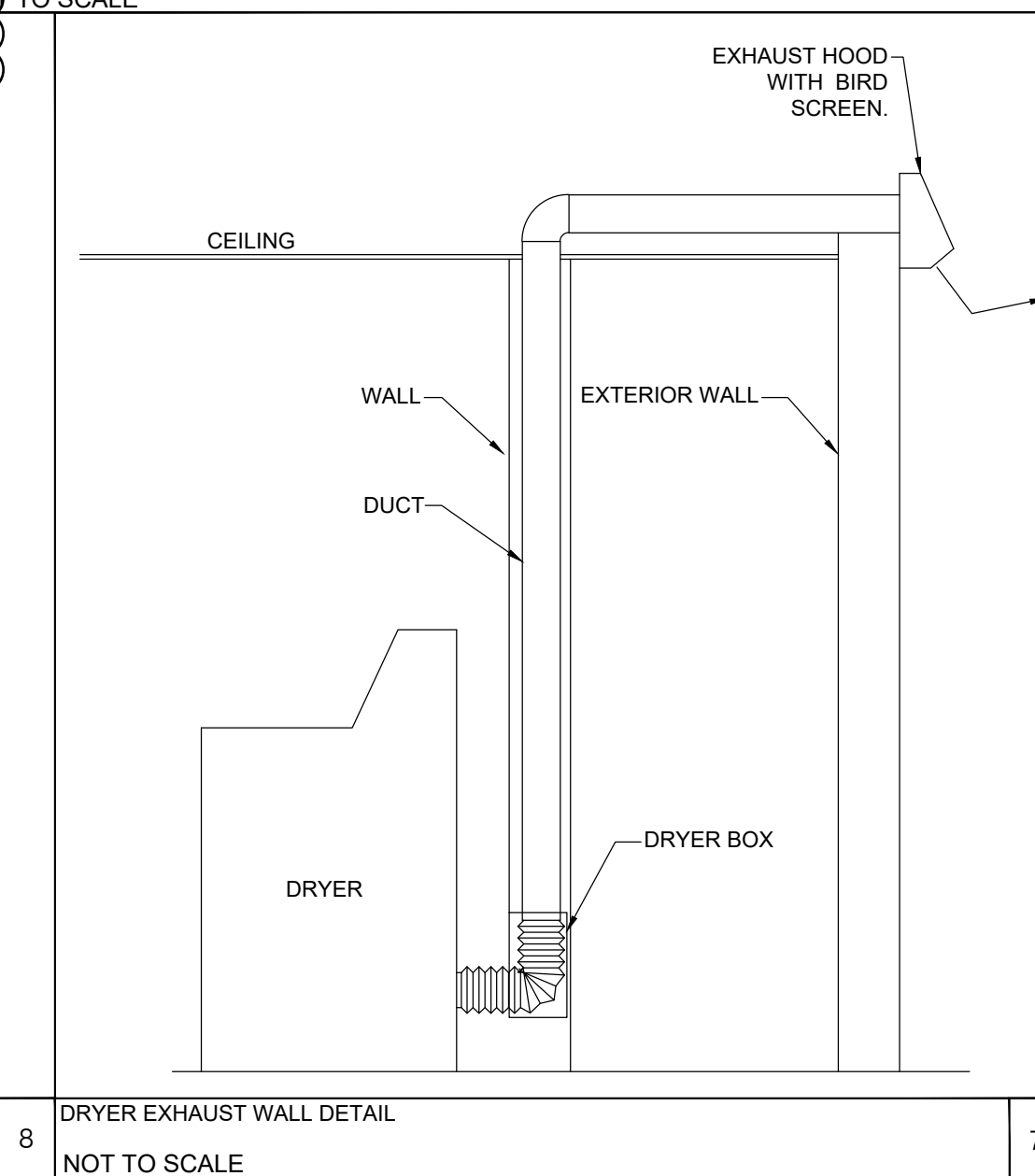
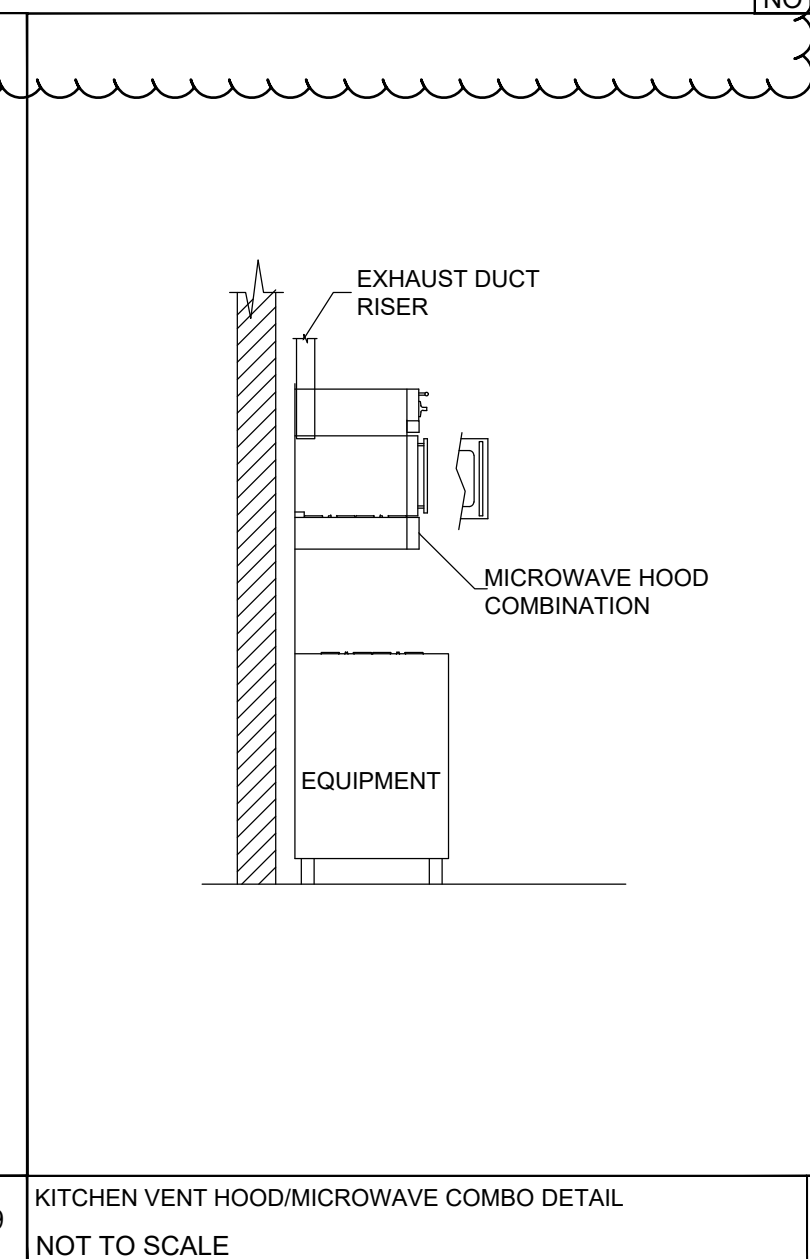
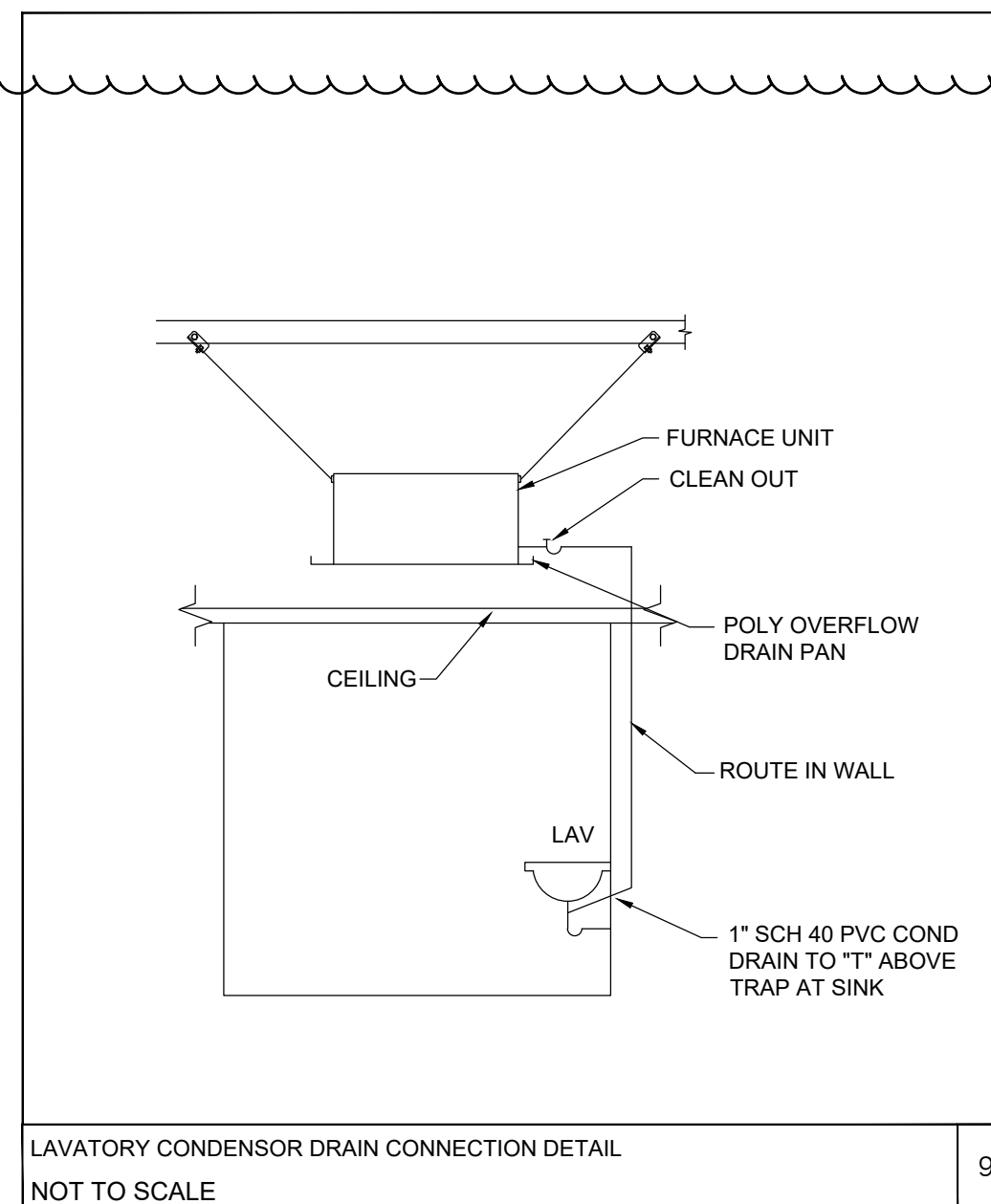
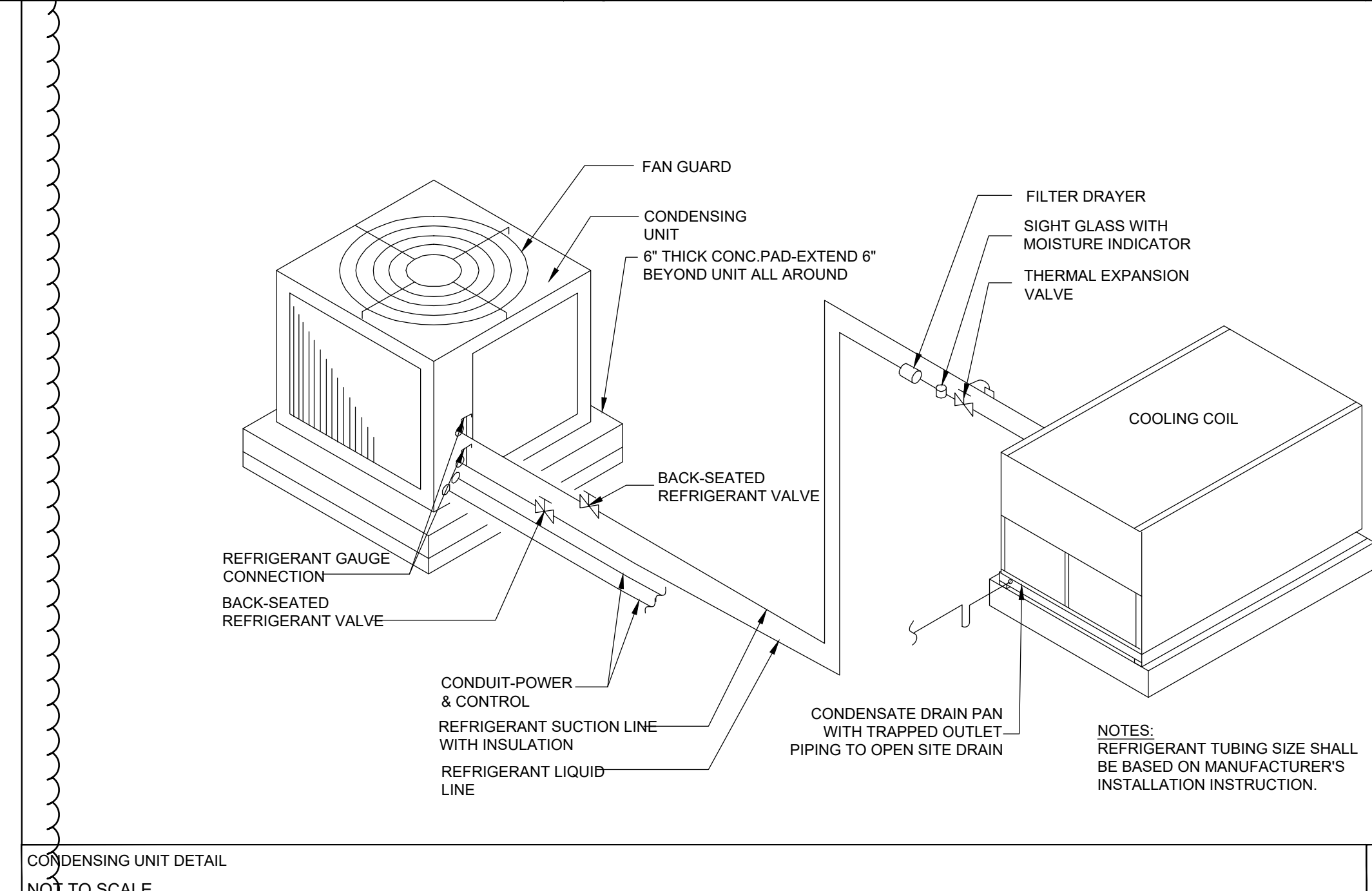
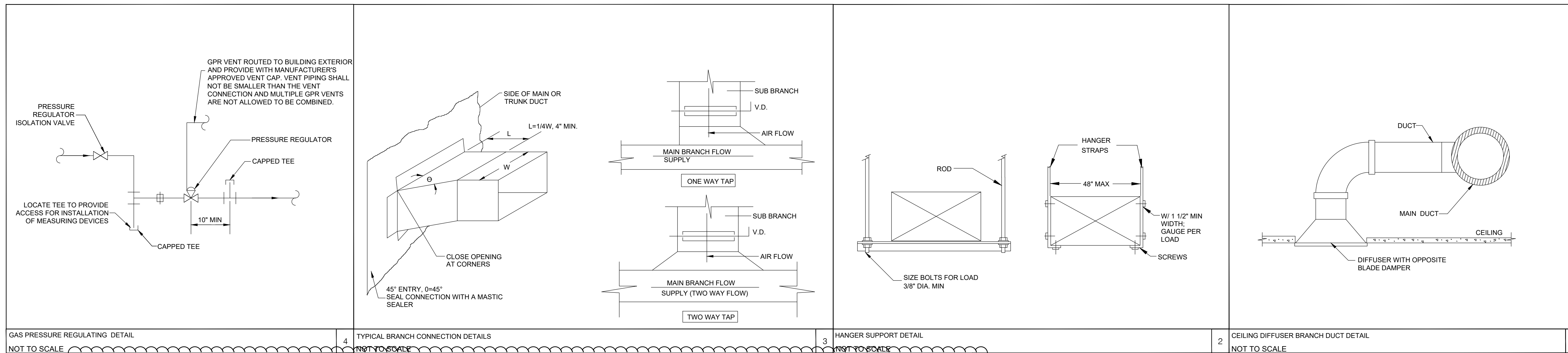
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SHEET TITLE

HVAC SCHEDULES

SHEET NO.

M500



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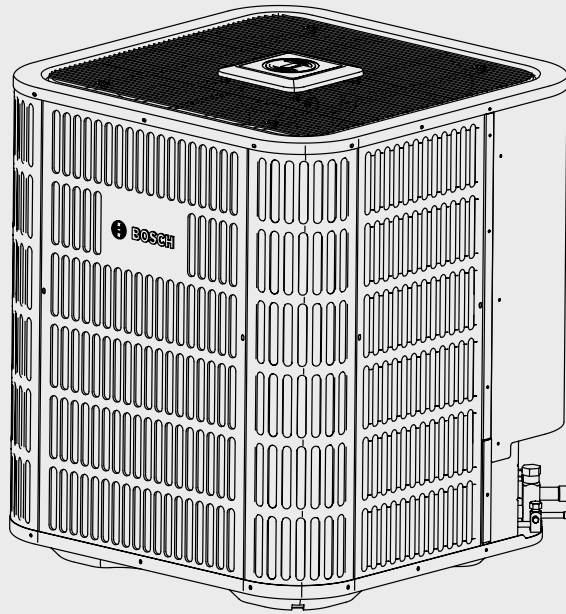
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SHEET TITLE

HVAC DETAILS

SHEET NO.

M600



Bosch BOVA20 Split System Heat Pump

Condensing Units Up to 20.5 SEER

2-3-4-5 Ton Capacity

R410A



BOSCH

Product Specifications



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1 Product Features

1.1 Features and Benefits

- ▶ Premium efficiency – Up to 20.5 SEER and 20 SEER2
- ▶ Outdoor coil – copper tube with hydrophilic aluminum fins
- ▶ 10 speed ECM outdoor motor for quiet and efficient operation
- ▶ Inverter Drive Compressor (36%-130% speed), modulation in 1% increments
- ▶ Whisper Quiet operation – as low as 56 dB
- ▶ Small footprint – 29-1/8" (W) x 29-1/8" (D)
- ▶ Easy to install – compatible with most standard 24 VAC heat pump thermostats

1.2 Standard Features

- ▶ R-410A Chlorine-Free Refrigerant
- ▶ Intelligent Oil Return Technology
- ▶ Inverter Driven Rotary Compressor
- ▶ Crankcase Heater Standard
- ▶ Compressor Sound Blanket
- ▶ Multiple System Protection:
 - High pressure switch and low pressure transducer
 - Compressor liquid return protection
 - Compressor high or low compression ratio protection
 - Compressor high temperature protection
 - High / low voltage protection and over current protection
 - IPM and electronic control board high temperature protection
- ▶ Outdoor coil is capable of withstanding 1000 hour salt spray test according to ASTM B117 standard
- ▶ AHRI certified; ETL listed

1.3 Cabinet Features

- ▶ Baked-on powder paint finish
- ▶ Wind Load compliant per Florida Building Code - 2010
- ▶ Wire fan discharge grille
- ▶ Steel louver coil guard

1.4 Limited Warranty

For Products installed in a one or two family residential dwelling BTC warrants that all compressors and internal components incorporated into the Product at the time of shipment by BTC shall remain free from defects in workmanship and materials for ten (10) years* from the Commencement Date. If the Warranty Registration process has been completed and BTC determines that the Product or any part of the Product has a defect in workmanship or materials, BTC shall pay labor charges associated with the repair or replacement of the part in accordance with the Warranty Labor Allowance Schedule** for the period of ninety (90) days from the Commencement Date.

* Please refer to www.bosch-climate.us for full warranty terms and conditions.

** Warranty Labor Allowance Schedule details are available on www.boschprohvac.com

2 Nomenclature

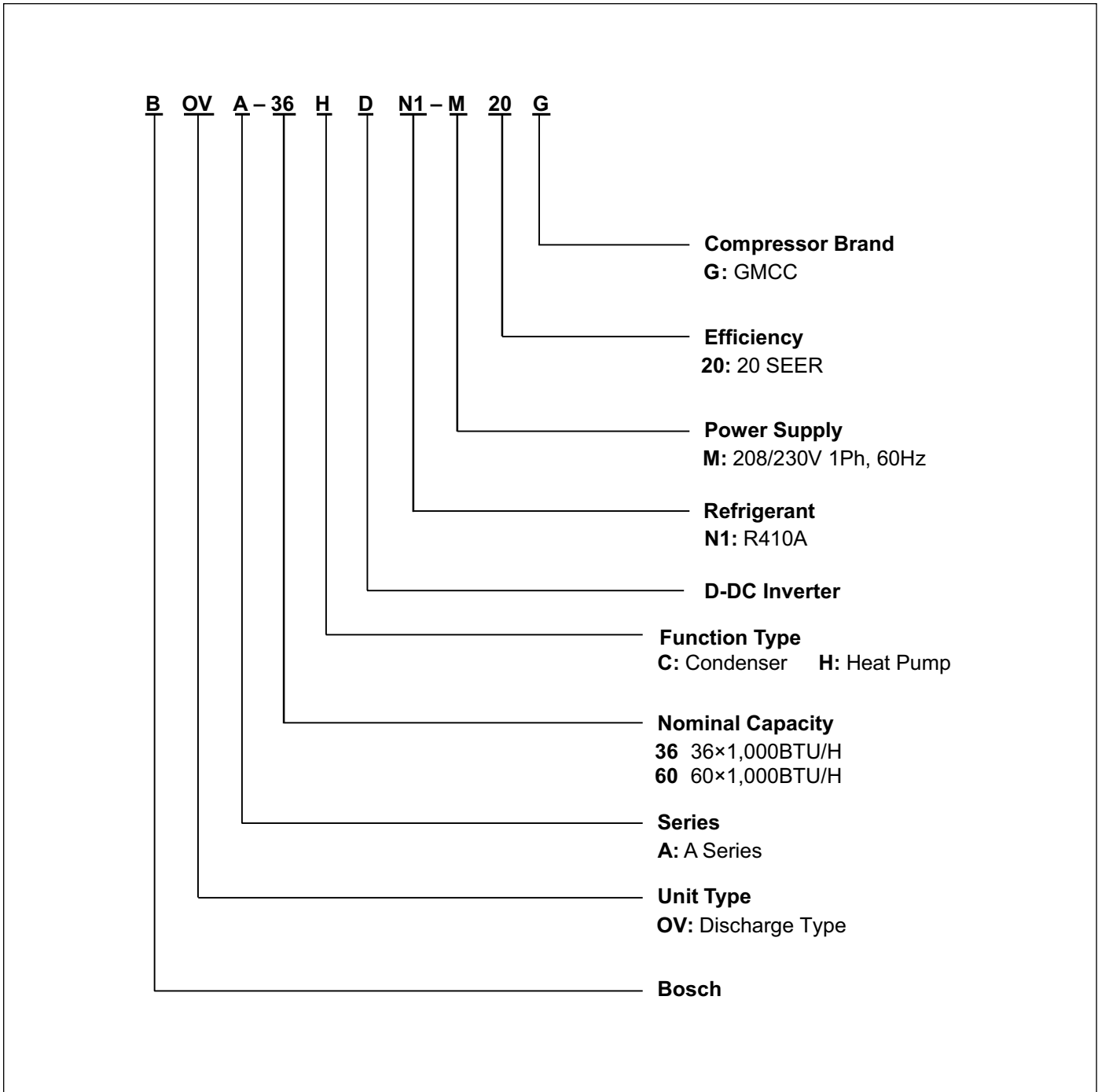


Figure 1

3 Product Specifications

	BOVA20-36	BOVA20-60
Cooling Capacity		
Nominal Cooling (BTU/h)	34,600	54,500
Nominal Heating (BTU/h)	34,200	56,000
Decibels([dB(A)])		
Max @ 100% load	77	79
Min @ min load	56	60
Compressor		
RLA	19	29
Condenser Fan Motor		
Horsepower (HP)	1/3	1/3
FLA	2.5	2.5
Refrigeration System		
Refrigerant Line Size ¹		
Liquid Line Size (OD)	3/8"	3/8"
Suction Line Size (OD)	3/4"	7/8"
Refrigerant Connection Size		
Liquid Valve Size (OD)	3/8"	3/8"
Suction Valve Size (OD)	3/4"	7/8"
Refrigerant Charge (R410-A, oz)	7 lbs. 9 oz.	11 lbs. 5 oz.
Expansion Device	EEV	EEV
Maximum Line Length	150 FT	150 FT
Maximum Elevation Difference	50 FT	50 FT
Operating Range		
Cooling	15-125°F	
Heating	-4~86°F	
Electrical Data		
Voltage-Phase-Hz	208/230-1-60	208/230-1-60
Minimum Circuit Ampacity ²	26.3	38.8
Max. Overcurrent Protection ³	45	60
Max Fuse Size	45	60
Min/Max Volts	172V/270V	
Weight		
Net Weight (without packaging)	150	220
Gross Weight (including packaging) ⁴	180	253
Dimensions		
Unit L x W x H (in.)	29-1/8 x 29-1/8 x 24-15/16	29-1/8 x 29-1/8 x 33-3/16
Outdoor Coil		
Net face area - sq.ft. Outer Coil	13.6	18.4
Tube diameter-in.	9/32" (7mm)	9/32" (7mm)
No.of rows	2	2.8
Fins per inch	17	19

Table 1

¹ Tested and rated in accordance with AHRI Standard 210/240.

² Wire size should be determined in accordance with National Electrical Codes; extensive wire runs will require larger wire sizes.

³ Must use time-delay fuses or HACR-type circuit breakers of the same size as noted.

⁴ Weight values are estimated.



- Always check the rating plate for electrical data on the unit being installed.
- Unit is factory charged with refrigerant for 15' of 3/8" liquid line. System charge must be adjusted per Installation Instructions Final Charge Procedure.
- TXV is required at indoor unit to match our outdoor unit.

4 Extended Performance Data

4.1 Outdoor Unit (BOVA20) + Indoor Unit (BVA20) – Cooling Mode

		BOVA20-36 + BVA20-24 For Cooling																
Indoor Airflow (CFM)	Outdoor DB (°F)	IWB (°F)	59				63				67				71			
		IDB (°F)	70	75	80	85	70	75	80	85	70	75	80	85	70	75	80	85
550	15	TC	17.5	17.7	18.1	18.3	18.1	18.3	18.5	18.7	19.3	19.5	19.7	19.9	/	25.2	25.4	25.7
		S/T	0.88	0.93	1.0	1.0	0.63	0.79	0.93	0.96	0.39	0.57	0.74	0.91	/	0.38	0.52	0.65
		KW	0.81	0.82	0.82	0.82	0.82	0.83	0.84	0.85	0.85	0.87	0.88	0.89	/	1.11	1.12	1.14
	65	TC	17.6	17.8	18.3	18.5	18.3	18.5	18.7	18.9	19.5	19.7	19.9	20.1	/	25.4	25.6	25.9
		S/T	0.88	0.93	1	1	0.63	0.79	0.93	0.96	0.39	0.57	0.74	0.91	/	0.38	0.52	0.65
		KW	0.82	0.83	0.84	0.84	0.84	0.85	0.87	0.88	0.87	0.88	0.89	0.90	/	1.12	1.13	1.15
	75	TC	17.8	18	18.4	18.6	18.4	18.6	18.8	19.1	19.7	19.9	20.1	20.3	/	25	25.3	25.5
		S/T	0.89	0.94	1	1	0.63	0.8	0.93	0.96	0.39	0.57	0.74	0.91	/	0.38	0.52	0.65
		KW	1.00	1.01	1.02	1.02	1.02	1.03	1.04	1.05	1.05	1.07	1.08	1.09	/	1.39	1.41	1.42
	85	TC	17.8	18	18.4	18.6	18.4	18.6	18.8	19	19.6	19.8	20	20.2	/	25	25.3	25.5
		S/T	0.89	0.94	1	1	0.63	0.8	0.93	0.96	0.39	0.57	0.74	0.91	/	0.38	0.52	0.66
		KW	1.18	1.19	1.20	1.20	1.20	1.22	1.23	1.24	1.24	1.26	1.27	1.28	/	1.54	1.56	1.57
	95	TC	17.7	17.9	18.4	18.6	18.4	18.6	18.8	19	19.6	19.8	20	20.2	/	24.9	25.1	25.3
		S/T	0.89	0.94	1	1	0.63	0.8	0.93	0.96	0.39	0.57	0.74	0.91	/	0.38	0.52	0.66
		KW	1.42	1.43	1.46	1.46	1.46	1.47	1.49	1.50	1.51	1.52	1.53	1.54	/	1.86	1.88	1.90
	105	TC	17.7	17.9	18.3	18.5	18.3	18.5	18.7	18.9	19.5	19.7	19.9	20.1	/	24.7	24.9	25.1
		S/T	0.91	0.96	1	1	0.65	0.82	0.96	0.99	0.4	0.59	0.76	0.94	/	0.39	0.54	0.68
		KW	1.70	1.72	1.74	1.74	1.74	1.75	1.77	1.79	1.79	1.81	1.83	1.85	/	2.23	2.25	2.27
	115	TC	17.4	17.6	18	18.2	18	18.2	18.4	18.6	19.2	19.4	19.6	19.8	/	24.5	24.7	24.9
		S/T	0.92	0.97	1	1	0.66	0.82	0.96	0.99	0.4	0.59	0.77	0.95	/	0.39	0.54	0.68
		KW	1.99	2.01	2.04	2.04	2.04	2.06	2.08	2.10	2.10	2.12	2.14	2.16	/	2.65	2.67	2.69
	125	TC	15.9	16.1	16.5	16.7	16.5	16.7	16.9	17	17.9	17.9	18	18	/	19.1	19.1	19.1
		S/T	0.92	0.97	1	1	0.61	0.81	0.96	0.99	0.41	0.6	0.78	0.98	/	0.4	0.59	0.76
		KW	1.99	2.01	2.04	2.04	2.04	2.06	2.08	2.10	2.14	2.14	2.14	2.14	/	2.15	2.15	2.15
620	15	TC	17.9	18.1	18.5	18.7	18.5	18.7	18.9	19.1	19.8	20	20.2	18.9	/	25.7	26	26.3
		S/T	0.95	0.98	1	1	0.65	0.89	0.96	1	0.4	0.57	0.75	0.99	/	0.39	0.52	0.66
		KW	0.40	0.40	0.40	0.40	0.40	0.41	0.41	0.42	0.41	0.42	0.43	0.37	/	0.74	0.76	0.78
	65	TC	17.9	18.1	18.5	18.7	18.5	18.7	18.9	19.1	19.7	19.9	20.1	20.3	/	25.8	26	26.3
		S/T	0.95	0.98	1	1	0.65	0.89	0.96	1	0.4	0.57	0.75	0.92	/	0.39	0.52	0.66
		KW	0.81	0.81	0.82	0.82	0.82	0.83	0.84	0.85	0.84	0.85	0.87	0.88	/	1.11	1.12	1.14
	75	TC	18.1	18.3	18.7	18.9	18.7	18.9	19.1	19.3	19.9	20.1	20.3	20.5	/	25.4	25.7	25.9
		S/T	0.95	0.98	1	1	0.64	0.89	0.96	1	0.4	0.57	0.75	0.92	/	0.39	0.53	0.66
		KW	0.98	0.99	1.00	1.00	1.00	1.01	1.02	1.03	1.03	1.04	1.05	1.07	/	1.38	1.40	1.42
	85	TC	18.1	18.3	18.7	18.9	18.7	18.9	19.1	19.3	19.9	20.1	20.3	20.5	/	25.4	25.6	25.9
		S/T	0.95	0.98	1	1	0.64	0.89	0.96	1	0.4	0.57	0.75	0.92	/	0.39	0.53	0.66
		KW	1.16	1.17	1.19	1.19	1.19	1.20	1.21	1.22	1.22	1.23	1.24	1.26	/	1.53	1.54	1.56
	95	TC	18	18.2	18.6	18.8	18.6	18.8	19	19.2	19.8	20.1	20.2	20.5	/	25.3	25.5	25.7
		S/T	0.95	0.98	1	1	0.64	0.89	0.96	1	0.4	0.57	0.75	0.92	/	0.39	0.53	0.66
		KW	1.40	1.42	1.43	1.43	1.43	1.46	1.47	1.48	1.49	1.50	1.51	1.53	/	1.86	1.87	1.89
	105	TC	17.9	18.1	18.5	18.7	18.5	18.7	18.9	19.1	19.8	20	20.2	20.4	/	25	25.3	25.5
		S/T	0.96	0.98	1	1	0.66	0.92	0.99	1	0.41	0.59	0.77	0.95	/	0.4	0.55	0.69
		KW	1.69	1.70	1.72	1.72	1.72	1.74	1.76	1.77	1.78	1.79	1.81	1.83	/	2.23	2.25	2.27
	115	TC	17.6	17.8	18.2	18.4	18.2	18.4	18.6	18.8	19.5	19.7	19.8	20	/	24.8	25	25.3
		S/T	0.98	1	1	1	0.66	0.92	0.99	1	0.41	0.6	0.78	0.96	/	0.4	0.55	0.69
		KW	1.97	1.99	2.01	2.01	2.01	2.05	2.07	2.09	2.09	2.11	2.13	2.15	/	2.66	2.68	2.70
	125	TC	16.1	16.3	16.6	16.8	16.6	16.8	17	17.2	18.1	18.1	18.1	18.2	/	19.2	19.3	19.3
		S/T	0.98	1	1	1	0.66	0.92	0.99	1	0.41	0.61	0.81	1	/	0.4	0.6	0.78
		KW	2.00	2.03	2.05	2.05	2.05	2.07	2.09	2.11	2.15	2.15	2.15	2.15	/	2.16	2.16	2.16
680	15	TC	19.9	20.2	20.6	20.9	20.6	20.9	21	21.2	21.9	22.2	22.4	21	/	28.4	28.8	29
		S/T	0.96	0.99	1	1	0.65	0.9	0.97	1	0.39	0.58	0.76	1	/	0.39	0.53	0.67
		KW	0.54	0.54	0.55	0.55	0.55	0.55	0.56	0.56	0.56	0.57	0.58	0.51	/	0.96	0.99	1.00
	65	TC	19.8	20	20.5	20.7	20.5	20.7	20.9	21.1	21.8	22	22.2	22.5	/	28.1	28.4	28.6
		S/T	0.96	0.99	1	1	0.66	0.9	0.97	1	0.39	0.58	0.76	0.94	/	0.39	0.53	0.67
		KW	0.96	0.97	0.98	0.98	0.98	0.99	1.00	1.01	1.00	1.01	1.02	1.04	/	1.29	1.30	1.31
	75	TC	20	20.2	20.7	20.9	20.7	20.9	21	21.3	22	22.2	22.4	22.6	/	28.2	28.5	28.7
		S/T	0.96	0.99	1	1	0.65	0.9	0.97	1	0.39	0.58	0.76	0.94	/	0.39	0.53	0.67
		KW	1.14	1.15	1.16	1.16	1.16	1.18	1.19	1.20	1.20	1.21	1.22	1.24	/	1.53	1.55	1.57
	85	TC	20	20.2	20.7	20.9	20.7	20.9	21	21.3	21.9	22.2	22.4	22.6	/	27.9	28.1	28.4
		S/T	0.96	0.99	1	1	0.65	0.9	0.97	1	0.39	0.58	0.76	0.94	/	0.39	0.53	0.68
		KW	1.31	1.32	1.33	1.33	1.33	1.35	1.36	1.37	1.38	1.39	1.40	1.41	/	1.72	1.73	1.75
	95	TC	19.9	20.1	20.6	20.8	20.6	20.8	21	21.2	21.8	22.1	22.3	22.4	/	27.6	27.9	28.1
		S/T	0.96	0.99	1	1	0.65	0.9	0.97	1	0.39	0.58	0.75	0.95	/	0.39	0.53	0.68
		KW	1.57	1.59	1.60	1.60	1.60	1.62	1.64	1.66	1.67	1.68	1.69	1.70	/	2.07	2.10	2.11
	105	TC	19.5	19.8	20.2	20.4	20.2	20.4	20.6	20.9	21.5	21.7	21.9	22.1	/	27.3	27.6	27.8
		S/T	0.98	0.99	1	1	0.67	0.93	1	1	0.4	0.6	0.79	0.98	/	0.4	0.55	0.7
		KW	1.86	1.88	1.90	1.90	1.90	1.92	1.93	1.95	1.96	1.98	1.99	2.01	/	2.48	2.50	2.53
	115	TC	19.4	19.6	20.1	20.3	20.1	20.3	20.5	20.7	21.3	21.5	21.7	22	/	27	27.2	27.5
		S/T	0.99	1	1	1	0.67	0.93	1	1	0.4	0.6	0.79	0.99	/	0.4	0.56	0.71
		KW	2.20	2.23	2.25	2.25	2.25	2.28	2.30	2.32	2.33	2.35	2.37	2.39	/	2.97	3.01	3.04
	125	TC	16.3	16.5	16.9	17.1	16.9	17.1	17.3	17.5	18.3	18.4	18.4	18.4				

BOVA20-36 + BVA20-24 For Cooling																		
Indoor Airflow (CFM)	Outdoor DB (°F)	IWB (°F)	59				63				67				71			
		IDB (°F)	70	75	80	85	70	75	80	85	70	75	80	85	70	75	80	85
720	15	TC	21.8	22.1	22.6	22.8	22.6	22.8	23.1	23.3	24.1	24.3	24.6	22.9	/	31.1	31.4	31.7
		S/T	0.96	0.99	0.99	1	0.66	0.9	0.97	1	0.39	0.58	0.77	1	/	0.38	0.53	0.68
		KW	0.70	0.71	0.72	0.72	0.72	0.73	0.73	0.74	0.73	0.74	0.76	0.65	/	1.20	1.22	1.24
	65	TC	21.9	22.1	22.6	22.9	22.6	22.9	23.1	23.4	24.2	24.4	24.6	24.9	/	30.6	30.9	31.2
		S/T	0.96	0.99	1	1	0.66	0.9	0.97	1	0.39	0.58	0.77	0.95	/	0.39	0.54	0.68
		KW	1.04	1.05	1.07	1.07	1.07	1.08	1.10	1.11	1.10	1.12	1.13	1.14	/	1.49	1.51	1.53
	75	TC	21.6	21.9	22.4	22.6	22.4	22.6	22.9	23.1	24	24.3	24.4	24.4	/	30.7	30.9	31.2
		S/T	0.96	0.99	1	1	0.66	0.9	0.97	1	0.39	0.58	0.77	1	/	0.39	0.54	0.68
		KW	1.30	1.32	1.33	1.33	1.33	1.34	1.36	1.37	1.38	1.39	1.40	1.40	/	1.75	1.77	1.79
	85	TC	21.5	21.7	22.2	22.5	22.2	22.5	22.7	23	24	24.1	24.2	24.4	/	30.3	30.6	30.8
		S/T	0.96	0.99	1	1	0.66	0.9	0.97	1	0.39	0.59	0.78	1	/	0.39	0.54	0.69
		KW	1.43	1.46	1.47	1.47	1.47	1.49	1.50	1.52	1.54	1.54	1.54	1.56	/	1.91	1.93	1.95
	95	TC	21.3	21.6	22.1	22.3	22.1	22.3	22.5	22.8	23.6	23.8	24	24.2	/	30	30.2	30.4
		S/T	0.96	0.99	1	1	0.66	0.9	0.97	1	0.39	0.59	0.78	1	/	0.39	0.54	0.69
		KW	1.71	1.73	1.75	1.75	1.75	1.77	1.78	1.80	1.83	1.84	1.85	1.87	/	2.31	2.33	2.34
	105	TC	21.1	21.4	21.9	22.1	21.9	22.1	22.4	22.6	23.4	23.6	23.8	24.1	/	29.5	29.7	30
		S/T	0.98	1	1	1	0.68	0.93	1	1	0.4	0.61	0.8	1	/	0.4	0.56	0.72
		KW	2.06	2.08	2.10	2.10	2.10	2.12	2.14	2.16	2.17	2.19	2.20	2.23	/	2.77	2.80	2.83
	115	TC	21	21.2	21.7	21.9	21.7	21.9	22.2	22.4	23.2	23.4	23.6	23.8	/	28.3	28.3	28.2
		S/T	0.98	1	1	1	0.68	0.93	1	1	0.4	0.61	0.81	1	/	0.4	0.57	0.74
		KW	2.44	2.46	2.49	2.49	2.49	2.51	2.54	2.56	2.57	2.60	2.62	2.64	/	3.16	3.16	3.16
	125	TC	16.5	16.7	17.1	17.3	17.1	17.3	17.4	17.6	18.5	18.6	18.6	18.6	/	19.8	19.8	19.8
		S/T	1	1	1	1	0.68	0.95	1	1	0.41	0.67	0.93	1	/	0.41	0.66	0.9
		KW	2.08	2.10	2.12	2.12	2.12	2.14	2.16	2.18	2.23	2.23	2.23	2.23	/	2.24	2.24	2.24
960	15	TC	25.4	25.7	26.3	26.6	26.3	26.6	26.9	27.1	28.1	28.3	28.6	28.9	/	35.5	35.8	36
		S/T	0.98	0.99	1	1	0.67	0.9	0.97	1	0.39	0.6	0.8	0.99	/	0.38	0.55	0.71
		KW	1.10	1.11	1.12	1.12	1.12	1.13	1.14	1.15	1.15	1.16	1.18	1.19	/	1.68	1.71	1.73
	65	TC	25.5	25.8	26.4	26.7	26.4	26.7	27	27.2	28.1	28.3	28.6	28.9	/	35.5	35.8	36
		S/T	0.98	0.99	1	1	0.67	0.9	0.97	1	0.39	0.6	0.8	0.99	/	0.38	0.55	0.71
		KW	1.40	1.41	1.43	1.43	1.43	1.45	1.47	1.48	1.48	1.49	1.51	1.52	/	2.00	2.04	2.06
	75	TC	25.6	25.9	26.5	26.8	26.5	26.8	27	27.3	28.2	28.5	28.7	29	/	35.5	35.8	36.1
		S/T	0.97	0.99	1	1	0.67	0.9	0.97	1	0.39	0.59	0.8	1	/	0.38	0.55	0.71
		KW	1.65	1.66	1.68	1.68	1.68	1.70	1.71	1.73	1.73	1.75	1.77	1.78	/	2.18	2.22	2.24
	85	TC	25.2	25.5	26.1	26.4	26.1	26.4	26.7	27	27.8	28.1	28.3	28.5	/	34.9	35.2	35.5
		S/T	0.97	0.99	1	1	0.67	0.9	0.97	1	0.39	0.6	0.8	1	/	0.38	0.55	0.71
		KW	1.80	1.83	1.85	1.85	1.85	1.86	1.88	1.90	1.91	1.93	1.94	1.95	/	2.42	2.44	2.47
	95	TC	24.9	25.2	25.8	26.1	25.8	26.1	26.4	26.6	27.5	27.7	28	28.2	/	33.6	33.8	33.8
		S/T	0.97	0.99	1	1	0.67	0.9	0.97	1	0.39	0.6	0.81	0.99	/	0.38	0.56	0.73
		KW	2.14	2.16	2.18	2.18	2.18	2.20	2.24	2.26	2.26	2.28	2.30	2.32	/	2.80	2.80	2.80
	105	TC	24.5	24.8	25.4	25.7	25.4	25.7	25.9	26.2	27.1	27.3	27.5	27.8	/	31.7	31.9	32
		S/T	0.98	1	1	1	0.69	0.93	1	1	0.4	0.62	0.84	1	/	0.4	0.59	0.77
		KW	2.52	2.55	2.57	2.57	2.57	2.61	2.64	2.66	2.67	2.69	2.71	2.73	/	3.09	3.09	3.09
	115	TC	24.1	24.4	25	25.2	25	25.2	25.5	25.8	26.7	26.9	27.1	27.3	/	29.1	29.2	29.4
		S/T	0.99	1	1	1	0.7	0.93	1	1	0.4	0.63	0.84	1	/	0.4	0.61	0.81
		KW	2.99	3.02	3.05	3.05	3.05	3.08	3.11	3.14	3.15	3.18	3.22	3.24	/	3.28	3.29	3.29
	125	TC	16.6	16.8	17.2	17.4	17.2	17.4	17.6	17.8	18.7	18.7	18.7	18.8	/	20	20	20
		S/T	1	1	1	1	0.73	0.93	1	1	0.41	0.73	1	1	/	0.42	0.73	1
		KW	2.19	2.23	2.25	2.25	2.25	2.27	2.29	2.32	2.36	2.36	2.36	2.36	/	2.37	2.37	2.37

Table 3

TC refers to total capacity in KBTU/hr S/T: refer to the ratio of sensible heat and total capacity kW: refer to total input power

BOVA20-36 + BVA20-36 For Cooling																			
Indoor Airflow (CFM)	Outdoor DB (°F)	IWB (°F)	IDB (°F)	59				63				67				71			
				70	75	80	85	70	75	80	85	70	75	80	85	70	75	80	85
700	15	TC	23.0	23.3	24.2	24.6	24.2	24.6	25.0	25.3	26.6	27.0	27.3	27.6	/	33.9	34.2	34.7	
		S/T	0.7	0.76	0.84	0.92	0.51	0.69	0.78	0.81	0.32	0.46	0.6	0.74	/	0.31	0.42	0.54	
		KW	1.06	1.07	1.09	1.09	1.09	1.10	1.11	1.12	1.12	1.13	1.14	1.16	/	1.51	1.53	1.55	
	65	TC	22.4	22.8	23.4	23.9	23.4	23.9	24.3	24.7	26.0	26.3	26.5	26.9	/	33.4	33.7	34.5	
		S/T	0.7	0.76	0.84	0.92	0.51	0.69	0.78	0.81	0.32	0.46	0.6	0.74	/	0.31	0.42	0.54	
		KW	1.59	1.60	1.62	1.62	1.62	1.64	1.65	1.67	1.67	1.68	1.71	1.72	/	2.01	2.03	1.92	
	75	TC	22.5	22.9	23.6	24.0	23.6	24.0	24.4	24.8	26.2	26.4	26.8	27.0	/	34.6	34.7	34.8	
		S/T	0.7	0.76	0.84	0.92	0.51	0.68	0.75	0.78	0.32	0.46	0.61	0.75	/	0.31	0.42	0.54	
		KW	1.63	1.65	1.67	1.67	1.67	1.68	1.70	1.72	1.72	1.74	1.75	1.77	/	2.22	2.22	2.22	
	85	TC	21.7	22.1	22.9	23.2	22.9	23.2	23.5	24.0	25.4	25.6	25.9	26.1	/	31.9	32.1	32.4	
		S/T	0.7	0.76	0.84	0.92	0.51	0.68	0.78	0.81	0.32	0.46	0.61	0.75	/	0.31	0.42	0.54	
		KW	1.84	1.86	1.88	1.88	1.88	1.90	1.92	1.94	1.95	1.96	1.98	1.99	/	2.37	2.39	2.40	
	95	TC	21.0	21.2	21.9	22.4	21.9	22.4	22.8	23.1	24.5	24.7	24.9	25.1	/	29.7	30.0	30.0	
		S/T	0.7	0.76	0.84	0.92	0.51	0.69	0.78	0.81	0.32	0.46	0.61	0.75	/	0.31	0.43	0.54	
		KW	2.16	2.19	2.21	2.21	2.21	2.23	2.25	2.28	2.29	2.31	2.32	2.34	/	2.67	2.68	2.68	
	105	TC	20.0	20.3	21.1	21.4	21.1	21.4	21.7	22.1	23.4	23.6	23.9	24.2	/	26.2	26.4	26.2	
		S/T	0.7	0.76	0.84	0.92	0.51	0.69	0.78	0.81	0.32	0.47	0.61	0.75	/	0.31	0.43	0.55	
		KW	2.52	2.55	2.58	2.58	2.58	2.61	2.63	2.66	2.67	2.70	2.71	2.73	/	2.81	2.82	2.78	
	115	TC	13.6	13.8	14.4	14.8	14.4	14.8	15.1	15.3	16.5	16.6	16.7	16.9	/	18.5	18.6	18.7	
		S/T	0.7	0.76	0.84	0.92	0.51	0.69	0.78	0.81	0.32	0.47	0.61	0.76	/	0.31	0.43	0.56	
		KW	2.23	2.25	2.28	2.28	2.28	2.31	2.33	2.35	2.38	2.39	2.40	2.41	/	2.49	2.49	2.50	
	125	TC	5.8	5.9	6.3	6.5	6.3	6.5	6.7	7.0	7.8	7.8	7.9	7.9	/	9.2	9.2	9.2	
		S/T	0.69	0.75	0.83	0.92	0.52	0.69	0.78	0.81	0.32	0.51	0.7	0.92	/	0.32	0.5	0.67	
		KW	1.59	1.61	1.62	1.62	1.62	1.64	1.65	1.68	1.71	1.71	1.71	1.71	/	1.71	1.71	1.71	
820	15	TC	24.2	24.6	25.3	25.7	25.3	25.7	26.1	26.4	27.6	27.9	28.3	28.5	/	34.4	34.7	35.1	
		S/T	0.73	0.79	0.87	0.92	0.53	0.71	0.81	0.84	0.32	0.48	0.63	0.79	/	0.31	0.44	0.56	
		KW	1.12	1.13	1.15	1.15	1.15	1.15	1.17	1.18	1.18	1.19	1.20	1.22	/	1.59	1.61	1.63	
	65	TC	23.6	24	24.7	25	24.7	25	25.4	25.8	27	27.3	27.5	27.8	/	33.9	34.2	34.9	
		S/T	0.73	0.79	0.87	0.92	0.53	0.71	0.81	0.84	0.32	0.48	0.63	0.79	/	0.31	0.44	0.56	
		KW	1.67	1.68	1.70	1.70	1.70	1.72	1.74	1.76	1.76	1.77	1.80	1.81	/	2.12	2.14	2.02	
	75	TC	23.7	24.1	24.9	25.1	24.9	25.1	25.5	25.9	27.2	27.4	27.7	28	/	35	35.2	35.3	
		S/T	0.73	0.79	0.87	0.92	0.53	0.7	0.81	0.84	0.32	0.48	0.63	0.79	/	0.31	0.44	0.56	
		KW	1.72	1.73	1.76	1.76	1.76	1.77	1.79	1.81	1.81	1.83	1.84	1.87	/	2.33	2.34	2.34	
	85	TC	23.1	23.4	24.1	24.5	24.1	24.5	24.8	25.1	26.5	26.7	26.9	27.1	/	32.5	32.7	33	
		S/T	0.73	0.79	0.87	0.92	0.53	0.7	0.81	0.84	0.32	0.48	0.64	0.79	/	0.31	0.44	0.57	
		KW	1.94	1.95	1.98	1.98	1.98	2.00	2.02	2.04	2.05	2.06	2.08	2.10	/	2.49	2.51	2.53	
	95	TC	22.3	22.6	23.2	23.6	23.2	23.6	24	24.3	25.6	25.8	26	26.3	/	30.5	30.7	30.7	
		S/T	0.73	0.79	0.87	0.92	0.53	0.7	0.81	0.84	0.32	0.48	0.63	0.8	/	0.31	0.44	0.57	
		KW	2.28	2.30	2.32	2.32	2.32	2.35	2.37	2.40	2.41	2.43	2.44	2.46	/	2.82	2.82	2.82	
	105	TC	21.4	21.7	22.4	22.8	22.4	22.8	23.1	23.4	24.7	24.9	25	25.3	/	27.2	27.4	27.2	
		S/T	0.73	0.79	0.87	0.92	0.53	0.71	0.81	0.84	0.32	0.48	0.64	0.8	/	0.31	0.44	0.58	
		KW	2.66	2.68	2.71	2.71	2.71	2.74	2.77	2.80	2.82	2.84	2.85	2.88	/	2.96	2.97	2.93	
	115	TC	15.5	15.7	16.2	16.5	16.2	16.5	16.8	17	18.1	18.2	18.3	18.5	/	20	20.1	20.2	
		S/T	0.73	0.79	0.87	0.92	0.53	0.71	0.81	0.84	0.32	0.48	0.65	0.81	/	0.31	0.46	0.61	
		KW	2.35	2.37	2.40	2.40	2.40	2.43	2.45	2.48	2.51	2.51	2.53	2.54	/	2.62	2.63	2.63	
	125	TC	8.1	8.3	8.7	8.8	8.7	8.8	9	9.2	10.1	10.1	10.2	10.2	/	11.3	11.3	11.3	
		S/T	0.73	0.79	0.87	0.92	0.53	0.71	0.81	0.84	0.32	0.56	0.8	0.92	/	0.33	0.55	0.77	
		KW	1.67	1.69	1.71	1.71	1.71	1.72	1.74	1.76	1.80	1.80	1.80	1.80	/	1.80	1.80	1.80	
960	15	TC	26.9	27.3	28.1	28.4	28.1	28.4	28.8	29.1	30.3	30.6	31	31.3	/	37.2	37.4	37.8	
		S/T	0.8	0.84	0.92	0.92	0.55	0.75	0.87	0.92	0.31	0.49	0.66	0.83	/	0.31	0.45	0.58	
		KW	1.17	1.19	1.21	1.21	1.21	1.22	1.23	1.24	1.24	1.25	1.27	1.28	/	1.67	1.69	1.71	
	65	TC	26.4	26.7	27.4	27.8	27.4	27.8	28.2	28.5	29.8	30.1	30.2	30.5	/	36.7	37	37.6	
		S/T	0.8	0.84	0.92	0.92	0.53	0.75	0.87	0.92	0.31	0.49	0.65	0.82	/	0.31	0.45	0.59	
		KW	1.76	1.77	1.79	1.79	1.79	1.81	1.83	1.85	1.85	1.86	1.89	1.91	/	2.23	2.25	2.13	
	75	TC	26.5	26.8	27.6	27.9	27.6	27.9	28.3	28.6	30	30.1	30.4	30.7	/	37.7	37.9	38	
		S/T	0.81	0.85	0.91	0.92	0.54	0.75	0.87	0.92	0.31	0.48	0.65	0.82	/	0.31	0.45	0.59	
		KW	1.81	1.82	1.85	1.85	1.85	1.86	1.88	1.91	1.91	1.92	1.94	1.96	/	2.46	2.46	2.46	
	85	TC	25.8	26.2	26.8	27.2	26.8	27.2	27.5	27.9	29.2	29.4	29.7	29.9	/	35.3	35.5	35.7	
		S/T	0.81	0.85	0.92	0.92	0.54	0.76	0.87	0.92	0.31	0.49	0.66	0.83	/	0.31	0.45	0.59	
		KW	2.04	2.06	2.08	2.08	2.08	2.11	2.12	2.15	2.16	2.17	2.19	2.21	/	2.62	2.65	2.66	
	95	TC	25	25.3	26	26.4	26	26.4	26.7	27	28.3	28.5	28.7	29	/	33.3	33.5	33.5	
		S/T	0.81	0.85	0.92	0.92	0.54	0.76	0.87	0.92	0.31	0.49	0.66	0.84	/	0.31	0.45	0.6	
		KW	2.40	2.42	2.45	2.45	2.45	2.47	2.50	2.52	2.54	2.56	2.57	2.59	/	2.96	2.97	2.97	
	105	TC	24.2	24.5	25.1	25.5	25.1	25.5	25.8	26.2	27.4	27.6	27.8	28.1	/	30	30.1	30	
		S/T	0.8	0.84	0.92	0.92	0.54	0.76	0.87	0.92	0.31	0.49	0.67	0.85	/	0.31	0.46	0.61	
		KW	2.80	2.82	2.86	2.86	2.86	2.89	2.91	2.95	2.96	2.99	3.00	3.03	/	3.11	3.13	3.08	
	115	TC	18.2	18.4	19	19.3	19	19.3	19.5	19.7	20.9	21	21.1	21.2	/	22.8	22.9	22.9	
		S/T	0.81	0.85	0.92	0.92	0.54	0.77	0.87	0.92	0.32	0.52	0.71	0.91	/	0.31	0.5	0.68	
		KW	2.47	2.50	2.53	2.53	2.53	2.56	2.58	2.61	2.64	2.65	2.66	2.67	/	2.76	2.76	2.77	
	125	TC	10.8	11	11.														

BOVA20-36 + BVA20-36 For Cooling																		
Indoor Airflow (CFM)	Outdoor DB (°F)	IWB (°F)	59				63				67				71			
		IDB (°F)	70	75	80	85	70	75	80	85	70	75	80	85	70	75	80	85
1150	15	TC	29.7	30	30.8	31.2	30.8	31.2	31.6	31.8	33.1	33.4	33.7	34	/	39.9	40.2	40.6
		S/T	0.81	0.86	0.92	0.92	0.56	0.78	0.88	0.92	0.31	0.5	0.68	0.86	/	0.3	0.46	0.6
		KW	1.24	1.25	1.27	1.27	1.27	1.28	1.30	1.31	1.31	1.31	1.33	1.35	/	1.76	1.78	1.81
	65	TC	29.1	29.5	30.1	30.5	30.1	30.5	30.9	31.3	32.5	32.8	33	33.3	/	39.4	39.7	40.4
		S/T	0.81	0.86	0.92	0.92	0.55	0.78	0.88	0.92	0.31	0.5	0.68	0.86	/	0.31	0.46	0.61
		KW	1.85	1.87	1.88	1.88	1.88	1.91	1.93	1.95	1.95	1.96	1.99	2.01	/	2.35	2.37	2.24
	75	TC	29.2	29.6	30.3	30.6	30.3	30.6	31	31.4	32.7	32.9	33.2	33.5	/	40.5	40.7	40.7
		S/T	0.82	0.86	0.92	0.92	0.54	0.77	0.88	0.92	0.31	0.5	0.68	0.86	/	0.31	0.46	0.61
		KW	1.90	1.92	1.95	1.95	1.95	1.96	1.98	2.01	2.01	2.02	2.04	2.07	/	2.58	2.59	2.59
	85	TC	28.5	28.9	29.6	29.9	29.6	29.9	30.2	30.6	31.9	32.1	32.4	32.6	/	38	38.2	38.5
		S/T	0.82	0.86	0.92	0.92	0.55	0.78	0.88	0.92	0.31	0.5	0.68	0.87	/	0.31	0.46	0.62
		KW	2.15	2.16	2.19	2.19	2.19	2.22	2.23	2.26	2.27	2.29	2.30	2.32	/	2.76	2.79	2.80
	95	TC	27.8	28.1	28.7	29.1	28.7	29.1	29.5	29.8	31.1	31.3	31.5	31.7	/	36	36.2	36.2
		S/T	0.82	0.86	0.91	0.92	0.55	0.79	0.88	0.92	0.31	0.5	0.68	0.92	/	0.31	0.47	0.63
		KW	2.52	2.55	2.58	2.58	2.58	2.60	2.63	2.65	2.67	2.69	2.71	2.73	/	3.12	3.13	3.13
	105	TC	26.9	27.2	27.9	28.2	27.9	28.2	28.5	28.9	30.1	30.3	30.5	30.8	/	32.7	32.9	32.7
		S/T	0.81	0.86	0.91	0.92	0.55	0.79	0.88	0.92	0.31	0.51	0.7	0.92	/	0.31	0.49	0.66
		KW	2.94	2.97	3.01	3.01	3.01	3.04	3.07	3.10	3.12	3.15	3.16	3.19	/	3.28	3.29	3.24
	115	TC	20.9	21.1	21.7	22	21.7	22	22.3	22.5	23.6	23.7	23.8	24	/	25.5	25.6	25.7
		S/T	0.82	0.86	0.92	0.92	0.56	0.8	0.88	0.92	0.32	0.54	0.78	0.92	/	0.32	0.54	0.76
		KW	2.60	2.63	2.66	2.66	2.66	2.69	2.72	2.74	2.78	2.79	2.80	2.81	/	2.90	2.91	2.92
	125	TC	13.6	13.7	14.1	14.3	14.1	14.3	14.5	14.7	15.5	15.5	15.6	15.6	/	16.8	16.8	16.8
		S/T	0.81	0.86	0.91	0.92	0.67	0.92	0.88	0.91	0.33	0.67	0.92	0.92	/	0.35	0.66	0.92
		KW	1.85	1.88	1.89	1.89	1.89	1.91	1.93	1.95	1.99	1.99	1.99	1.99	/	2.00	2.00	2.00
1300	15	TC	32.4	32.8	33.5	33.9	33.5	33.9	34.3	34.6	35.8	36.1	36.5	36.8	/	42.6	42.9	43.3
		S/T	0.85	0.88	0.95	0.95	0.61	0.85	0.95	0.95	0.37	0.55	0.74	0.95	/	0.36	0.51	0.67
		KW	1.30	1.32	1.34	1.34	1.34	1.35	1.37	1.37	1.37	1.38	1.40	1.42	/	1.85	1.87	1.90
	65	TC	31.8	32.2	32.9	33.3	32.9	33.3	33.6	34	35.2	35.5	35.7	36	/	42.2	42.4	43.1
		S/T	0.85	0.88	0.95	0.95	0.61	0.84	0.91	0.95	0.37	0.56	0.74	0.94	/	0.36	0.52	0.67
		KW	1.95	1.96	1.98	1.98	1.98	2.01	2.03	2.05	2.05	2.07	2.09	2.11	/	2.47	2.49	2.36
	75	TC	31.9	32.3	33.1	33.3	33.1	33.3	33.7	34.1	35.4	35.6	35.9	36.2	/	43.2	43.4	43.5
		S/T	0.85	0.89	0.95	0.95	0.6	0.84	0.91	0.95	0.37	0.56	0.74	0.95	/	0.36	0.52	0.67
		KW	2.00	2.02	2.05	2.05	2.05	2.07	2.08	2.11	2.11	2.13	2.15	2.18	/	2.72	2.73	2.73
	85	TC	31.3	31.6	32.3	32.7	32.3	32.7	33	33.3	34.7	34.9	35.1	35.3	/	40.7	40.9	41.2
		S/T	0.85	0.89	0.95	0.95	0.61	0.85	0.91	0.95	0.37	0.56	0.75	0.95	/	0.37	0.53	0.69
		KW	2.26	2.28	2.31	2.31	2.31	2.33	2.35	2.38	2.39	2.41	2.43	2.44	/	2.91	2.93	2.95
	95	TC	30.5	30.8	31.5	31.8	31.5	31.8	32.2	32.5	33.8	34	34.2	34.5	/	38.7	38.9	38.9
		S/T	0.86	0.89	0.95	0.95	0.61	0.86	0.91	0.95	0.37	0.57	0.76	0.95	/	0.37	0.54	0.71
		KW	2.66	2.68	2.71	2.71	2.71	2.74	2.77	2.79	2.81	2.83	2.85	2.87	/	3.28	3.29	3.29
	105	TC	29.7	29.9	30.6	31	30.6	31	31.3	31.6	32.9	33.1	33.3	33.5	/	35.4	35.6	35.4
		S/T	0.86	0.89	0.95	0.95	0.62	0.86	0.91	0.95	0.37	0.57	0.77	0.95	/	0.37	0.56	0.75
		KW	3.10	3.13	3.16	3.16	3.16	3.20	3.23	3.27	3.28	3.31	3.33	3.36	/	3.45	3.47	3.41
	115	TC	23.7	23.9	24.4	24.7	24.4	24.7	25	25.2	26.3	26.4	26.5	26.7	/	28.2	28.3	28.4
		S/T	0.86	0.89	0.95	0.95	0.63	0.95	0.91	0.95	0.38	0.63	0.88	0.95	/	0.38	0.62	0.86
		KW	2.74	2.77	2.80	2.80	2.80	2.83	2.86	2.89	2.92	2.93	2.95	2.96	/	3.05	3.06	3.07
	125	TC	16.3	16.5	16.9	17.1	16.9	17.1	17.2	17.4	18.3	18.3	18.4	18.4	/	19.5	19.5	19.5
		S/T	0.85	0.89	0.95	0.95	0.75	0.95	0.91	0.95	0.39	0.76	0.95	0.95	/	0.41	0.76	0.94
		KW	1.95	1.97	1.99	1.99	1.99	2.01	2.03	2.06	2.09	2.09	2.09	2.09	/	2.10	2.10	2.10

Table 5

TC refers to total capacity in KBTU/hr S/T: refer to the ratio of sensible heat and total capacity kW: refer to total input power

		BOVA20-60 +BVA20-48 For Cooling																	
Indoor Airflow (CFM)	Outdoor DB (°F)	IWB (°F)	59				63				67				71				
		IDB (°F)	70	75	80	85	70	75	80	85	70	75	80	85	70	75	80	85	
1120	15	TC	37.0	37.3	38.2	38.6	38.2	38.6	39.0	39.4	40.7	41.1	41.5	41.8					
		S/T	0.81	0.86	0.92	0.96	0.57	0.76	0.88	0.91	0.38	0.53	0.66	0.81			0.38	0.49	0.61
		KW	1.31	1.33	1.35	1.35	1.35	1.37	1.39	1.41	1.40	1.42	1.46	1.47			2.06	2.09	1.87
	65	TC	36.9	37.2	38.1	38.5	38.1	38.5	38.9	39.3	40.7	41.0	41.4	41.7			49.4	49.7	50.7
		S/T	0.81	0.86	0.92	0.96	0.57	0.76	0.88	0.91	0.38	0.53	0.66	0.81			0.38	0.49	0.61
		KW	1.94	1.96	1.98	1.98	1.98	2.00	2.02	2.04	2.03	2.05	2.08	2.09			2.69	2.72	2.50
	75	TC	36.6	37.1	37.8	38.3	37.8	38.3	38.7	39.0	40.4	40.7	41.1	41.5			48.9	49.5	49.8
		S/T	0.81	0.86	0.92	0.96	0.57	0.76	0.88	0.91	0.38	0.53	0.66	0.81			0.38	0.49	0.61
		KW	2.19	2.21	2.23	2.23	2.23	2.26	2.28	2.30	2.30	2.32	2.36	2.38			2.82	2.72	2.74
	85	TC	36.2	36.6	37.4	37.8	37.4	37.8	38.2	38.6	40.4	40.6	40.7	41.0			48.3	48.7	49.1
		S/T	0.81	0.86	0.92	0.96	0.57	0.76	0.88	0.91	0.38	0.53	0.67	0.82			0.38	0.49	0.61
		KW	2.32	2.36	2.38	2.38	2.38	2.40	2.43	2.45	2.49	2.50	2.50	2.52			3.08	3.10	3.13
	95	TC	35.8	36.2	37.1	37.4	37.1	37.4	37.8	38.3	39.5	40.0	40.3	40.6			47.6	47.9	48.2
		S/T	0.81	0.86	0.92	0.96	0.58	0.76	0.88	0.91	0.38	0.53	0.67	0.82			0.38	0.49	0.62
		KW	2.82	2.85	2.88	2.88	2.88	2.91	2.94	2.97	2.97	3.01	3.03	3.06			3.69	3.72	3.75
	105	TC	34.7	35.1	35.8	36.2	35.8	36.2	36.7	37.1	38.4	38.6	39.0	39.3			45.8	46.1	46.3
		S/T	0.81	0.86	0.92	0.96	0.58	0.76	0.88	0.91	0.38	0.53	0.67	0.83			0.38	0.49	0.62
		KW	3.37	3.41	3.45	3.45	3.45	3.48	3.52	3.55	3.57	3.60	3.62	3.65			4.39	4.43	4.46
	115	TC	34.2	34.5	35.4	35.8	35.4	35.8	36.1	36.5	37.8	38.1	38.4	38.7			41.7	41.9	42.2
		S/T	0.81	0.86	0.92	0.96	0.58	0.77	0.88	0.91	0.38	0.53	0.68	0.83			0.38	0.51	0.64
		KW	4.02	4.06	4.11	4.11	4.11	4.15	4.19	4.23	4.24	4.27	4.33	4.36			4.55	4.56	4.56
	125	TC	27.4	27.8	28.3	28.6	28.3	28.6	29.0	29.3	30.6	30.7	30.8	30.8			32.6	32.7	32.8
		S/T	0.83	0.88	0.94	0.96	0.58	0.78	0.89	0.92	0.38	0.57	0.76	0.96			0.38	0.56	0.73
		KW	3.28	3.31	3.34	3.34	3.34	3.38	3.41	3.45	3.52	3.52	3.52	3.52			3.54	3.54	3.55
1240	15	TC	38.8	39.2	40.1	40.6	40.1	40.6	40.9	41.4	42.7	43.2	43.6	44.0			52.4	52.8	53.3
		S/T	0.86	0.89	0.96	0.96	0.59	0.79	0.91	0.96	0.38	0.53	0.68	0.84			0.37	0.50	0.62
		KW	1.39	1.41	1.42	1.42	1.42	1.45	1.46	1.48	1.45	1.47	1.50	1.53			1.82	1.83	1.85
	65	TC	38.5	38.9	39.7	40.2	39.7	40.2	40.7	41.0	42.9	43.0	43.2	43.6			52.4	52.8	53.3
		S/T	0.86	0.89	0.96	0.96	0.58	0.78	0.91	0.96	0.38	0.53	0.68	0.84			0.37	0.50	0.62
		KW	2.10	2.13	2.15	2.15	2.15	2.17	2.19	2.21	2.24	2.25	2.26	2.29			2.70	2.73	2.76
	75	TC	38.7	39.0	39.9	40.4	39.9	40.4	40.8	41.2	42.6	43.0	43.4	43.8			52.1	52.5	52.9
		S/T	0.86	0.89	0.96	0.96	0.58	0.78	0.91	0.96	0.38	0.53	0.68	0.84			0.37	0.50	0.63
		KW	2.27	2.29	2.32	2.32	2.32	2.35	2.37	2.40	2.39	2.42	2.44	2.47			2.93	2.96	3.00
	85	TC	38.1	38.6	39.4	39.8	39.4	39.8	40.3	40.7	42.1	42.5	42.8	43.2			51.3	51.6	52.0
		S/T	0.86	0.89	0.96	0.96	0.58	0.78	0.91	0.96	0.38	0.54	0.69	0.85			0.37	0.50	0.63
		KW	2.52	2.56	2.58	2.58	2.58	2.61	2.64	2.66	2.67	2.69	2.71	2.74			3.31	3.34	3.37
	95	TC	37.6	38.1	38.9	39.3	38.9	39.3	39.8	40.2	41.6	42.0	42.3	42.6			50.2	50.6	51.0
		S/T	0.86	0.89	0.96	0.96	0.59	0.78	0.91	0.96	0.38	0.54	0.69	0.85			0.37	0.50	0.64
		KW	3.04	3.07	3.10	3.10	3.10	3.13	3.16	3.19	3.20	3.24	3.27	3.29			3.95	3.98	4.01
	105	TC	36.3	36.8	37.6	38.0	37.6	38.0	38.4	38.8	40.2	40.5	40.9	41.1			48.2	48.6	48.8
		S/T	0.86	0.89	0.96	0.96	0.59	0.79	0.91	0.96	0.38	0.54	0.70	0.86			0.37	0.50	0.64
		KW	3.61	3.65	3.70	3.70	3.70	3.74	3.77	3.81	3.82	3.85	3.89	3.92			4.69	4.73	4.76
	115	TC	35.6	36.0	36.8	37.1	36.8	37.1	37.6	38.0	39.6	39.8	40.0	39.9			42.1	42.3	42.4
		S/T	0.86	0.89	0.96	0.96	0.59	0.80	0.91	0.96	0.38	0.54	0.70	0.87			0.38	0.53	0.68
		KW	4.26	4.30	4.35	4.35	4.35	4.40	4.44	4.48	4.53	4.57	4.58	4.57			4.60	4.62	4.64
	125	TC	27.6	27.9	28.5	28.9	28.5	28.9	29.2	29.4	30.9	30.9	31.0	31.1	/	/	32.9	33.0	33.0
		S/T	0.87	0.90	0.96	0.96	0.61	0.83	0.92	0.96	0.38	0.60	0.80	0.96	/	/	0.38	0.58	0.78
		KW	3.33	3.36	3.40	3.40	3.40	3.43	3.47	3.51	3.58	3.58	3.58	3.58	/	/	3.60	3.60	3.60
1420	15	TC	41.5	42.0	42.9	43.4	42.9	43.4	43.9	44.3	45.8	46.2	46.6	47.1	/	/	55.6	56.1	56.5
		S/T	0.87	0.90	0.96	0.96	0.60	0.81	0.92	0.96	0.38	0.54	0.70	0.87	/	/	0.37	0.51	0.64
		KW	1.73	1.75	1.76	1.76	1.76	1.78	1.80	1.82	1.78	1.82	1.85	1.89	/	/	2.24	2.26	2.28
	65	TC	40.9	41.4	42.3	42.7	42.3	42.7	43.2	43.7	45.2	45.6	46.0	46.3			55.4	55.8	56.3
		S/T	0.87	0.90	0.96	0.96	0.59	0.81	0.92	0.96	0.38	0.55	0.71	0.88			0.37	0.51	0.64
		KW	2.41	2.44	2.46	2.46	2.46	2.48	2.51	2.53	2.52	2.56	2.59	2.62			3.06	3.09	3.12
	75	TC	41.1	41.6	42.5	42.9	42.5	42.9	43.4	43.9	45.4	45.8	46.1	46.5			55.1	55.4	55.8
		S/T	0.87	0.90	0.96	0.96	0.60	0.81	0.92	0.96	0.38	0.55	0.71	0.88			0.37	0.51	0.64
		KW	2.56	2.59	2.62	2.62	2.62	2.64	2.67	2.70	2.69	2.72	2.75	2.78			3.26	3.28	3.31
	85	TC	40.5	40.9	41.9	42.4	41.9	42.4	42.7	43.2	44.7	45.2	45.5	45.9			54.0	54.5	54.9
		S/T	0.87	0.90	0.96	0.96	0.60	0.81	0.92	0.96	0.38	0.55	0.71	0.88			0.37	0.51	0.64
		KW	2.80	2.83	2.86	2.86	2.86	2.89	2.91	2.94	2.95	2.98	3.01	3.04			3.63	3.67	3.69
	95	TC	40.0	40.5	41.4	41.8	41.4	41.8	42.3	42.7	44.2	44.5	45.0	45.3			52.9	53.3	53.6
		S/T	0.87	0.90	0.96	0.96	0.60	0.81	0.92	0.96	0.38	0.55	0.72	0.89			0.37	0.51	0.65
		KW	3.33	3.36	3.40	3.40	3.40	3.43	3.48	3.51	3.53	3.55	3.58	3.61			4.31	4.36	4.39
	105	TC	38.4	38.9	39.7	40.2	39.7	40.2	40.6	41.0	42.4	42.9	43.2	43.6			50.6	50.9	51.2
		S/T	0.87	0.90	0.96	0.96	0.60	0.82	0.92	0.96	0.38	0.55	0.72	0.89			0.37	0.52	0.66
		KW	3.95	3.99	4.03	4.03	4.03	4.07	4.12	4.16	4.17	4.21	4.24	4.27			5.10	5.13	5.16
	115	TC	36.1	36.5	37.3	37.7	37.3	37.7	38.2	38.5	40.2	40.3	40.5	40.4			43.4	43.6	43.7
		S/T	0.87</																

BOVA20-60 +BVA20-48 For Cooling																		
Indoor Airflow (CFM)	Outdoor DB (°F)	IWB (°F)	59				63				67				71			
		IDB (°F)	70	75	80	85	70	75	80	85	70	75	80	85	70	75	80	85
1580	15	TC	44.0	44.5	45.5	46.0	45.5	46.0	46.4	47.0	48.6	49.0	49.5	49.8		58.5	58.9	59.3
		S/T	0.87	0.90	0.96	0.96	0.61	0.84	0.92	0.96	0.38	0.55	0.72	0.89		0.37	0.51	0.66
		KW	2.10	2.13	2.15	2.15	2.15	2.17	2.19	2.21	2.18	2.22	2.26	2.30		2.73	2.75	2.79
	65	TC	43.1	43.6	44.5	44.5	45.0	44.5	45.0	46.0	47.8	48.0	48.4	49.6		58.1	58.5	59.4
		S/T	0.87	0.90	0.96	0.96	0.60	0.83	0.92	0.96	0.38	0.56	0.73	0.90		0.37	0.52	0.66
		KW	2.74	2.78	2.81	2.81	2.81	2.83	2.86	2.89	2.89	2.92	2.95	2.74		3.42	3.46	3.23
	75	TC	43.5	44.0	44.9	45.4	44.9	45.4	45.9	46.4	47.9	48.2	48.8	49.2		58.0	58.4	58.8
		S/T	0.87	0.90	0.96	0.96	0.61	0.83	0.92	0.96	0.38	0.56	0.73	0.90		0.37	0.52	0.66
		KW	2.74	2.78	2.81	2.81	2.81	2.84	2.87	2.89	3.03	3.06	2.95	2.98		3.48	3.50	3.53
	85	TC	42.6	43.1	44.1	44.5	44.1	44.5	45.0	45.5	47.2	47.6	47.9	48.2		56.6	56.9	57.3
		S/T	0.87	0.90	0.96	0.96	0.61	0.83	0.92	0.96	0.38	0.56	0.74	0.91		0.37	0.52	0.67
		KW	3.09	3.12	3.15	3.15	3.15	3.18	3.22	3.26	3.27	3.30	3.32	3.35		3.98	4.02	4.05
	95	TC	41.8	42.3	43.2	43.7	43.2	43.7	44.2	44.6	46.3	46.6	47.0	47.4		55.1	55.5	55.9
		S/T	0.87	0.90	0.96	0.96	0.61	0.84	0.92	0.96	0.38	0.56	0.74	0.96		0.37	0.53	0.68
		KW	3.64	3.69	3.73	3.73	3.73	3.76	3.80	3.84	3.86	3.90	3.92	3.96		4.70	4.74	4.78
	105	TC	40.1	40.6	41.5	41.9	41.5	41.9	42.3	42.8	44.5	44.8	45.0	45.4		52.5	52.5	52.7
		S/T	0.87	0.90	0.96	0.96	0.61	0.85	0.92	0.96	0.38	0.57	0.75	0.96		0.37	0.53	0.69
		KW	4.28	4.34	4.38	4.38	4.38	4.42	4.47	4.51	4.53	4.58	4.61	4.64	/	5.49	5.49	5.50
	115	TC	36.1	36.5	37.3	37.7	37.3	37.7	38.2	38.5	40.2	40.4	40.6	40.8	/	44.4	41.1	41.3
		S/T	0.87	0.90	0.96	0.96	0.62	0.86	0.92	0.96	0.38	0.59	0.80	0.96	/	0.38	0.59	0.79
		KW	4.46	4.51	4.56	4.56	4.56	4.61	4.66	4.70	4.83	4.85	4.80	4.82	/	3.78	3.78	3.79
	125	TC	27.8	28.0	28.7	29.1	28.7	29.1	29.3	29.6	31.1	31.2	31.2	31.3	/	33.2	33.2	33.2
		S/T	0.89	0.93	0.96	0.96	0.65	0.96	0.92	0.96	0.38	0.65	0.96	0.96	/	0.39	0.64	0.96
		KW	3.53	3.57	3.60	3.60	3.60	3.64	3.68	3.72	3.79	3.79	3.79	3.79	/	3.81	3.82	3.82
1780	15	TC	45.4	46.0	46.9	47.5	46.9	47.5	47.9	48.5	50.3	50.7	51.0	51.5	/	60.6	61.0	61.4
		S/T	0.88	0.92	0.96	0.96	0.62	0.85	0.92	0.96	0.38	0.56	0.75	0.95		0.37	0.52	0.68
		KW	2.71	2.74	2.78	2.78	2.78	2.81	2.83	2.86	2.87	2.90	2.92	2.95		3.38	3.41	3.45
	65	TC	45.4	46.0	46.9	47.5	46.9	47.5	47.9	48.5	50.3	50.7	51.0	51.5		60.6	61.0	61.4
		S/T	0.88	0.92	0.96	0.96	0.62	0.85	0.92	0.96	0.38	0.56	0.75	0.95		0.37	0.52	0.68
		KW	2.71	2.74	2.78	2.78	2.78	2.81	2.83	2.86	2.87	2.90	2.92	2.95		3.38	3.41	3.45
	75	TC	45.0	45.6	46.5	47.1	46.5	47.1	47.6	48.0	49.8	50.2	50.6	51.0		59.9	60.3	60.6
		S/T	0.89	0.93	0.95	0.96	0.62	0.86	0.92	0.96	0.38	0.57	0.75	0.95		0.37	0.53	0.68
		KW	2.92	2.95	2.98	2.98	2.98	3.02	3.05	3.08	3.09	3.12	3.14	3.17		3.69	3.72	3.75
	85	TC	44.3	44.7	45.7	46.2	45.7	46.2	46.7	47.2	48.9	49.3	49.7	50.0		58.4	58.8	59.1
		S/T	0.89	0.93	0.96	0.96	0.62	0.86	0.92	0.96	0.38	0.57	0.76	0.96		0.37	0.53	0.69
		KW	3.28	3.31	3.35	3.35	3.35	3.38	3.41	3.46	3.47	3.49	3.52	3.55		4.21	4.24	4.27
	95	TC	43.2	43.7	44.7	45.2	44.7	45.2	45.7	46.1	47.9	48.2	48.6	49.0		56.9	57.1	57.5
		S/T	0.88	0.93	0.96	0.96	0.62	0.87	0.92	0.96	0.38	0.57	0.77	0.96		0.37	0.54	0.70
		KW	3.84	3.89	3.93	3.93	3.93	3.97	4.01	4.05	4.07	4.11	4.14	4.17		4.94	4.98	5.02
	105	TC	41.4	41.9	42.8	43.3	42.8	43.3	43.7	44.2	45.9	46.2	46.5	46.8		53.1	53.4	53.2
		S/T	0.89	0.93	0.96	0.96	0.63	0.88	0.92	0.96	0.38	0.58	0.78	0.96		0.38	0.55	0.72
		KW	4.50	4.56	4.60	4.60	4.60	4.65	4.70	4.74	4.76	4.80	4.84	4.88		5.57	5.57	5.57
	115	TC	36.9	37.2	38.1	38.5	38.1	38.5	38.9	39.4	41.0	41.2	41.4	41.6		41.9	42.1	42.2
		S/T	0.88	0.93	0.96	0.96	0.63	0.89	0.92	0.96	0.38	0.61	0.83	0.96		0.38	0.59	0.79
		KW	4.53	4.59	4.64	4.64	4.64	4.68	4.73	4.79	4.87	4.88	4.88	4.88		4.92	4.92	4.93
	125	TC	27.9	28.1	28.8	29.1	28.8	29.1	29.4	29.7	31.2	31.3	31.3	31.4		33.3	33.3	33.4
		S/T	0.89	0.94	0.95	0.96	0.68	0.96	0.92	0.96	0.38	0.68	0.96	0.96		0.39	0.67	0.95
		KW	3.59	3.63	3.68	3.68	3.68	3.71	3.75	3.79	3.86	3.86	3.86	3.86		3.89	3.89	3.89

Table 7

TC refers to total capacity in KBTU/hr S/T: refer to the ratio of sensible heat and total capacity kW: refer to total input power

BOVA20-60 +BVA20-60 For Cooling																			
Indoor Airflow (CFM)	Outdoor DB (°F)	IWB (°F)	IDB (°F)	59				63				67				71			
				70	75	80	85	70	75	80	85	70	75	80	85	70	75	80	85
1150	15	TC	37.5	38.0	38.8	39.2	38.8	39.2	39.6	40.1	41.5	41.8	42.2	42.6	/	49.8	50.2	51.1	
		S/T	0.62	0.67	0.74	0.95	0.56	0.73	0.77	0.82	0.38	0.51	0.65	0.79		0.36	0.48	0.59	
		KW	1.59	1.61	1.62	1.62	1.62	1.64	1.66	1.67	1.66	1.69	1.71	1.73		2.31	2.34	2.12	
	65	TC	37.6	38.0	38.9	39.3	38.9	39.3	39.7	40.1	41.6	41.9	42.3	42.7		49.9	50.3	51.2	
		S/T	0.73	0.78	0.86	0.95	0.56	0.73	0.84	0.88	0.38	0.51	0.65	0.79		0.36	0.48	0.59	
		KW	1.97	2.00	2.02	2.02	2.02	2.04	2.06	2.08	2.07	2.10	2.12	2.14		2.72	2.75	2.53	
	75	TC	37.4	37.8	38.7	39.1	38.7	39.1	39.5	39.9	41.3	41.6	42.0	42.4		50.2	50.6	51.1	
		S/T	0.73	0.78	0.86	0.95	0.56	0.73	0.85	0.89	0.38	0.51	0.66	0.79		0.36	0.48	0.59	
		KW	2.25	2.27	2.29	2.29	2.29	2.32	2.34	2.36	2.36	2.38	2.41	2.44		2.72	2.75	2.77	
	85	TC	37.0	37.4	38.3	38.7	38.3	38.7	39.1	39.5	40.9	41.3	41.6	42.0		49.4	49.8	50.2	
		S/T	0.73	0.78	0.86	0.95	0.56	0.73	0.85	0.89	0.38	0.51	0.66	0.79		0.36	0.48	0.60	
		KW	2.38	2.40	2.43	2.43	2.43	2.45	2.48	2.50	2.51	2.53	2.55	2.59		3.10	3.13	3.15	
	95	TC	36.7	37.0	37.9	38.3	37.9	38.3	38.8	39.2	40.5	40.9	41.2	41.6		48.7	49.0	49.4	
		S/T	0.74	0.79	0.86	0.95	0.56	0.73	0.85	0.89	0.37	0.51	0.66	0.80		0.36	0.48	0.60	
		KW	2.87	2.90	2.94	2.94	2.94	2.97	3.00	3.03	3.03	3.06	3.09	3.11		3.72	3.75	3.78	
	105	TC	35.8	36.2	37.1	37.4	37.1	37.4	37.8	38.2	39.6	39.9	40.2	40.6		47.3	47.7	48.0	
		S/T	0.74	0.79	0.86	0.95	0.56	0.74	0.85	0.89	0.37	0.52	0.67	0.80		0.36	0.48	0.61	
		KW	3.43	3.46	3.50	3.50	3.50	3.53	3.57	3.60	3.63	3.66	3.69	3.72		4.42	4.45	4.49	
	115	TC	35.3	35.7	36.5	36.9	36.5	36.9	37.3	37.7	39.0	39.3	39.7	40.0		43.2	43.4	43.7	
		S/T	0.74	0.79	0.86	0.95	0.56	0.74	0.88	0.93	0.37	0.52	0.67	0.81		0.37	0.49	0.63	
		KW	4.08	4.12	4.16	4.16	4.16	4.21	4.25	4.29	4.31	4.35	4.39	4.42		4.48	4.49	4.49	
	125	TC	27.7	28.0	28.7	29.0	28.7	29.0	29.3	29.6	31.1	31.2	31.2	31.3		33.1	33.1	33.2	
		S/T	0.75	0.80	0.87	0.95	0.57	0.77	0.88	0.93	0.38	0.56	0.74	0.95		0.37	0.55	0.72	
		KW	3.22	3.25	3.29	3.29	3.29	3.33	3.36	3.40	3.46	3.46	3.46	3.46		3.49	3.49	3.49	
1310	15	TC	39.9	40.4	41.3	41.7	41.3	41.7	42.1	42.6	44.1	44.5	44.9	45.3		53.7	54.2	54.6	
		S/T	0.66	0.70	0.78	0.95	0.56	0.75	0.77	0.82	0.37	0.52	0.67	0.81		0.36	0.48	0.61	
		KW	1.73	1.75	1.76	1.76	1.76	1.78	1.80	1.82	1.81	1.83	1.86	1.90		2.29	2.32	2.35	
	65	TC	40.1	40.6	41.5	41.9	41.5	41.9	42.4	42.9	44.3	44.7	45.1	45.5		53.9	54.4	54.8	
		S/T	0.77	0.82	0.89	0.95	0.56	0.75	0.86	0.90	0.37	0.52	0.67	0.81		0.36	0.48	0.61	
		KW	2.21	2.25	2.27	2.27	2.27	2.29	2.31	2.34	2.33	2.35	2.38	2.41		2.80	2.83	2.86	
	75	TC	40.2	40.7	41.6	42.0	41.6	42.0	42.5	43.0	44.4	44.8	45.2	45.6		53.5	54.0	54.4	
		S/T	0.76	0.81	0.88	0.95	0.56	0.75	0.86	0.90	0.37	0.52	0.67	0.81		0.36	0.48	0.61	
		KW	2.38	2.40	2.43	2.43	2.43	2.45	2.48	2.50	2.50	2.52	2.55	2.59		3.02	3.05	3.08	
	85	TC	39.7	40.2	41.1	41.6	41.1	41.6	42.0	42.4	44.0	44.3	44.7	45.0		52.8	53.2	53.5	
		S/T	0.76	0.81	0.88	0.95	0.56	0.75	0.86	0.90	0.37	0.52	0.67	0.82		0.36	0.48	0.61	
		KW	2.63	2.66	2.69	2.69	2.69	2.71	2.74	2.77	2.78	2.80	2.82	2.85		3.40	3.43	3.46	
	95	TC	39.2	39.7	40.6	41.0	40.6	41.0	41.5	41.9	43.4	43.7	44.1	44.4		51.7	52.1	52.5	
		S/T	0.76	0.81	0.88	0.95	0.56	0.75	0.86	0.90	0.37	0.52	0.67	0.82		0.36	0.49	0.62	
		KW	3.15	3.18	3.22	3.22	3.22	3.25	3.29	3.33	3.33	3.36	3.39	3.42		4.05	4.09	4.12	
	105	TC	38.2	38.7	39.5	39.9	39.5	39.9	40.4	40.8	42.3	42.7	42.9	43.2		50.2	50.4	50.7	
		S/T	0.76	0.81	0.88	0.95	0.57	0.76	0.86	0.90	0.37	0.53	0.67	0.83		0.36	0.49	0.63	
		KW	3.74	3.78	3.82	3.82	3.82	3.86	3.90	3.94	3.96	4.00	4.03	4.06		4.81	4.85	4.88	
	115	TC	36.4	36.8	37.6	38.0	37.6	38.0	38.5	38.9	40.5	40.8	40.9	40.7		43.5	43.7	43.9	
		S/T	0.77	0.82	0.89	0.95	0.57	0.76	0.86	0.90	0.37	0.53	0.69	0.86		0.37	0.51	0.67	
		KW	4.18	4.22	4.27	4.27	4.27	4.32	4.37	4.41	4.49	4.50	4.50	4.49		4.54	4.54	4.54	
	125	TC	28.0	28.4	29.0	29.4	29.0	29.4	29.6	29.9	31.4	31.4	31.5	31.6		33.4	33.5	33.5	
		S/T	0.79	0.84	0.91	0.95	0.59	0.82	0.86	0.91	0.38	0.58	0.79	0.95		0.38	0.57	0.77	
		KW	3.28	3.31	3.35	3.35	3.35	3.38	3.42	3.45	3.52	3.52	3.52	3.52		3.54	3.54	3.54	
1480	15	TC	44.0	44.5	45.5	46.0	45.5	46.0	46.5	47.0	48.7	49.1	49.5	49.9		58.2	58.6	59.0	
		S/T	0.68	0.73	0.81	0.95	0.57	0.77	0.82	0.86	0.37	0.52	0.68	0.83		0.36	0.49	0.62	
		KW	1.93	1.95	1.97	1.97	1.97	1.99	2.01	2.03	2.00	2.04	2.08	2.12		2.51	2.54	2.56	
	65	TC	46.1	46.5	47.6	48.1	47.6	48.1	48.7	49.1	51.0	51.3	51.7	52.1		60.4	60.8	61.2	
		S/T	0.81	0.86	0.93	0.95	0.57	0.76	0.88	0.93	0.37	0.52	0.67	0.81		0.36	0.48	0.61	
		KW	2.63	2.65	2.68	2.68	2.68	2.71	2.74	2.76	2.76	2.79	2.82	2.85		3.22	3.27	3.30	
	75	TC	45.7	46.3	47.2	47.8	47.2	47.8	48.3	48.7	50.6	51.1	51.3	51.7		59.8	60.2	60.6	
		S/T	0.81	0.86	0.93	0.95	0.57	0.76	0.88	0.93	0.37	0.52	0.67	0.82		0.36	0.49	0.62	
		KW	2.83	2.86	2.89	2.89	2.89	2.93	2.96	2.99	3.00	3.02	3.05	3.07		3.53	3.56	3.60	
	85	TC	44.9	45.4	46.4	46.9	46.4	46.9	47.4	47.9	49.7	50.1	50.5	50.9		58.3	58.8	59.2	
		S/T	0.81	0.86	0.93	0.95	0.57	0.76	0.88	0.93	0.37	0.52	0.67	0.83		0.36	0.49	0.62	
		KW	3.18	3.21	3.24	3.24	3.24	3.29	3.32	3.35	3.37	3.40	3.42	3.45		4.06	4.10	4.13	
	95	TC	44.0	44.5	45.5	46.1	45.5	46.1	46.5	47.0	48.7	49.1	49.5	49.8		56.9	57.3	57.7	
		S/T	0.81	0.86	0.93	0.95	0.57	0.77	0.88	0.93	0.37	0.52	0.68	0.83		0.36	0.49	0.63	
		KW	3.77	3.81	3.85	3.85	3.85	3.89	3.93	3.98	3.99	4.02	4.05	4.08		4.80	4.83	4.86	
	105	TC	42.6	43.0	44.0	44.5	44.0	44.5	45.0	45.5	47.2	47.5	47.9	48.2		54.8	55.0	55.0	
		S/T	0.81	0.86	0.93	0.95	0.57	0.77	0.88	0.93	0.37	0.53	0.68	0.85		0.36	0.50	0.64	
		KW	4.44	4.49	4.53	4.53	4.53	4.58	4.63	4.68	4.70	4.74	4.78	4.81		5.62	5.64	5.64	
	115	TC	36.5	37.0	37.7	38.2	37.7	38.2	38.6	39.0	40.7	40.9	41.0	41.1		42.5	42.6	42.8	
		S/T	0.81	0.86	0.93	0.95	0.58	0.78	0.88	0.93	0.37	0.56	0.74	0.95		0.37	0.55	0.72	
		KW	4.38	4.43	4.47	4.47	4.47	4.52	4.56	4.61	4.67	4.69	4.71	4.59		4.74	4.76	4.77	
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BOVA20-60 +BVA20-60 For Cooling																		
Indoor Airflow (CFM)	Outdoor DB (°F)	IWB (°F)	59				63				67				71			
		IDB (°F)	70	75	80	85	70	75	80	85	70	75	80	85	70	75	80	85
1720	15	TC	46.7	47.3	48.4	48.8	48.4	48.8	49.4	49.9	51.7	52.1	52.6	53.0		61.6	62.0	62.4
		S/T	0.69	0.74	0.95	0.95	0.58	0.79	0.84	0.88	0.37	0.53	0.69	0.86		0.36	0.50	0.64
		KW	2.37	2.40	2.42	2.42	2.42	2.45	2.47	2.50	2.45	2.50	2.55	2.61		3.09	3.12	3.14
	65	TC	48.9	49.5	50.6	51.1	50.6	51.1	51.7	52.2	54.2	54.6	55.0	55.4		63.8	64.2	64.6
		S/T	0.82	0.86	0.95	0.95	0.57	0.78	0.89	0.94	0.37	0.52	0.68	0.84		0.36	0.49	0.63
		KW	3.00	3.03	3.06	3.06	3.06	3.10	3.13	3.16	3.16	3.19	3.22	3.25		3.66	3.69	3.73
	75	TC	48.6	49.0	50.2	50.7	50.2	50.7	51.2	51.8	53.7	54.1	54.5	54.9		63.0	63.4	64.2
		S/T	0.81	0.86	0.95	0.95	0.57	0.78	0.89	0.94	0.37	0.53	0.68	0.85		0.36	0.49	0.63
		KW	3.18	3.21	3.25	3.25	3.25	3.29	3.32	3.36	3.37	3.40	3.42	3.45		3.94	3.99	3.89
	85	TC	47.6	48.2	49.2	49.7	49.2	49.7	50.3	50.9	52.7	53.1	53.5	53.8		61.5	61.9	62.2
		S/T	0.82	0.86	0.95	0.95	0.58	0.78	0.89	0.94	0.37	0.53	0.69	0.86		0.36	0.50	0.64
		KW	3.53	3.57	3.60	3.60	3.60	3.65	3.69	3.72	3.74	3.76	3.80	3.83		4.48	4.52	4.55
	95	TC	46.5	47.0	48.1	48.7	48.1	48.7	49.1	49.6	51.5	51.8	52.3	52.5		59.7	60.1	60.4
		S/T	0.82	0.86	0.95	0.95	0.58	0.79	0.89	0.94	0.37	0.53	0.69	0.86		0.36	0.50	0.65
		KW	4.15	4.20	4.24	4.24	4.24	4.29	4.34	4.38	4.40	4.44	4.47	4.50		5.24	5.28	5.31
	105	TC	44.8	45.3	46.4	46.8	46.4	46.8	47.3	47.9	49.7	50.1	50.4	50.6		55.6	55.9	55.8
		S/T	0.81	0.86	0.95	0.95	0.58	0.79	0.89	0.94	0.37	0.54	0.71	0.87		0.36	0.51	0.67
		KW	4.86	4.91	4.97	4.97	4.97	5.03	5.08	5.13	5.16	5.20	5.23	5.26		5.79	5.83	5.79
	115	TC	37.6	38.0	38.9	39.2	38.9	39.2	39.7	40.1	41.9	42.1	42.3	42.4		43.4	43.5	43.7
		S/T	0.82	0.86	0.95	0.95	0.59	0.81	0.89	0.94	0.37	0.57	0.77	0.95		0.37	0.57	0.76
		KW	4.51	4.55	4.60	4.60	4.60	4.66	4.70	4.75	4.81	4.83	4.85	4.86		4.99	5.00	5.01
	125	TC	28.4	28.7	29.4	29.6	29.4	29.6	30.0	30.3	31.8	31.8	31.9	32.0		33.9	34.0	34.0
		S/T	0.83	0.87	0.95	0.95	0.65	0.95	0.90	0.95	0.38	0.65	0.95	0.95		0.38	0.64	0.94
		KW	3.48	3.51	3.55	3.55	3.55	3.59	3.63	3.67	3.74	3.74	3.74	3.74		3.76	3.76	3.76
1880	15	TC	48.9	49.5	50.7	51.1	50.7	51.1	51.7	52.3	54.3	54.7	55.1	55.6		63.9	64.3	64.7
		S/T	0.71	0.76	0.95	0.95	0.58	0.80	0.86	0.90	0.37	0.54	0.71	0.87		0.36	0.50	0.66
		KW	2.77	2.80	2.83	2.83	2.83	2.86	2.89	2.93	2.87	2.94	2.99	3.04		3.62	3.65	3.68
	65	TC	51.1	51.6	52.8	53.3	52.8	53.3	53.8	54.4	56.6	56.9	57.3	57.7		66.3	66.7	67.1
		S/T	0.83	0.87	0.95	0.95	0.58	0.79	0.90	0.95	0.37	0.53	0.69	0.86		0.36	0.50	0.65
		KW	3.28	3.31	3.34	3.34	3.34	3.38	3.41	3.45	3.45	3.48	3.51	3.55		3.98	4.01	4.04
	75	TC	50.9	51.3	52.5	53.1	52.5	53.1	53.6	54.2	56.3	56.7	57.1	57.5		65.8	66.2	66.6
		S/T	0.83	0.87	0.95	0.95	0.58	0.79	0.90	0.95	0.37	0.53	0.69	0.86		0.36	0.50	0.65
		KW	3.32	3.36	3.39	3.39	3.39	3.43	3.46	3.50	3.52	3.54	3.57	3.60		4.12	4.15	4.18
	85	TC	49.5	50.1	51.2	51.8	51.2	51.8	52.3	52.9	55.0	55.3	55.7	56.0		63.7	64.1	64.4
		S/T	0.83	0.87	0.95	0.95	0.58	0.80	0.90	0.95	0.37	0.54	0.70	0.87		0.36	0.51	0.66
		KW	3.79	3.83	3.87	3.87	3.87	3.91	3.96	4.00	4.02	4.05	4.08	4.11		4.79	4.82	4.85
	95	TC	48.3	48.7	49.9	50.4	49.9	50.4	51.0	51.5	53.5	53.9	54.2	54.5		61.6	62.0	62.3
		S/T	0.83	0.87	0.95	0.95	0.59	0.80	0.90	0.95	0.37	0.54	0.71	0.88		0.36	0.51	0.67
		KW	4.44	4.49	4.53	4.53	4.53	4.58	4.63	4.68	4.71	4.74	4.78	4.81		5.56	5.59	5.63
	105	TC	46.4	46.9	48.0	48.5	48.0	48.5	49.0	49.5	51.5	51.8	52.1	52.4		56.6	55.7	56.0
		S/T	0.83	0.87	0.95	0.95	0.59	0.81	0.90	0.95	0.37	0.55	0.72	0.90		0.36	0.53	0.69
		KW	5.17	5.22	5.28	5.28	5.28	5.34	5.40	5.45	5.49	5.52	5.56	5.59		5.95	5.86	5.89
	115	TC	38.5	38.9	39.7	40.2	39.7	40.2	40.6	41.0	42.8	43.0	43.2	43.4		44.1	44.3	44.4
		S/T	0.83	0.87	0.95	0.95	0.60	0.84	0.90	0.95	0.37	0.59	0.80	0.95		0.37	0.58	0.80
		KW	4.68	4.73	4.78	4.78	4.78	4.83	4.88	4.93	5.01	5.02	5.04	5.05		5.15	4.84	4.85
	125	TC	28.5	28.8	29.5	29.7	29.5	29.7	30.1	30.4	31.9	31.9	32.0	32.0		34.0	34.1	34.2
		S/T	0.84	0.88	0.94	0.95	0.67	0.95	0.91	0.95	0.38	0.67	0.94	0.95		0.39	0.67	0.94
		KW	3.55	3.59	3.63	3.63	3.63	3.67	3.71	3.75	3.82	3.82	3.82	3.82		3.84	3.84	3.84

Table 9

TC refers to total capacity in KBTU/hr S/T: refer to the ratio of sensible heat and total capacity kW: refer to total input power

4.2 Outdoor Unit (BOVA20) + Indoor Unit (BVA20) – Heating Mode

BOVA20-36 + BVA20-24 For Heating																				
Airflow (CFM)	ID (°F)	OD (°F)	86	72	67	62	57	52	47	42	37	32	27	22	17	12	7	2	-4	
550	60	TC	26.8	26.8	26.8	26.8	26.8	26.7	26.7	26.5	26.5	25.8	25.3	24.3	24.2	22.4	21.4	20.4	18.6	
		kW	0.90	1.20	1.31	1.44	1.59	1.71	1.86	2.00	2.21	2.26	2.57	2.48	2.41	2.33	2.25	2.19	2.13	
	70	TC	19.9	19.9	19.9	19.9	19.8	19.8	19.8	19.8	19.8	19.7	19.7	19.7	19.7	18.8	17.7	16.9	16.6	15.8
		kW	0.63	0.88	0.97	1.06	1.17	1.26	1.37	1.54	1.65	1.76	1.90	2.02	2.12	2.36	2.43	2.35	2.29	
	75	TC	16.4	16.4	16.3	16.3	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.2	16.1	16.1	16.1	15.7
		kW	0.61	0.73	0.81	0.88	0.96	1.06	1.16	1.25	1.37	1.48	1.57	1.70	1.81	1.92	2.09	2.28	2.28	2.38
	80	TC	12.9	12.9	12.9	12.9	12.9	12.9	12.9	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.8	12.7	12.7
		kW	0.50	0.59	0.66	0.72	0.80	0.86	0.94	1.00	1.14	1.20	1.29	1.37	1.46	1.59	1.70	1.80	1.80	1.95
620	60	TC	27.3	27.3	27.2	27.2	27.2	27.2	27.2	27.0	27.0	25.7	26.2	24.5	24.4	23.2	22.1	21.1	19.5	
		kW	0.90	1.21	1.31	1.44	1.60	1.71	1.86	2.02	2.23	2.22	2.52	2.44	2.36	2.29	2.22	2.15	2.10	
	70	TC	20.2	20.2	20.2	20.2	20.2	20.1	20.1	20.1	20.0	20.0	20.1	20.0	19.1	18.0	17.2	16.8	16.0	
		kW	0.64	0.89	0.96	1.05	1.16	1.25	1.37	1.53	1.65	1.76	1.88	2.03	2.20	2.38	2.39	2.31	2.25	
	75	TC	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.5	16.4	16.4	16.4	16.4	16.4	16.5	16.3	16.3	16.3	15.6
		kW	0.51	0.73	0.79	0.87	0.97	1.05	1.15	1.24	1.36	1.48	1.56	1.70	1.81	1.93	2.10	2.30	2.30	2.34
	80	TC	13.1	13.1	13.1	13.1	13.1	13.1	13.1	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	13.0	12.9	12.9
		kW	0.40	0.58	0.64	0.70	0.78	0.84	0.93	1.02	1.13	1.19	1.28	1.36	1.45	1.58	1.70	1.82	1.82	1.96
680	60	TC	29.9	29.9	29.9	29.9	29.9	29.8	29.7	29.7	27.8	26.0	26.6	24.8	24.7	23.4	22.3	21.3	19.7	
		kW	1.04	1.37	1.49	1.61	1.77	1.88	2.06	2.28	2.25	2.18	2.48	2.41	2.34	2.27	2.21	2.14	2.10	
	70	TC	22.2	22.2	22.2	22.2	22.2	22.1	22.1	22.1	22.0	22.0	22.0	22.0	21.0	19.8	18.9	18.5	17.6	
		kW	0.74	1.00	1.08	1.18	1.29	1.41	1.57	1.69	1.83	1.93	2.11	2.27	2.46	2.45	2.38	2.30	2.24	
	75	TC	18.2	18.2	18.2	18.2	18.2	18.2	18.2	18.1	18.1	18.1	18.1	18.1	18.0	18.0	18.0	17.1	15.8	
		kW	0.60	0.82	0.89	0.97	1.08	1.17	1.27	1.37	1.54	1.63	1.75	1.87	1.99	2.15	2.34	2.40	2.40	2.33
	80	TC	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.4	14.3	14.2	14.2
		kW	0.47	0.66	0.72	0.79	0.87	0.94	1.05	1.13	1.24	1.31	1.41	1.50	1.63	1.74	1.82	2.01	2.17	
720	60	TC	32.7	32.7	32.7	32.7	32.7	32.4	32.4	30.4	28.2	26.1	26.9	25.0	24.8	23.5	22.5	21.4	19.9	
		kW	1.19	1.54	1.66	1.80	1.96	2.11	2.30	2.29	2.23	2.17	2.46	2.40	2.34	2.27	2.21	2.15	2.10	
	70	TC	24.3	24.3	24.3	24.3	24.3	24.2	24.2	24.1	24.1	24.0	24.0	24.0	22.9	21.6	20.6	19.7	18.2	
		kW	0.84	1.13	1.22	1.32	1.48	1.58	1.73	1.86	2.01	2.14	2.35	2.53	2.52	2.45	2.38	2.31	2.26	
	75	TC	19.9	19.9	19.9	19.9	19.9	19.9	19.9	19.8	19.8	19.8	19.8	19.7	19.7	19.7	19.0	17.4	16.1	
		kW	0.69	0.93	1.00	1.09	1.20	1.29	1.41	1.57	1.69	1.79	1.93	2.05	2.20	2.39	2.48	2.40	2.34	
	80	TC	15.8	15.8	15.8	15.8	15.8	15.8	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.7	15.6	15.6	15.6	
		kW	0.55	0.75	0.82	0.89	0.97	1.06	1.16	1.24	1.36	1.44	1.55	1.68	1.79	1.89	2.04	2.23	2.40	
960	60	TC	39.0	39.0	38.9	38.8	38.0	35.8	34.0	31.3	28.7	27.8	27.3	25.8	26.4	25.0	23.9	22.8	21.1	
		kW	1.66	1.96	2.11	2.30	2.41	2.36	2.36	2.30	2.24	2.21	2.49	2.44	2.38	2.33	2.27	2.23	2.19	
	70	TC	29.1	29.1	29.1	29.1	29.1	29.0	29.0	28.7	28.2	27.4	27.0	25.2	26.2	24.7	23.6	22.5	20.8	
		kW	1.35	1.45	1.58	1.70	1.85	1.98	2.14	2.31	2.45	2.40	2.69	2.63	2.56	2.50	2.44	2.38	2.33	
	75	TC	24.0	24.0	24.0	24.0	23.9	23.9	23.9	23.8	23.8	23.7	23.7	23.7	23.1	21.4	19.6	17.9	16.6	
		kW	0.98	1.20	1.30	1.41	1.52	1.67	1.81	1.94	2.08	2.20	2.39	2.57	2.67	2.60	2.53	2.47	2.42	
	80	TC	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.1	19.0	19.0	18.8	18.8	18.8	17.7	16.4	
		kW	0.79	0.99	1.07	1.15	1.26	1.35	1.45	1.55	1.72	1.81	1.95	2.06	2.18	2.35	2.54	2.56	2.50	

Table 10

TC refers to total capacity in kBTU/hr S/T: refer to the ratio of sensible heat and total capacity kW: refer to total input power

BOVA20-36+BVA20-36 For Heating																				
Airflow (CFM)	ID (°F)	OD (°F)	86	72	67	62	57	52	47	42	37	32	27	22	17	12	7	2	-4	
700	60	TC	29.6	29.6	29.6	29.6	29.6	29.3	29.2	29.3	29.3	29.3	29.3	27.7	25.9	24.0	22.1	20.4	18.8	
		kW	1.10	1.46	1.61	1.74	1.89	2.02	2.20	2.53	2.77	2.98	3.28	3.21	3.18	3.08	2.97	2.86	2.77	
	70	TC	22.8	22.8	22.6	22.6	22.6	22.6	22.6	22.6	22.6	22.5	22.4	22.4	22.4	22.5	22.5	21.5	19.8	18.2
		kW	0.84	1.08	1.20	1.30	1.43	1.54	1.67	1.92	2.08	2.19	2.41	2.60	2.90	3.15	3.21	3.09	3.09	2.99
	75	TC	19.1	19.1	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	19.0	18.8	18.9	18.9	18.9	18.9	18.0
		kW	0.74	0.92	1.00	1.09	1.20	1.30	1.42	1.59	1.73	1.88	2.04	2.15	2.39	2.60	2.82	3.10	3.12	3.12
80	TC	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.5	15.6	15.5	15.5	15.5	15.5	15.6	15.4	15.4	15.4	14.4	
	kW	0.69	0.74	0.82	0.90	0.99	1.07	1.16	1.32	1.46	1.54	1.66	1.78	1.96	2.09	2.28	2.51	2.51	2.51	
820	60	TC	34.0	34.0	34.0	33.7	33.7	33.6	33.6	33.7	32.2	30.2	30.1	28.2	26.2	24.3	22.5	20.7	19.2	
		kW	1.45	1.74	1.89	2.03	2.22	2.40	2.62	3.01	3.03	2.94	3.22	3.12	3.11	3.01	2.91	2.82	2.75	
	70	TC	26.0	26.0	26.0	26.0	26.0	26.0	25.9	25.9	25.9	25.9	25.9	25.9	25.7	23.8	21.8	20.2	18.7	
		kW	1.04	1.30	1.43	1.56	1.68	1.83	1.99	2.21	2.43	2.60	2.84	3.08	3.37	3.26	3.14	3.04	2.96	
	75	TC	21.9	21.9	21.9	21.9	21.9	21.8	21.8	21.7	21.8	21.6	21.6	21.6	21.6	21.7	21.7	21.6	19.8	18.3
		kW	0.98	1.10	1.19	1.29	1.42	1.52	1.65	1.83	2.05	2.15	2.35	2.53	2.81	3.05	3.28	3.17	3.08	
80	TC	18.0	18.0	18.0	18.0	18.0	17.9	17.9	18.0	17.9	17.9	17.9	17.9	17.9	17.8	17.8	17.8	17.9	17.9	
	kW	0.84	0.90	0.98	1.07	1.16	1.26	1.37	1.54	1.68	1.79	1.93	2.07	2.27	2.46	2.67	2.93	3.17		
960	60	TC	39.3	39.3	38.5	36.1	34.3	32.0	30.0	29.4	26.8	24.7	24.6	22.7	24.0	22.1	20.3	18.7	17.1	
		kW	1.62	2.18	2.24	2.18	2.16	2.10	2.09	2.26	2.20	2.14	2.39	2.32	2.48	2.42	2.34	2.28	2.23	
	70	TC	28.9	28.9	28.8	28.8	28.8	28.7	28.7	28.6	26.0	24.1	24.0	22.2	23.5	21.6	19.8	18.2	16.6	
		kW	1.07	1.43	1.55	1.72	1.90	2.08	2.28	2.52	2.43	2.36	2.62	2.55	2.70	2.63	2.56	2.47	2.42	
	75	TC	23.8	23.8	23.7	23.7	23.4	23.4	23.3	25.4	25.3	23.7	23.6	21.8	22.1	20.2	18.2	16.4	14.9	
		kW	0.83	1.15	1.25	1.40	1.48	1.64	1.81	2.28	2.52	2.49	2.76	2.67	2.84	2.76	2.67	2.59	2.52	
80	TC	18.6	18.6	18.6	18.6	18.6	18.6	18.5	19.8	19.8	19.9	19.8	19.8	21.7	19.9	17.9	16.0	14.5		
	kW	0.62	0.89	0.96	1.08	1.17	1.31	1.44	1.76	1.95	2.11	2.34	2.55	2.98	2.88	2.80	2.70	2.63		
1150	60	TC	42.1	42.0	41.3	38.8	37.0	34.7	32.8	31.8	29.3	27.2	27.1	25.2	26.3	24.4	22.5	20.9	19.4	
		kW	1.84	2.40	2.46	2.40	2.38	2.32	2.30	2.50	2.44	2.38	2.63	2.56	2.74	2.68	2.61	2.54	2.49	
	70	TC	31.6	31.6	31.6	31.6	31.6	31.5	31.5	31.1	28.5	26.6	26.5	24.6	25.8	23.9	22.0	20.4	18.9	
		kW	1.28	1.65	1.77	1.94	2.11	2.29	2.49	2.76	2.67	2.60	2.86	2.79	2.97	2.89	2.82	2.73	2.68	
	75	TC	26.6	26.6	26.5	26.5	26.1	26.1	26.0	27.9	27.8	26.2	26.1	24.3	24.4	22.4	20.4	18.7	17.2	
		kW	1.05	1.37	1.47	1.61	1.70	1.85	2.03	2.52	2.76	2.73	3.00	2.91	3.10	3.02	2.93	2.85	2.79	
80	TC	21.4	21.4	21.3	21.3	21.3	21.3	21.2	22.3	22.3	22.4	22.3	22.3	24.0	22.1	20.1	18.3	16.8		
	kW	0.84	1.10	1.18	1.29	1.39	1.53	1.66	2.00	2.19	2.35	2.58	2.79	3.24	3.15	3.06	2.97	2.89		
1300	60	TC	44.8	44.7	44.0	41.6	39.7	37.4	35.5	34.3	31.7	29.7	29.6	27.7	28.5	26.6	25.8	23.2	21.6	
		kW	2.05	2.61	2.67	2.61	2.60	2.54	2.52	2.74	2.68	2.62	2.87	2.80	3.01	2.94	2.87	2.80	2.75	
	70	TC	34.4	34.4	34.3	34.3	34.3	34.2	34.2	33.6	31.0	29.1	29.0	27.1	28.0	26.1	25.1	22.7	21.1	
		kW	1.50	1.86	1.98	2.16	2.33	2.51	2.71	3.00	2.91	2.84	3.10	3.02	3.23	3.16	3.08	3.00	2.94	
	75	TC	29.3	29.3	29.2	29.2	28.9	28.9	28.8	30.4	30.3	28.7	28.6	26.8	26.6	24.6	22.7	20.9	19.4	
		kW	1.27	1.59	1.68	1.83	1.92	2.07	2.24	2.76	3.00	2.97	3.24	3.15	3.37	3.28	3.20	3.11	3.05	
80	TC	24.1	24.1	24.0	24.0	24.0	24.0	23.9	24.8	24.8	24.9	24.8	24.8	26.2	24.4	22.4	20.5	19.0		
	kW	1.05	1.32	1.40	1.51	1.60	1.74	1.87	2.24	2.43	2.59	2.82	3.02	3.51	3.41	3.33	3.23	3.16		

Table 11

TC refers to total capacity in kBTU/hr S/T: refer to the ratio of sensible heat and total capacity kW: refer to total input power

BOVA20-60+BVA20-48 For Heating																				
Airflow (CFM)	ID (°F)	OD (°F)	86	72	67	62	57	52	47	42	37	32	27	22	17	12	7	2	-4	
1120	60	TC	48.6	48.6	48.6	48.5	48.5	48.5	48.2	46.8	45.9	43.1	40.4	39.1	39.0	37.6	35.9	34.1	32.3	
		kW	1.86	2.26	2.47	2.68	2.91	3.14	3.39	3.90	4.10	4.30	4.51	4.74	4.98	5.23	5.49	5.76	6.05	
	70	TC	37.4	37.4	37.3	37.4	37.3	37.3	37.3	37.3	38.4	38.6	38.4	36.5	35.3	35.3	34.0	32.4	30.9	29.2
		kW	1.48	1.77	1.89	2.03	2.22	2.37	2.58	2.97	3.24	3.44	3.62	3.96	4.13	4.02	3.94	3.88	3.73	
	75	TC	31.6	31.6	31.5	31.5	31.5	31.5	31.4	32.4	32.6	32.6	32.6	32.4	33.7	33.6	31.9	30.1	30.1	27.9
		kW	1.28	1.54	1.63	1.75	1.89	2.01	2.15	2.50	2.72	2.90	3.15	3.36	3.77	4.08	4.32	4.16	4.02	
	80	TC	26.0	26.0	26.0	26.0	26.0	26.0	25.9	26.8	26.9	26.9	26.9	26.9	28.0	27.7	27.7	27.7	27.4	
		kW	1.10	1.32	1.41	1.49	1.62	1.71	1.84	2.07	2.24	2.40	2.57	2.77	3.10	3.31	3.59	3.92	4.20	
1240	60	TC	52.2	52.2	52.1	52.0	52.0	51.7	51.8	50.2	46.4	43.4	41.3	39.9	39.9	38.5	36.8	34.9	33.1	
		kW	1.96	2.51	2.69	2.92	3.16	3.40	3.70	3.84	3.70	3.55	3.74	4.09	4.26	4.15	4.08	4.00	3.86	
	70	TC	40.2	40.1	40.1	40.1	40.0	39.9	39.9	41.2	41.2	41.2	39.2	37.9	37.8	36.6	34.8	33.1	31.4	
		kW	1.54	1.93	2.04	2.22	2.38	2.57	2.79	3.21	3.48	3.75	3.93	4.31	4.50	4.38	4.30	4.22	4.06	
	75	TC	33.8	33.8	33.7	33.7	33.7	33.7	33.6	34.7	34.8	34.8	34.7	34.7	36.2	34.4	32.9	31.2	29.3	
		kW	1.35	1.67	1.75	1.87	2.02	2.15	2.37	2.69	2.93	3.12	3.38	3.63	4.09	4.13	4.01	3.93	3.76	
	80	TC	27.9	27.9	27.8	27.8	27.8	27.8	27.8	28.7	28.6	28.6	28.6	28.6	29.9	29.7	29.8	29.7	27.7	
		kW	1.20	1.43	1.51	1.60	1.73	1.83	1.96	2.22	2.43	2.57	2.78	2.98	3.32	3.57	3.88	4.25	4.19	
1420	60	TC	57.4	57.4	57.4	57.2	57.1	56.5	53.6	50.6	47.0	43.9	41.7	40.4	40.3	38.9	37.1	35.3	33.4	
		kW	2.19	2.88	3.07	3.31	3.58	3.79	3.74	3.78	3.67	3.57	3.75	4.11	4.28	4.17	4.10	4.02	3.87	
	70	TC	44.3	44.3	44.2	44.1	44.1	44.0	43.9	45.4	45.4	43.0	40.8	39.6	39.4	38.1	36.3	34.5	32.7	
		kW	1.74	2.16	2.31	2.49	2.70	2.90	3.17	3.63	3.94	3.89	4.08	4.47	4.66	4.54	4.46	4.38	4.22	
	75	TC	37.3	37.3	37.2	37.2	37.0	37.1	37.1	38.3	38.3	38.3	38.3	38.3	39.4	37.4	35.9	33.9	31.9	
		kW	1.51	1.87	1.97	2.10	2.25	2.44	2.65	3.03	3.28	3.50	3.82	4.11	4.60	4.65	4.51	4.42	4.23	
	80	TC	30.7	30.7	30.6	30.6	30.6	30.6	30.5	31.6	31.6	31.6	31.6	31.6	32.8	32.8	32.8	30.5	28.2	
		kW	1.34	1.61	1.69	1.79	1.93	2.05	2.19	2.52	2.72	2.89	3.13	3.34	3.72	4.02	4.38	4.48	4.52	
1580	60	TC	62.8	62.6	62.6	62.6	60.8	57.4	54.4	45.8	42.2	39.1	37.1	35.9	40.5	39.1	37.2	35.4	33.5	
		kW	2.54	3.25	3.47	3.76	3.87	3.77	3.73	4.21	4.07	3.97	4.16	4.56	4.30	4.19	4.11	4.04	3.89	
	70	TC	48.5	48.5	48.5	48.3	48.3	48.2	48.0	49.7	46.5	43.6	41.5	40.1	40.0	38.6	36.9	35.0	33.2	
		kW	1.97	2.44	2.62	2.82	3.05	3.27	3.52	4.07	4.02	3.91	4.11	4.50	4.69	4.56	4.49	4.40	4.24	
	75	TC	40.9	40.9	40.9	40.8	40.8	40.7	40.6	42.0	42.0	41.9	41.9	39.6	39.9	37.9	36.3	34.3	32.3	
		kW	1.71	2.10	2.22	2.39	2.57	2.75	2.97	3.40	3.68	3.94	4.31	4.57	4.62	4.67	4.53	4.44	4.25	
	80	TC	33.8	33.7	33.6	33.6	33.6	33.6	33.5	34.6	34.7	34.7	34.6	34.6	36.1	36.1	33.9	31.1	28.8	
		kW	1.51	1.82	1.90	2.01	2.16	2.29	2.50	2.83	3.05	3.25	3.49	3.74	4.18	4.53	4.52	4.61	4.66	
1780	60	TC	67.4	67.4	67.4	64.6	61.5	57.9	54.6	51.5	47.6	44.9	42.7	41.4	41.3	39.9	37.9	36.1	34.2	
		kW	3.19	3.58	3.86	3.87	3.82	3.74	3.69	3.76	3.66	3.60	3.77	4.14	4.73	4.60	4.51	4.44	4.27	
	70	TC	52.4	52.4	52.4	52.3	52.3	51.8	51.8	50.9	47.0	44.0	41.7	40.4	40.4	39.0	37.1	35.3	33.5	
		kW	2.49	2.68	2.91	3.13	3.37	3.59	3.88	4.13	4.10	4.09	4.29	4.71	5.38	5.24	5.14	5.05	4.86	
	75	TC	44.4	44.4	44.4	44.3	44.3	44.2	44.0	45.4	45.4	44.4	43.3	40.5	40.2	38.1	36.6	34.5	32.5	
		kW	2.12	2.29	2.46	2.63	2.85	3.04	3.27	3.75	4.06	4.08	4.69	4.56	5.07	5.12	4.97	4.86	4.66	
	80	TC	36.6	36.6	36.6	36.6	36.6	36.5	36.4	37.6	37.8	37.7	37.5	37.5	39.1	37.1	34.3	31.4	29.1	
		kW	1.72	1.97	2.08	2.22	2.37	2.55	2.73	3.12	3.37	3.54	3.85	4.13	5.08	5.12	4.96	5.07	5.11	

Table 12

TC refers to total capacity in kBTU/hr S/T: refer to the ratio of sensible heat and total capacity kW: refer to total input power

BOVA20-60+BVA20-60 For Heating																				
Airflow (CFM)	ID (°F)	OD (°F)	86	72	67	62	57	52	47	42	37	32	27	22	17	12	7	2	-4	
1150	60	TC	55.5	55.5	55.5	55.4	55.4	55.1	54.9	54.9	54.3	50.8	48.2	44.1	41.3	39.3	38.1	35.5	32.5	
		kW	2.26	2.65	2.91	3.17	3.45	3.69	4.03	4.45	4.83	5.07	5.44	5.63	5.91	6.21	6.52	6.84	7.19	
	70	TC	41.8	41.8	41.7	41.7	41.6	41.6	41.5	41.4	41.4	41.2	39.1	36.7	34.2	33.3	32.6	31.9	29.5	
		kW	1.86	2.00	2.16	2.32	2.51	2.71	2.98	3.25	3.51	3.78	3.89	4.00	4.04	3.97	3.90	3.81	3.77	
	75	TC	34.6	34.6	34.6	34.5	34.5	34.5	34.4	34.3	34.3	34.3	34.2	34.0	34.0	34.0	32.4	31.0	29.2	27.6
		kW	1.64	1.71	1.83	1.96	2.13	2.27	2.44	2.64	2.92	3.13	3.42	3.61	3.89	3.89	3.73	3.62	3.54	
80	TC	27.8	27.8	27.8	27.8	27.8	27.7	27.7	27.6	27.5	27.5	27.5	27.5	27.5	27.4	27.3	27.3	27.3		
	kW	1.38	1.46	1.55	1.65	1.77	1.88	2.04	2.18	2.36	2.50	2.71	2.89	3.11	3.32	3.60	3.93	4.27		
1310	60	TC	60.9	60.9	60.9	60.5	60.3	60.2	60.1	59.5	54.9	51.4	48.7	44.5	42.2	41.5	39.0	35.9	33.3	
		kW	2.40	3.01	3.29	3.53	3.84	4.15	4.52	4.93	4.74	4.60	5.73	5.54	5.35	5.18	5.00	4.83	4.68	
	70	TC	45.8	45.8	45.8	45.8	45.7	45.7	45.6	45.4	45.2	45.2	42.9	40.2	37.5	36.6	35.7	33.4	31.2	
		kW	1.79	2.22	2.39	2.59	2.81	3.06	3.33	3.63	3.93	4.24	4.69	5.07	5.53	5.61	5.41	5.22	5.07	
	75	TC	38.0	38.0	38.0	38.0	37.9	37.9	37.8	37.8	37.8	37.8	37.4	37.5	37.4	36.4	35.1	32.8	30.5	
		kW	1.65	1.89	2.02	2.18	2.34	2.51	2.69	3.00	3.25	3.48	3.76	4.04	4.36	5.61	5.41	5.22	5.07	
80	TC	30.5	30.5	30.5	30.5	30.5	30.4	30.5	30.5	30.4	30.4	30.4	30.4	30.4	30.1	30.0	30.0	30.0		
	kW	1.46	1.59	1.71	1.82	1.95	2.10	2.24	2.40	2.61	2.77	3.02	3.22	3.41	3.69	4.01	4.41	4.77		
1480	60	TC	67.5	67.5	67.0	67.0	66.9	66.8	66.0	60.3	55.4	51.8	51.1	51.5	48.0	44.6	41.2	37.8	35.2	
		kW	2.71	3.54	3.75	4.09	4.42	4.80	5.05	4.85	4.68	4.56	5.44	5.48	5.31	5.15	4.98	4.82	4.69	
	70	TC	50.9	50.9	50.9	50.9	50.9	50.8	50.4	50.4	50.3	50.3	47.8	44.8	41.7	40.7	39.7	37.1	35.2	
		kW	2.04	2.57	2.75	2.99	3.25	3.49	3.73	4.14	4.51	4.88	5.03	5.17	5.22	5.12	5.04	4.92	4.88	
	75	TC	42.3	42.3	42.3	42.2	42.2	42.2	42.1	42.0	41.9	41.7	41.7	41.7	41.6	39.6	37.9	35.9	33.7	
		kW	1.76	2.18	2.30	2.47	2.65	2.86	3.12	3.41	3.65	3.92	4.30	4.63	5.02	5.02	4.83	4.68	4.57	
80	TC	34.1	34.1	34.1	34.1	34.0	34.0	34.0	33.6	33.9	33.9	33.9	33.5	33.4	33.4	33.4	33.4	33.1		
	kW	1.52	1.83	1.93	2.05	2.22	2.35	2.53	2.71	2.96	3.18	3.45	3.62	3.90	4.20	4.58	5.05	5.50		
1720	60	TC	74.5	74.0	73.9	73.9	73.9	70.6	66.7	54.7	50.4	47.1	44.8	42.0	43.6	42.6	41.5	38.9	36.3	
		kW	3.17	4.08	4.33	4.70	5.09	5.08	5.01	5.45	5.27	5.15	2.43	5.92	5.25	5.11	5.02	4.93	4.75	
	70	TC	56.2	56.1	56.3	56.2	56.0	55.2	55.0	54.9	54.1	52.4	49.9	46.7	43.5	42.4	41.4	38.8	36.2	
		kW	2.34	2.95	3.16	3.42	3.70	3.92	4.24	4.68	4.90	4.97	5.12	5.26	5.31	5.21	5.13	5.01	4.96	
	75	TC	46.8	46.8	46.8	46.7	46.6	46.6	46.5	46.1	46.0	46.0	46.0	46.0	43.0	40.9	39.2	37.0	34.9	
		kW	2.00	2.47	2.62	2.81	3.04	3.29	3.54	3.83	4.15	4.45	4.91	5.31	5.56	5.56	5.33	5.17	5.06	
80	TC	37.8	37.8	37.7	37.7	37.6	37.6	37.4	37.4	37.4	37.4	37.1	37.1	37.0	37.0	37.0	36.4	33.7		
	kW	1.73	2.07	2.19	2.33	2.50	2.65	2.83	3.09	3.38	3.60	3.84	4.12	4.41	4.80	5.22	5.68	5.53		
1880	60	TC	79.5	79.3	79.3	79.3	75.5	71.0	67.1	61.2	56.7	53.0	53.2	52.6	48.9	45.5	42.1	39.3	36.6	
		kW	3.55	4.52	4.79	5.22	5.16	5.03	4.97	4.81	4.68	4.57	5.41	5.47	5.92	5.76	5.60	5.44	5.31	
	70	TC	60.3	60.3	60.4	60.3	59.7	59.5	59.6	59.7	55.6	53.0	50.4	47.1	44.0	42.9	41.8	39.1	36.0	
		kW	2.58	3.27	3.48	3.76	4.01	4.31	4.66	5.16	5.10	4.97	5.12	5.26	5.91	5.80	5.71	5.58	5.52	
	75	TC	50.2	50.2	50.2	50.0	50.0	50.0	49.9	49.4	49.3	49.3	49.3	49.3	43.6	41.4	39.7	37.5	35.3	
		kW	2.19	2.69	2.87	3.06	3.35	3.59	3.86	4.19	4.55	4.90	5.41	5.85	6.68	6.68	6.41	6.21	6.07	
80	TC	40.5	40.5	40.5	40.5	40.4	40.3	40.3	40.3	40.3	40.0	39.8	39.8	39.8	39.8	39.8	36.9	34.1		
	kW	1.88	2.27	2.38	2.54	2.71	2.88	3.10	3.41	3.68	3.87	4.20	4.51	5.40	5.85	6.45	6.34	6.17		

Table 13

TC refers to total capacity in kBTU/hr S/T: refer to the ratio of sensible heat and total capacity kW: refer to total input power

5 AHRI 210/240 Performance Data

5.1 SEER Data

Outdoor Unit Model	Indoor Unit Model Coils/Air Handlers	Furnace Model	Cooling Capacity (BTU/h)			Heating Capacity			CFM
			Total	EER ²	SEER ¹	Hi	HSPF ³	Low ⁴	
BOVA-36HDN1-M20G	BVA-24WN1-M20	/	24000	14	20.5	24000	10.5	23000	860/680
BOVA-36HDN1-M20G	BVA-36WN1-M20	/	34600	12.5	20	34200	10.5	28000	1150/820
BOVA-60HDN1-M20G	BVA-48WN1-M20	/	47500	13.5	20	48000	10.5	40000	1530/1150
BOVA-60HDN1-M20G	BVA-60WN1-M20	/	54500	12.5	19	56000	10.5	44000	1750/1350
BOVA-36HDN1-M20G	BMAC2430ANTD	/	23400	11.8	16	23400	9.5	18000	750
BOVA-36HDN1-M20G	BMAC2430BNTD	/	23600	11.8	16	23800	9.5	18000	800
BOVA-36HDN1-M20G	BMAC3036ANTD	/	32000	10.8	16	33600	9.5	22000	900
BOVA-36HDN1-M20G	BMAC3036BNTD	/	32400	11.2	16	33800	9.5	23000	1000
BOVA-36HDN1-M20G	BMAC3036CNTD	/	32600	11.4	16	34000	9.5	23000	1050
BOVA-36HDN1-M20G	BMAC4248BNTF	/	33000	11.2	16	33800	9.5	24000	1000
BOVA-36HDN1-M20G	BMAC4248CNTF	/	33200	11.2	16	34200	9.5	24000	1050
BOVA-36HDN1-M20G	BMAC4248DNTF	/	33400	11.2	16	34200	9.5	24000	1100
BOVA-60HDN1-M20G	BMAC4248BNTF	/	43000	11.2	16	45500	9.5	31400	1200
BOVA-60HDN1-M20G	BMAC4248CNTF	/	44000	11.8	16	46500	9.5	32000	1350
BOVA-60HDN1-M20G	BMAC4248DNTF	/	45000	11.8	16	47500	9.5	32000	1450
BOVA-60HDN1-M20G	BMAC4860CNTF	/	55000	10.5	16	55500	9.5	38000	1350
BOVA-60HDN1-M20G	BMAC4860DNTF	/	56000	10.5	16	56000	9.5	39000	1500
BOVA-36HDN1-M20G	BMAC2430ANTD	BGH96M060B3A	24000	13	18.5	24000	10	18000	820/630
BOVA-36HDN1-M20G	BMAC2430ANTD	BGH96M080B3A	24000	13	18.5	24000	10	18000	800/580
BOVA-36HDN1-M20G	BMAC2430BNTD	BGH96M060B3A	24000	13.5	19	24000	10	19000	860/680
BOVA-36HDN1-M20G	BMAC2430BNTD	BGH96M080B3A	24000	13.5	19	24000	10	19000	840/630
BOVA-36HDN1-M20G	BMAC3036ANTD	BGH96M060B3A	32200	11.2	17	34000	10	25000	1050/800
BOVA-36HDN1-M20G	BMAC3036ANTD	BGH96M080B3A	32200	11.2	17	34000	10	25000	1020/800
BOVA-36HDN1-M20G	BMAC3036BNTD	BGH96M060B3A	33000	11.6	17.5	34200	10	25000	1100/850
BOVA-36HDN1-M20G	BMAC3036BNTD	BGH96M080B3A	33000	11.6	17.5	34200	10	25000	1070/850
BOVA-36HDN1-M20G	BMAC3036CNTD	BGH96M080C4A	33600	12	18	34200	10	25000	1050/820
BOVA-36HDN1-M20G	BMAC3036CNTD	BGH96M100C5A	33600	12	18	34200	10	25000	1150/750
BOVA-36HDN1-M20G	BMAC4248BNTF	BGH96M080B3A	33000	12.5	18.5	34200	10	26000	1000/850
BOVA-36HDN1-M20G	BMAC4248CNTF	BGH96M100C5A	33000	12.5	18.5	34200	10	26000	1100/800
BOVA-60HDN1-M20G	BMAC4248BNTF	BGH96M080B3A	43000	11.2	18	45000	9.5	34000	1250/1050
BOVA-60HDN1-M20G	BMAC4248CNTF	BGH96M080C4A	44000	12	18.5	46000	10	35000	1250/1050
BOVA-60HDN1-M20G	BMAC4248CNTF	BGH96M100C5A	45000	12.5	18.5	46500	10	35000	1450/1150
BOVA-60HDN1-M20G	BMAC4248DNTF	BGH96M100D5A	45500	12.5	18.5	47000	10	35000	1500/1200
BOVA-60HDN1-M20G	BMAC4248DNTF	BGH96M120D5A	45500	12.5	18.5	47000	10	35000	1500/1200
BOVA-60HDN1-M20G	BMAC4860CNTF	BGH96M100C5A	52000	12	18	53500	10	37000	1450/1150
BOVA-60HDN1-M20G	BMAC4860DNTF	BGH96M100D5A	52000	12.5	18.5	54000	10	38000	1500/1200
BOVA-60HDN1-M20G	BMAC4860DNTF	BGH96M120D5A	52000	12.5	18.5	54000	10	38000	1500/1200

Table 14

¹ Seasonal Energy Efficiency Ratio; Certified per AHRI 210/240² Energy Efficiency Ratio; Certified per AHRI 210/240³ HSPF = Heating Seasonal Performance Factor; Certified per AHRI 210/240⁴ Jumper cut or dip switch off
 Items in **bold** boxes meet the requirements for ENERGY STAR v5.0


Always check the rating plate for electrical data on the unit being installed. The above data are for reference only.

5.2 SEER2 Data

System Configuration	Outdoor Unit Model	Indoor Unit Model	Furnace Model	Cooling Capacity (BTU/h)			Heating Capacity			CFM	
		Coils/Air Handlers		Total	EER ²	SEER ² ¹	Hi	HSPF ² ³	Low ⁴		
BOVA20 with BVA20	BOVA-36HDN1-M20G	BVA-24WN1-M20	/	24000	13	20	24000	9.5	22400	720/560	*
	BOVA-36HDN1-M20G	BVA-36WN1-M20	/	34200	12	19	34200	9.5	28000	1170/880	
	BOVA-60HDN1-M20G	BVA-48WN1-M20	/	47000	12	18.5	48000	9.5	40000	1580/1100	*
	BOVA-60HDN1-M20G	BVA-60WN1-M20	/	52000	11.7	18	55000	9.5	43500	1720/1310	
BOVA20 with 96% Gas Furnace	BOVA-36HDN1-M20G	BMAC2430ANTD	BGH96M060B3B	23800	12	18	24000	9	19600	740/540	*
	BOVA-36HDN1-M20G	BMAC2430ANTD	BGH96M080B3B	23800	12	18	24000	9	19600	750/560	*
	BOVA-36HDN1-M20G	BMAC2430BNTD	BGH96M060B3B	24000	12	18.5	24000	9	20000	760/550	*
	BOVA-36HDN1-M20G	BMAC2430BNTD	BGH96M080B3B	24000	12	18.5	24000	9	20000	750/560	*
	BOVA-36HDN1-M20G	BMAC3036ANTD	BGH96M060B3B	32800	10.6	17.5	34000	9	25000	1090/840	
	BOVA-36HDN1-M20G	BMAC3036ANTD	BGH96M080B3B	32800	10.6	17.5	34000	9	25000	1050/840	
	BOVA-36HDN1-M20G	BMAC3036BNTD	BGH96M060B3B	33600	11	17.5	34200	9	25000	1120/870	
	BOVA-36HDN1-M20G	BMAC3036BNTD	BGH96M080B3B	33600	11	17.5	34200	9	25000	1060/850	
	BOVA-36HDN1-M20G	BMAC3036CNTD	BGH96M080C4B	33600	11	17.5	34200	9	25000	1100/870	
	BOVA-36HDN1-M20G	BMAC3036CNTD	BGH96M100C5B	33200	11.2	17.5	34200	9	25000	1000/780	
	BOVA-36HDN1-M20G	BMAC4248BNTF	BGH96M080B3B	33000	11.2	18.5	34200	9	25600	1100/880	
	BOVA-36HDN1-M20G	BMAC4248CNTF	BGH96M100C5B	33000	12	18.5	34200	9	25600	1060/840	*
	BOVA-60HDN1-M20G	BMAC4248BNTF	BGH96M080B3B	42500	11.7	17	43500	8.8	35000	1120/880	*
	BOVA-60HDN1-M20G	BMAC4248CNTF	BGH96M080C4B	42500	11.7	17	44500	8.8	35000	1130/900	*
	BOVA-60HDN1-M20G	BMAC4248CNTF	BGH96M100C5B	45000	11.7	17.5	46500	8.8	35600	1370/1150	
	BOVA-60HDN1-M20G	BMAC4248DNTF	BGH96M100D5B	45500	11.7	17.5	47000	9	35600	1480/1200	*
	BOVA-60HDN1-M20G	BMAC4248DNTF	BGH96M120D5B	45500	11.7	17.5	47000	9	35600	1480/1200	*
	BOVA-60HDN1-M20G	BMAC4860CNTF	BGH96M100C5B	51500	11.4	18	53500	8.5	38000	1370/1150	
	BOVA-60HDN1-M20G	BMAC4860DNTF	BGH96M100D5B	52000	11.7	18	54000	8.5	38500	1460/1170	
	BOVA-60HDN1-M20G	BMAC4860DNTF	BGH96M120D5B	52000	11.7	18	54000	8.5	38500	1460/1170	

Table 15

¹ Seasonal Energy Efficiency Ratio; Certified per AHRI 210/240² Energy Efficiency Ratio; Certified per AHRI 210/240³ HSPF = Heating Seasonal Performance Factor; Certified per AHRI 210/240⁴ Jumper cut or dip switch off

	Items in bold boxes meet the requirements for ENERGY STAR v6.1
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* Denotes combinations that meet ENERGY STAR v6.1 Cold Climate

6 Suction Corrected Factor

Model Size		2 Ton	3 Ton	4 Ton	5 Ton
BOVA-Suction Line Connection Size		3/4	3/4	7/8	7/8
Suction Line Run - Feet		3/4 STD	3/4 STD	7/8 STD	7/8 STD
		5/8 OPT	5/8 OPT	3/4 OPT	3/4 OPT
25'	Standard	1	1	1	1
	Optional	1	0.99	0.99	0.98
50'	Standard	0.99	0.99	0.99	0.99
	Optional	0.99	0.98	0.98	0.97
100'	Standard	0.99	0.98	0.98	0.97
	Optional	0.98	0.95	0.97	0.95
150'	Standard	0.97	0.96	0.96	0.95
	Optional	0.96	0.93	0.95	0.93

Table 16

Std: Standard size

Opt: Optional size



Using suction line larger than shown in chart will result in poor oil return and is not recommended.

7 Sound Data

Model	Sound Power Level [dB(A)]	Full Octave Linear Sound Power Level dB -Center Frequency -Hz								Sound Power Level [dB(A)] with Sound Blanket
		100	125	250	500	1000	2000	4000	8000	
3 Ton	56 (Low)	26.1	28.9	37.5	44.4	48.1	42.5	47.1	40.7	Sound Blanket - Standard
	77 (High)	48.4	54.3	60.5	66.2	68.7	63.6	62.3	53.7	
5 Ton	60 (Low)	30.5	36.0	47.6	50.1	48.5	50.1	50.5	41.3	
	79 (High)	51.6	47.6	62.3	67.0	68.6	64.2	64.6	56.5	

Table 17 IDS Sound power level

8 Dimensions

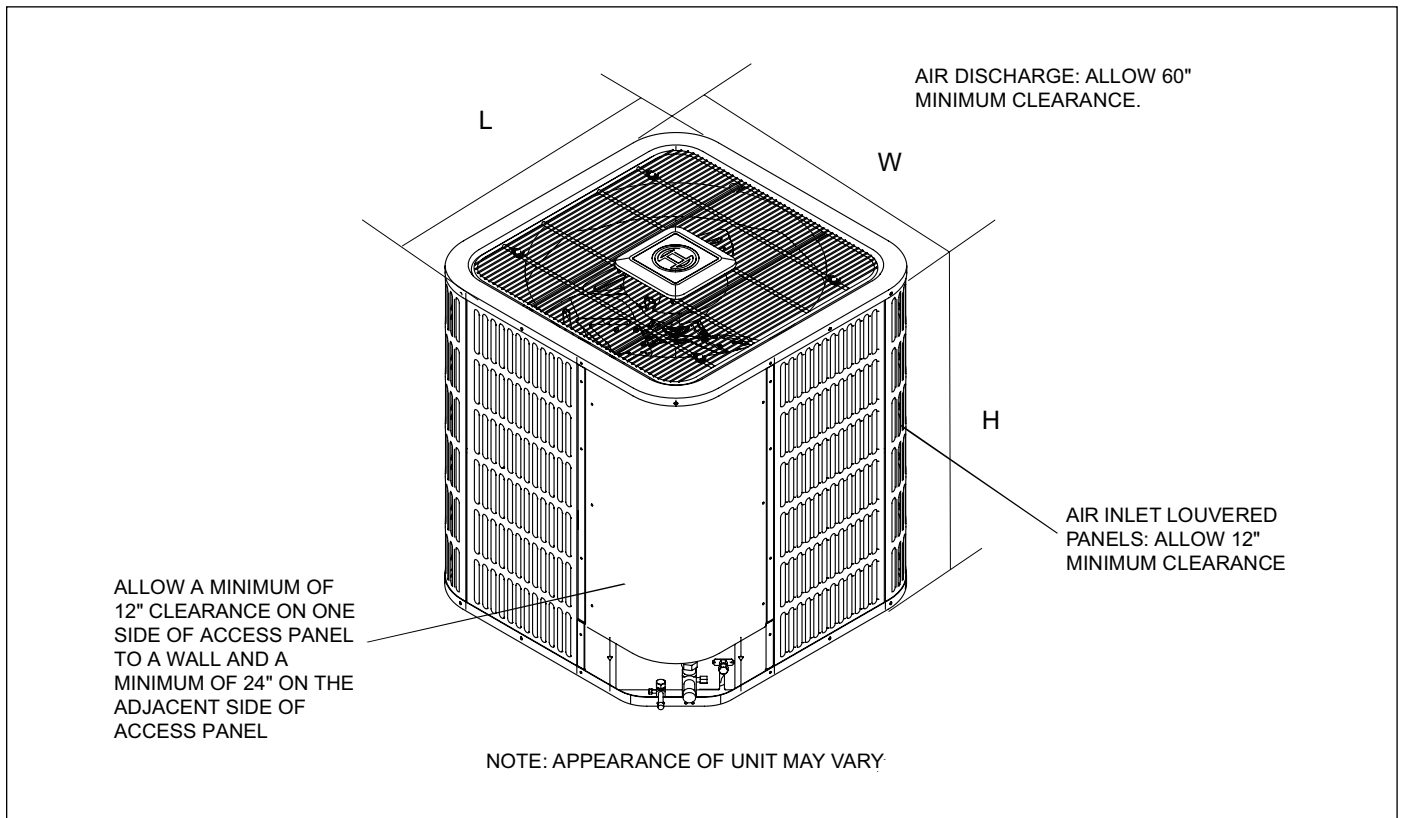


Figure 2

Model Size	Dimensions (Inches)		
	"H" in. [mm]	"W" in. [mm]	"L" in. [mm]
Heat Pump			
BOVA20-36	24-15/16 [633]	29-1/8 [740]	29-1/8 [740]
BOVA20-60	33-3/16 [843]	29-1/8 [740]	29-1/8 [740]

Table 18

United States and Canada

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