

Mechanical Systems, Service Systems and Equipment  
 Method of Compliance  
 Prescriptive ( X ) Energy Cost Budget ( )

Project Name  
 Cary Tennis Center

Thermal Zone  
 Thermal Zone III - Wake County

Exterior Design Conditions  
 Winter Dry Bulb - 16 Deg. F.  
 Summer Dry Bulb - 92 Deg. F.

Interior Design Conditions  
 Winter Dry Bulb - 68 Deg. F.  
 Summer Dry Bulb - 78 Deg. F.  
 Relative Humidity - 50 %

First Floor Heating Load  
 60,635 Btuh

First Floor Cooling Load  
 148,682 Btuh

Basement Heating Load  
 50,743 Btuh

Basement Cooling Load  
 85,205 Btuh

Mechanical Space Conditioning System  
 The first floor is served with split-system heatpumps. The basement floor is served with electric wall heaters and a package A/C unit.

Boiler - Not applicable to this project.  
 Chiller - Not applicable to this project.

Equipment Efficiencies

Split-System Heatpump Unit:

Mark	Qty.	SEER	KW Heat	ARI Cooling (Btuh)	ARI Heating (Btuh)
Ⓐ	1	8.9	3.8	22,600	22,800
Ⓑ	1	9.15	3.8	34,200	35,000
Ⓒ	1	9.15	3.8	34,200	35,000

Electric/Electric Package A/C Unit:

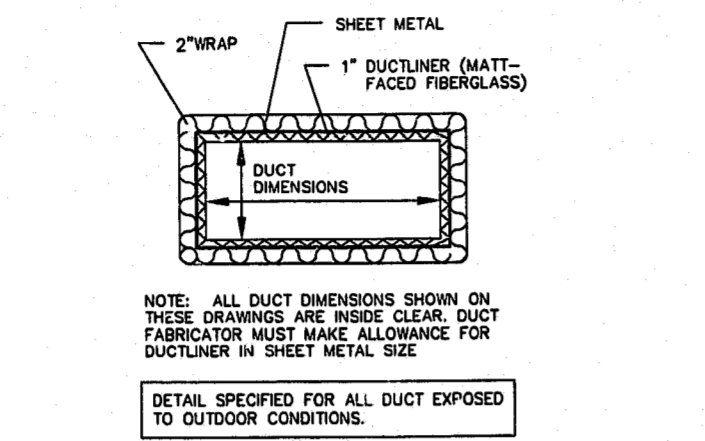
Mark	Qty.	EER	KW Heat	ARI Cooling (Btuh)
Ⓓ	1	10.6	45.1	168,300

Electric Unit Heaters:

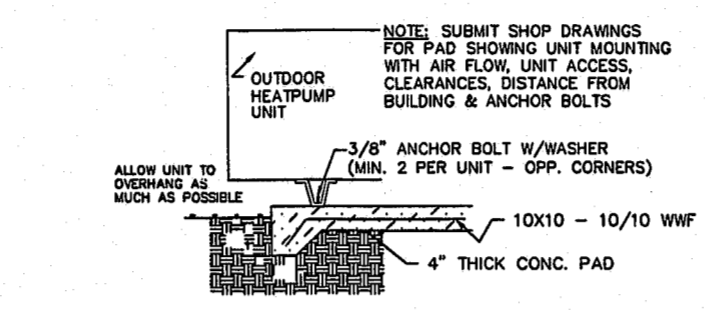
Mark	Qty.	KW Heat
Ⓔ	3	.75
Ⓕ	1	1.5
Ⓖ	3	5

Equipment Schedules With Motors  
 Multispeed motors are used on this project and are included in the efficiency rating of the unit. See drawings for unit efficiencies.

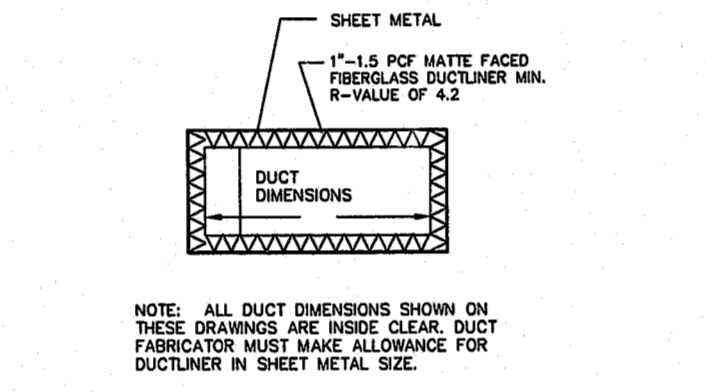
Designer Statement:  
 To the best of my knowledge and belief, the design of this building complies with the mechanical systems, service systems and equipment requirements of the North Carolina State Building Code, Volume X - Energy.



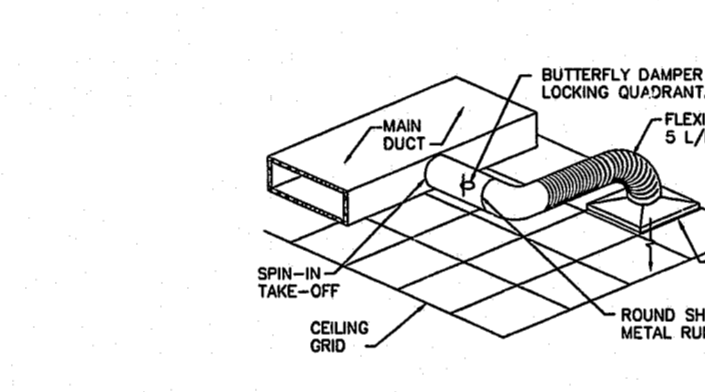
**1 DUCT FABRICATION DETAIL**  
 M3.01 SCALE: NONE



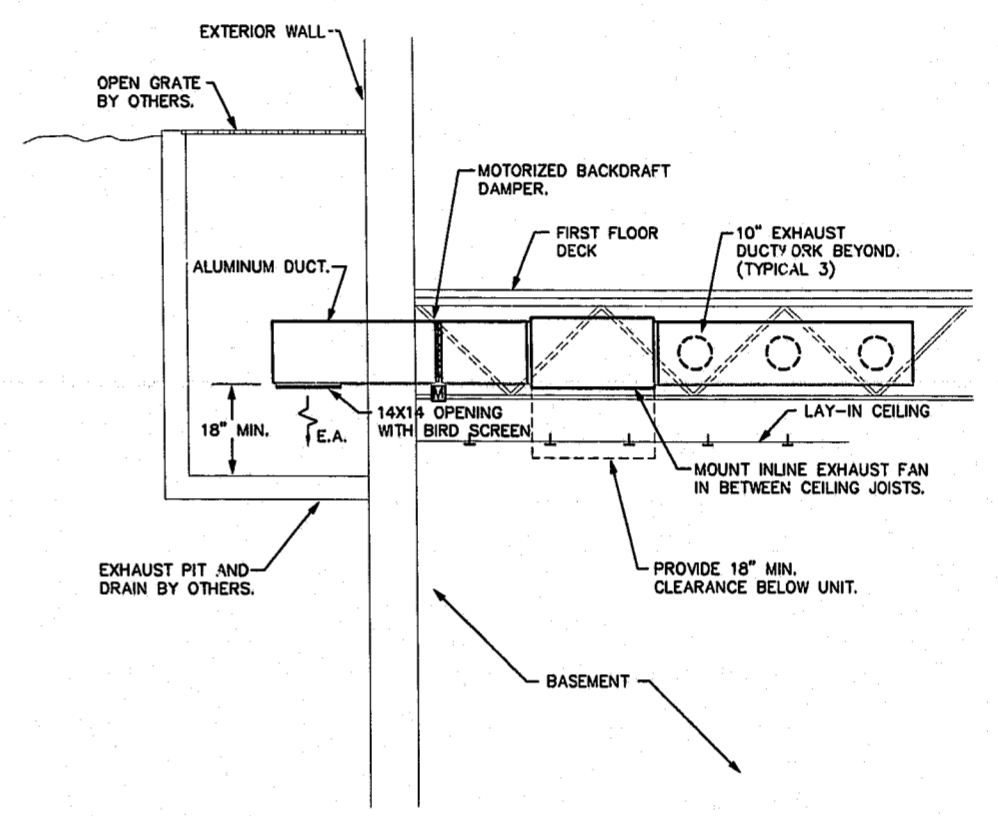
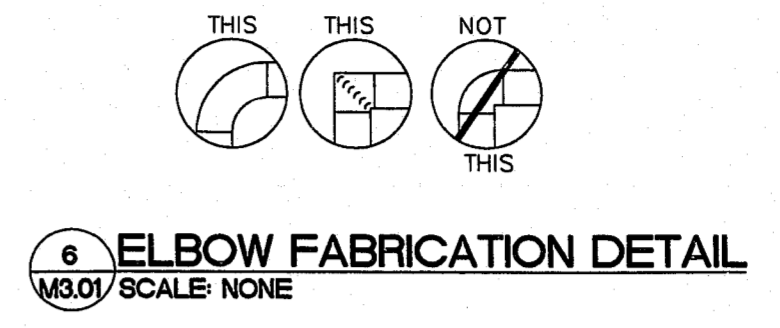
**3 OUTDOOR HEATPUMP MOUNTING DETAIL**  
 M3.01 SCALE: NONE



**2 DUCT FABRICATION DETAIL**  
 M3.01 SCALE: NONE



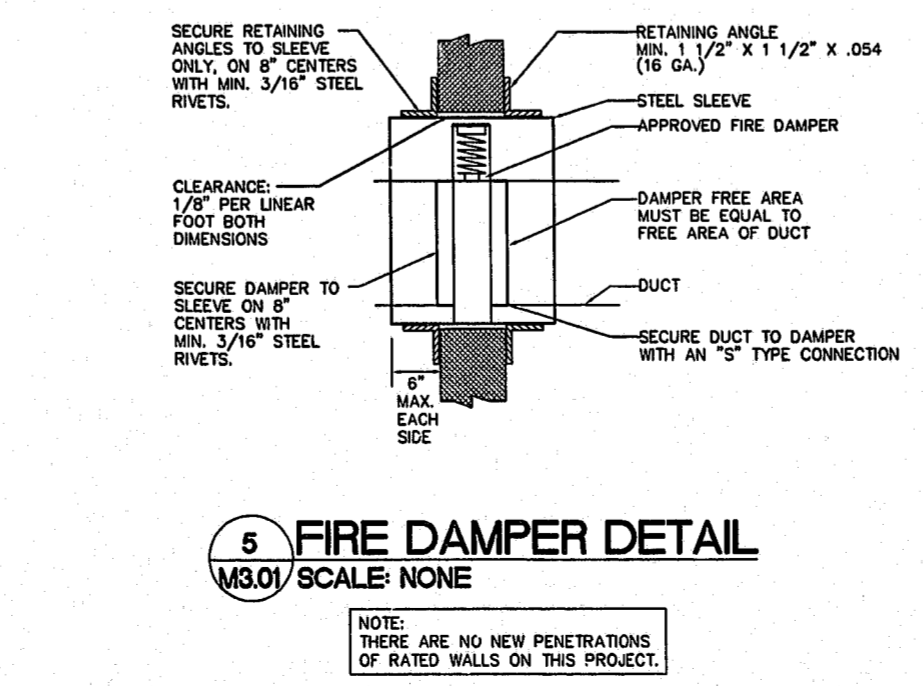
**4 SUPPLY DIFFUSER INSTALLATION DETAIL**  
 M3.01 SCALE: NONE



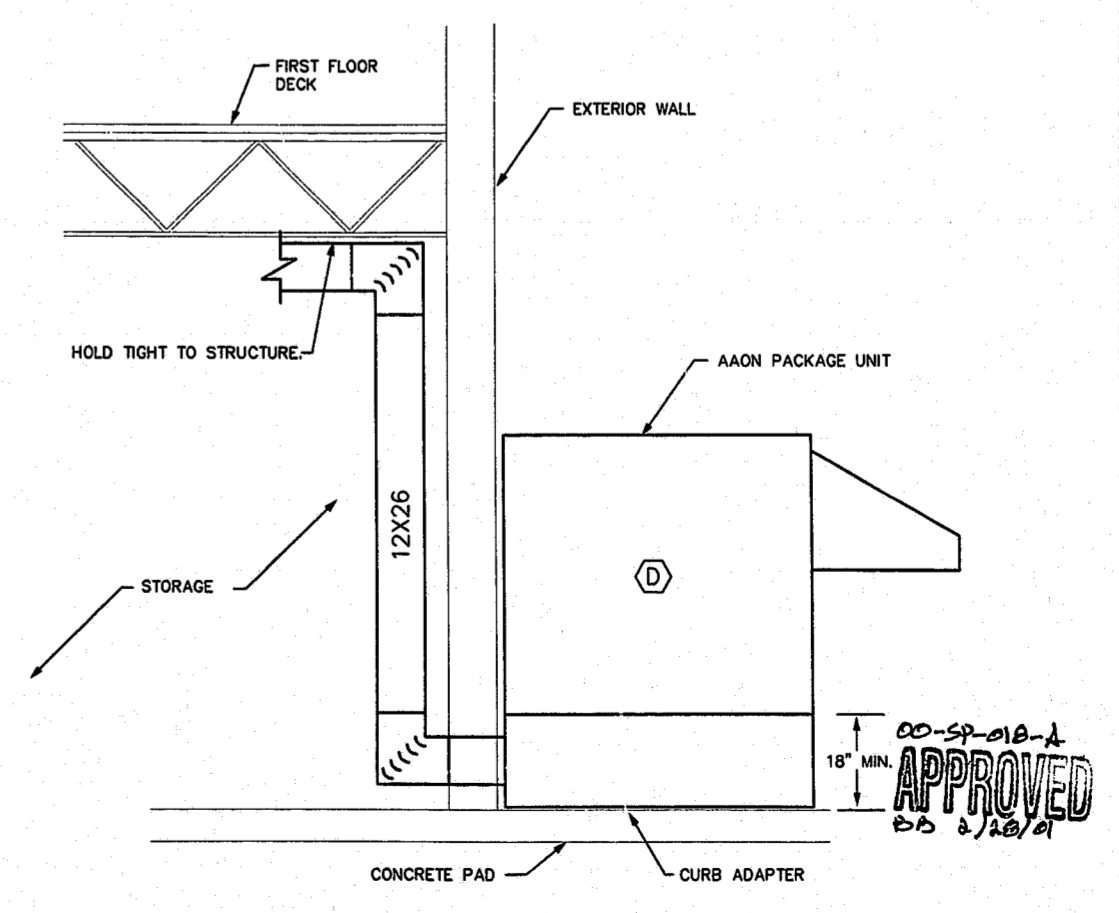
**7 EXHAUST PIT MECHANICAL DETAIL**  
 M3.01 SCALE: NONE

**MECHANICAL LEGEND**

[Symbol]	NEW SLOT DIFFUSER. SEE SCHEDULE
[Symbol]	NEW 2'x2' CEILING DIFFUSER. SEE SCHEDULE
[Symbol]	CEILING RETURN GRILLE
[Symbol]	NEW FLEX DUCT (SEE DETAIL)
[Symbol]	NEW SHEET METAL DUCTWORK
[Symbol]	FIRE DAMPER (SEE DETAIL)
[Symbol]	WALL MOUNTED THERMOSTAT
[Symbol]	INDICATES 1 HOUR RATED PARTITION



**5 FIRE DAMPER DETAIL**  
 M3.01 SCALE: NONE



**8 PACKAGE UNIT DETAIL**  
 M3.01 SCALE: NONE

- GENERAL NOTES:
- ALL DUCT SIZES SHOWN ARE FREE AREA SIZES.
  - MAX. LENGTH OF FLEXIBLE DUCT 8'-0"
  - ALL FLEXIBLE DUCT CONNECTIONS TO HAVE MANUFACTURED SPIN-IN FITTINGS WITH DAMPER, EXTRACTOR, AND MANUAL LOCKING QUADRANT.
  - THE MECHANICAL CONTRACTOR SHALL COORDINATE HIS WORK WITH THAT OF THE OTHER TRADES PRIOR TO THE INSTALLATION OF ANY OF HIS EQUIPMENT, DUCTWORK OR PIPING.
  - ALL WORK SHALL CONFORM TO ALL LOCAL, STATE, AND NATIONAL CODES.
  - THE MECHANICAL CONTRACTOR SHALL OBTAIN AND PAY FOR ALL PERMITS, FEES, AND INSPECTIONS REQUIRED FOR HIS WORK.
  - REFER TO ARCHITECTURAL PLANS FOR FLOOR PLAN DIMENSIONS, DO NOT SCALE THESE DRAWINGS.
  - THE MECHANICAL CONTRACTOR SHALL BE RESPONSIBLE FOR ALL CONTROL WIRING FOR HIS EQUIPMENT.
  - DUCTWORK AS SHOWN ON THE DRAWINGS IS STRICTLY DIAGRAMMATIC. COORDINATE EXACT LOCATION WITH THE BUILDING STRUCTURE.
  - PRIOR TO BIDDING, MECHANICAL CONTRACTOR IS TO VISIT SITE TO FAMILIARIZE HIMSELF WITH EXISTING CONDITIONS.
  - THE MECHANICAL CONTRACTOR SHALL MAKE A COMPLETE REVIEW OF THE MECHANICAL PLANS, INCLUDING THE SCHEDULES AND DETAILS PRIOR TO INSTALLATION OF ANY MECHANICAL SYSTEMS AND SHALL RESOLVE ANY CONFLICTS WITH THE ENGINEER.
  - IT WILL BE THE RESPONSIBILITY OF THE MECHANICAL CONTRACTOR TO ENSURE THAT ITEMS TO BE FURNISHED UNDER HIS CONTRACT WILL FIT IN THE SPACE AVAILABLE. HE SHALL MAKE NECESSARY FIELD MEASUREMENTS TO ASCERTAIN SPACE REQUIREMENTS.
  - FLEXIBLE DUCT SHALL BE INSULATED, SOUND ATTENUATING, LOW VELOCITY TYPE AND SHALL COMPLY WITH NFPA 90A AND 90B. FLEXIBLE DUCT SHALL BE ALL LISTED, CLASS 1 INSULATED TYPE, RATED FOR A MINIMUM OF 4" POSITIVE OR 1" NEGATIVE STATIC PRESSURE. FLEXIBLE DUCT SHALL BE FACTORY-FORMED, COMPOSED OF A SPIRAL WOUND, CORROSION RESISTANT WIRE BONDED TO AN INNER FABRIC LINER, COVERED WITH 1/2" THICK INSULATION WITH A VAPOR BARRIER.
  - ALL DUCT TO BE CONSTRUCTED OF GALVANIZED STEEL SHEETS, UNLESS OTHERWISE NOTED, IN ACCORDANCE WITH SMACNA GAGES AND STANDARDS. SUPPLY DUCT JOINTS SHALL BE SEALED AIR TIGHT. ALL SQUARE BENDS OR ELBOW FITTINGS SHALL HAVE TURNING VANES. PROVIDE SPLITTER DAMPERS AT SUPPLY TEES AND EXTRACTORS AT ALL SUPPLY AIR BRANCHES. PROVIDE BALANCING DAMPERS IN ALL DUCTS WHERE REQUIRED FOR SYSTEM BALANCING AS SHOWN ON PLANS OR AS REQUIRED.
  - COORDINATE EXACT LOCATION OF DIFFUSERS WITH LIGHTS.

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CARY TENNIS CENTER  
 Cary, North Carolina

Construction Documents

Project  
 Date NOV 10, 2000  
 Revisions

Drawn By MECH  
 Checked By MAS  
 Content

MECHANICAL DETAILS PLAN

Sheet **M3.01**

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