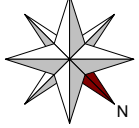
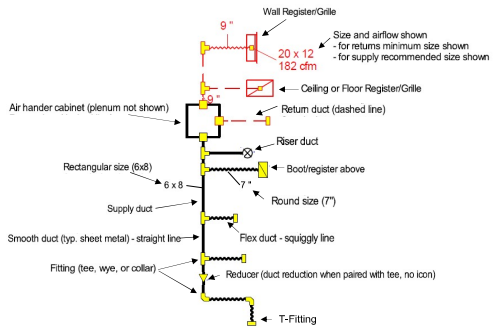
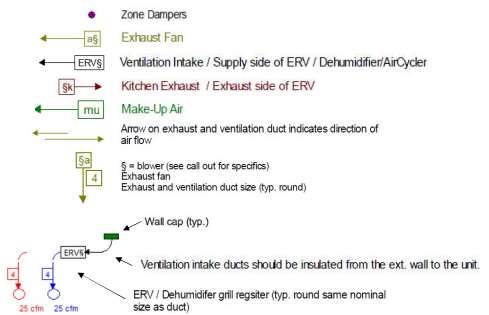
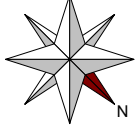

N

**Legend**


Wall Register/Grille
9 "
20 x 12
182 cfm
Size and airflow shown
- for returns minimum size shown
- for supply recommended size shown
9 "
Ceiling or Floor Register/Grille
Air hander cabinet (plenum not shown)
Return duct (dashed line)
Riser duct
Rectangular size (6x8)
6 x 8
Boot/register above
7 "
Round size (7")
Supply duct
Smooth duct (typ. sheet metal) - straight line
Flex duct - squiggly line
Fitting (tee, wye, or collar)
Reducer (duct reduction when paired with tee, no icon)
T-Fitting


Zone Dampers
a§
Exhaust Fan
ERV§
Ventilation Intake / Supply side of ERV / Dehumidifier/AirCycler
§k
Kitchen Exhaust / Exhaust side of ERV
mu
Make-Up Air
Arrow on exhaust and ventilation duct indicates direction of air flow
§a
4
§ = blower (see call out for specifics)
Exhaust fan
Exhaust and ventilation duct size (typ. round)
Wall cap (typ.)
ERV§
Ventilation intake ducts should be insulated from the ext. wall to the unit.
4
4
25 cfm
25 cfm
ERV / Dehumidifer grill regsiter (typ. round same nominal size as duct)




DESIGN SUMMARY
Downstairs - 2 Units
Upstairs - 1 Unit

HVAC EQUIPMENT SUMMARY

1AH1 - Downstairs 2.5 ton Amana heat pump
Duct Design Total Airflow – 1010 CFM
Air Handler – AH/E36CP1400A
Outdoor Unit – ASZS603010A
SEER - 16
HSPF - 8.5
6k auxiliary heat strip

2:1 Mitsubishi
Outdoor Unit – MXZ-2C20NAHZ

1AH2 - Garage 6k heat pump
Wall Mount – MSZ-FS06NA
SEER - 33.1
HSPF - 12.5
2AH1 - Upstairs 9k heat pump
Duct Design Total Airflow – 353 CFM
Air Handler – PEAD-A09AA7
SEER - 17.8
HSPF - 10.8

R-0 slab on grade
1F - Core-fill concrete block wall
2F - R-19 + R3 frame wall
R-30 encapsulated attic

Windows U-value 0.35 SHGC 0.25
Ducts in encapsulated attic

Internal Gains
+occupants +appliances

Kitchen +0 +1200
Utility +0 +500
Living Rm +5 +900
Dining Rm +1 +0

No flex ducts longer than 25 ft
Install ducts per attachment 3 EV Installation Fittings and Register Standards

FIELD CHANGES

~DOs~
Slide branches up and down the trunkline between transition pieces.
Stretch or contract branch length by several feet.
Make the ductwork or return grilles larger.

~DONTs~
Add extra elbows or bend the flex duct.
Change Supply register sizes.
Make Return grilles smaller in size.
Remove the 18" end sections on the trunklines.
Make ductwork smaller.

Ductless Unit in orange

Supply duct CFM in black

Return duct CFM in red

Filters at Return Grille/Air Handler
>= 2" deep filter slot
MERV 13 recommended

Supply Registers in ceiling
Hart & Cooley
611 curved blade register
recommended sizes shown

Kitchen-Breakfast, Living Rm
Supply Registers in ceiling
Hart & Cooley
682 two-way register
recommended sizes shown

Return Grilles in ceiling
Hart & Cooley 673 grilles
minimum size shown
** Return box should be >6" deep, excluding filter

Conditioning for Encapsulated Attic
Provide 1CFM/50 sqft
25 cfm
4" duct with damper and screen or grille as shown

§k = range hood <400 cfm
duct to exterior per manufacturer's instruction & code

Exhaust fans in ceiling
Panasonic models recommended
§a=FV-08VRE2
§b=FV-0511VK2

6" duct to exterior typical

Cape Damper Recommended

Ultra-Aire 70H:
Condensate line by other

Motorized Damper
Cape Damper

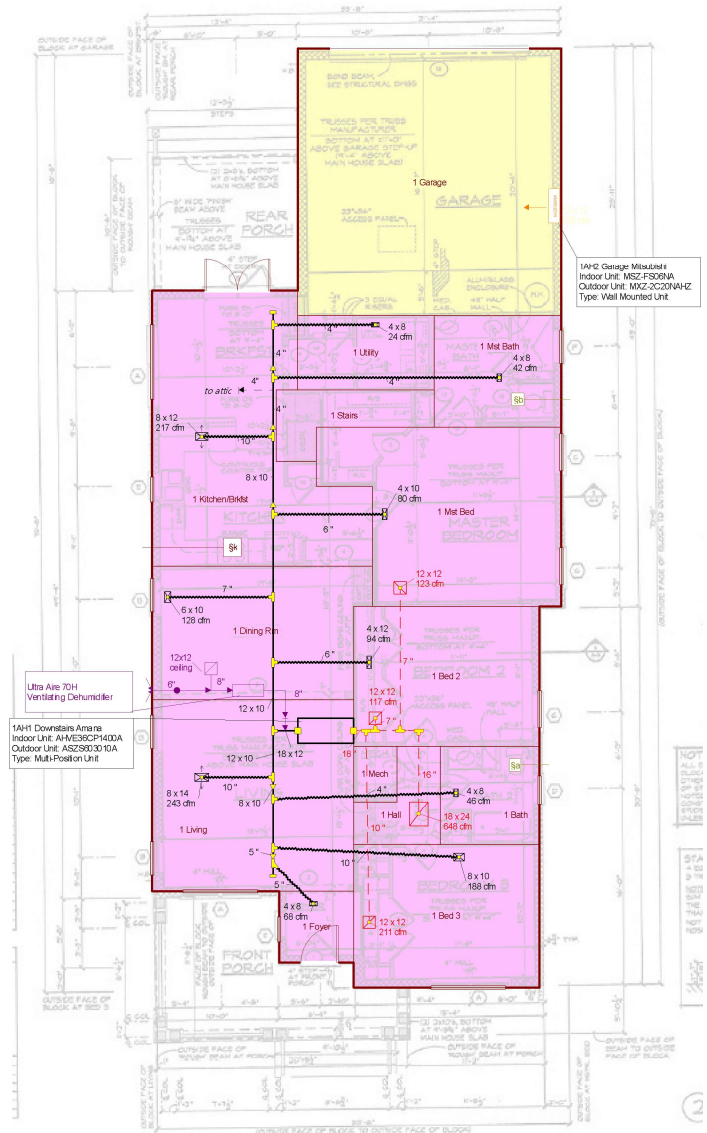
Dedicated return for Dehu.
Supply from Dehu injects air into supply plenum of AHU.

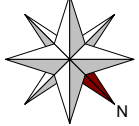
Ultra Aire 70 H Controller

Recommend DEH3000R

NOTES:
1) It is highly recommended that the HVAC contractor utilize appropriate
duct sealing materials as listed in section M1601.4.1 of the IRC
(International Residential Code). Alduct connections should be sealed with
tapes and/or mastics that comply with UL 181B. It is also important that the
air sealing material is applied to the duct liner, as opposed to the insulation
jacket.
2) All flex duct must be stretched tight and straight with rigid fittings.
3) Balancing dampers required on all branches..

1 Main Floor






DESIGN SUMMARY
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Duct Design Total Airflow – 353 CFM
Air Handler – PEAD-A09AA7
SEER - 17.8
HSPF - 10.8

R-0 slab on grade
1F - Core-fill concrete block wall
2F - R-19 + R3 frame wall
R-30 encapsulated attic

Windows U-value 0.35 SHGC 0.25
Ducts in encapsulated attic

Internal Gains
+occupants +appliances

Kitchen +0 +1200
Utility +0 +500
Living Rm +5 +900
Dining Rm +1 +0

6t Transfer Grille

Grille size: 8x8 Bed1,MstBed; 12x12 Bed3
above door or in wall

No flex ducts longer than 25 ft
Install ducts per attachment 3 EV Installation Fittings
and Register Standards

FIELD CHANGES

~DOs~
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Stretch or contract branch length by several feet.
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Supply duct CFM in black

Return duct CFM in red

Filters at Air Handler
>= 2" deep filter slot
MERV 13 recommended

Supply Registers in ceiling
Hart & Cooley
611 curved blade register
recommended sizes shown

Return Grilles in high wall
Hart & Cooley 673 grilles
minimum size shown
** Return box should be >6" deep, excluding filter

Exhaust fans in ceiling
Panasonic models recommended
§a=FV-08VRE2
§b=FV-0511VK2

6" duct to exterior typical

Cape Damper Recommended

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Condensate line by other

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3) Balancing dampers required on all branches..

**2 Second Floor**