

DAMMON ENGINEERING, INC

Date: 2/27/2013 Project: USDA Aphis Facility
Reviewed: David Dammon
Reviewed as noted: David Dammon
Revise and ReSubmit: _____
Rejected: _____
Other: _____

Correction or comments made on the shop drawings during this review do not relieve the contractor from compliance with requirements of the drawings and specifications. This check is only for review of the general conformance with the design concept of the project and general compliance with the information given in the contract documents. This contractor is responsible for: confirming and correlating all quantities and dimensions, selecting fabrication processes and techniques of construction; coordinating his or her work with that of all other trades and performing all in a safe and satisfactory manner.

Submittal item: RTU #1 & RTU #4 (Revised)

Comments: Landlord and Mechanical Contractor responsible for MERV 13 filters and Moisture Miser. Mechanical Contractor responsible for roof curbs.

SUBMITTAL DATA

For: Approval

Order #:

Date: 02/26/2013

Project: Aphis Std RTU

Project #:

Location:

Date

02/26/2013

Project Name

Aphis Std RTU

Project Number**Client / Purchaser**

Submittal Summary Page

Qty	Tag #	Model #	Description
1	RTU-1	T10ZFC00N2AAA5	10 Ton, Single Packaged R-410A Air Conditioner, 11.2 EER / 12.3 IEER, Two Stage Cooling, No Factory Installed Electric Heat, 3 HP High Static Belt Drive Blower, 2" Throwaway Filters, 208/230-3-60, Microchannel Condenser Coil, Composite Drain Pan
1		1CG0419	Coil Guard
1		2LA04704632	Low Ambient Kit
1		2MD04703224	Bottom Return Motorized Damper without Barometric Relief
1		2SD04700924	Smoke Detector for Return
1		2TP04532425	24 kW 208/230-3 Electric Heat
1	RTU-4	T07ZFC00A2AAA5	7.5 Ton, Single Packaged R-410A Air Conditioner, 11.2 EER / 12.5 IEER, Two Stage Cooling, No Factory Installed Electric Heat, 1.5 HP Standard Static Belt Drive Blower, 2" Throwaway Filters, 208/230-3-60, Microchannel Condenser Coil, Composite Drain Pan
1		1CG0427	Coil Guard
1		2LA04704632	Low Ambient Kit
1		2MD04703224	Bottom Return Motorized Damper without Barometric Relief
1		2SD04700924	Smoke Detector for Return
1		2TP04541825	18 kW 208/230-3 Electric Heat

Equipment start-up and commissioning by a factory trained technician is recommended.
 Contact your supplying distributor or sales representative for additional information & guidance.

Project Name: **Aphis Std RTU**

 Unit Model #: **T10ZFC00N2AAA5**

 Quantity: **1** Tag #: **RTU-1**

 System: **T10ZFC00N2AAA5**

Cooling Performance

Total capacity	125.7 MBH
Sensible capacity	92.0 MBH
Refrigerant type	R-410A
Efficiency (at ARI)	11.20 EER
Integrated eff. (at ARI)	12.10 IEER
Ambient DB temp.	95.0 °F
Entering DB temp.	80.0 °F
Entering WB temp.	67.0 °F
Leaving DB temp.	58.5 °F
Leaving WB temp.	56.9 °F
Part load efficiency	12.6 IPLV
Power input (w/o blower)	9.10 kW
Sound power	90 dB(A)

Heating Performance

Entering DB temp.	60 °F
Heating output capacity (Max)	81.8 MBH
Nominal electric heat	24 kW
Applied electric heat	24.0 kW
Installed	Field
Leaving DB temp.	79.1 °F
Air temp. rise	19.1 °F
Stages	2

Supply Air Blower Performance

Supply air	3965 CFM
Ext. static pressure	0.5 IWG
Blower speed	1008 RPM
Max BHP of Motor (including service factor)	3.45 HP
Duct location	Bottom
Motor rating	3.00 HP
Actual required BHP	2.44 HP
Power input	2.28 kW
Elevation	0 ft.
Drive type	BELT

Outside/Mixed Air

Outside Air Cfm	400 CFM
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Electrical Data

Power supply	230-3-60
Unit min circuit ampacity	84.20 Amps
Unit max over-current protection	90 Amps

Dimensions & Weight

Hgt	51 in.	Len	89 in.	Wth	59 in.
Weight with factory installed options	1065 lbs.				

Clearances

Right	12 in.	Front	36 in.	Back	36 in.
Top	72 in.	Bottom	0 in.	Left	36 in.

Note: Please refer to the tech guide for listed maximum static pressures



10 Ton

- All units are manufactured at an ISO 9001 registered facility and each rooftop is completely computer-run tested prior to shipment.

Unit Features

- Unit Cabinet Constructed of Powder Painted Steel, Certified At 1000 Hours Salt Spray Test (ASTM B-117 Standards)
- Through-the-Curb and Through-the-Base Utility Connections
- Either supply and/or return can be field converted from vertical to horizontal configuration without cutting panels.
- Full perimeter base rails with built in rigging capabilities
- Hinged Access Panels
- Slide-Out Condensate Drain Pan
- Two Stage Cooling
- Solid Core Liquid Line Filter Driers
- Microchannel Condenser Coil
- No Factory Installed Electric Heat
- Unit Ships with 2" Throwaway Filters with a Standard Filter Rack that will Accept up to 4" Filters
- Single Point Power Connection
- Short Circuit Current: 5kA RMS Symmetrical

Standard Unit Controller: Simplicity® Control Board

- An integrated low-ambient control, anti-short cycle protection, lead-lag, fan on and fan off delays, low voltage protection, on-board diagnostic and fault code display.
- Safety Monitoring - Monitors the high and low-pressure switches, the freezestats, the gas valve, if applicable, and the temperature limit switch on gas and electric heat units. The unit control board will alarm on ignition failures, safety lockouts and repeated limit switch trips.

Warranty

- One (1) Year Limited Warranty on the Complete Unit
- Five (5) Year Warranty - Compressors and Electric Heater Elements

Project Name: **Aphis Std RTU**

Unit Model #: **T10ZFC00N2AAA5**

Quantity: **1** Tag #: **RTU-1**

System: **T10ZFC00N2AAA5**

Factory Installed Options

T10ZFC00N2AAA5

Nominal Cooling Capacity:	T10	10 Ton Two Stage Cooling
Product Category:	Z	Single Packaged R-410A Air Conditioner
Product Identifier:	F	11.2 EER / 12.3 IEER
Heat Type and Nominal Heat Capacity:	C00	No Factory Installed Electric Heat
Airflow:	N	3 HP High Static Belt Drive Blower 2" Throwaway Filters
Voltage:	2	208/230-3-60
Installation Options:	A	
Additional Options:	AA	Microchannel Condenser Coil Composite Drain Pan
Product Generation:	5	

Field Installed Accessories

- 1CG0419 - Coil Guard (27.0 lbs)
- 2LA04704632 - Low Ambient Kit (6.0 lbs)
- 2MD04703224 - Bottom Return Motorized Damper without Barometric Relief (66.0 lbs)
- 2SD04700924 - Smoke Detector for Return (10.0 lbs)
- 2TP04532425 - 24 kW 208/230-3 Electric Heat (30.0 lbs)

Project Name: **Aphis Std RTU**

Unit Model #: **T10ZFC00N2AAA5**

Quantity: **1** Tag #: **RTU-1**

System: **T10ZFC00N2AAA5**

ZF120 Consolidated Drawing

NOTES:

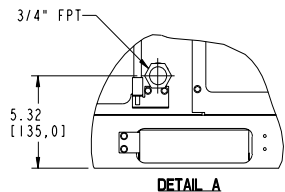
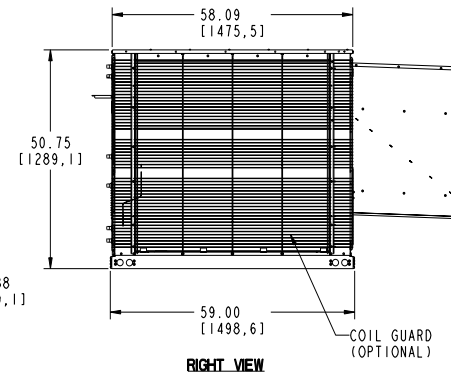
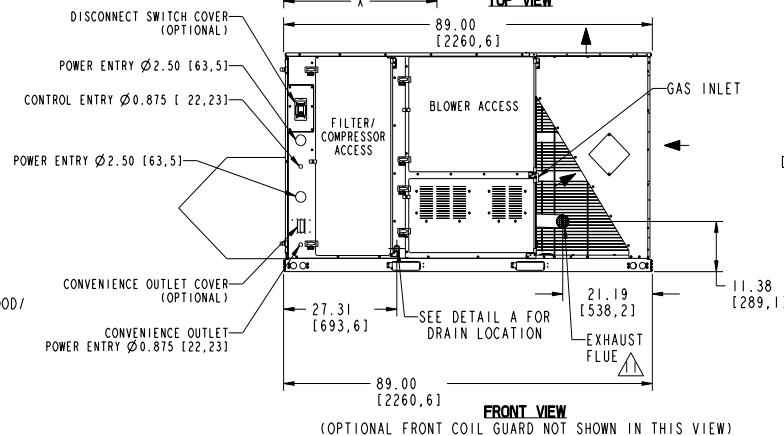
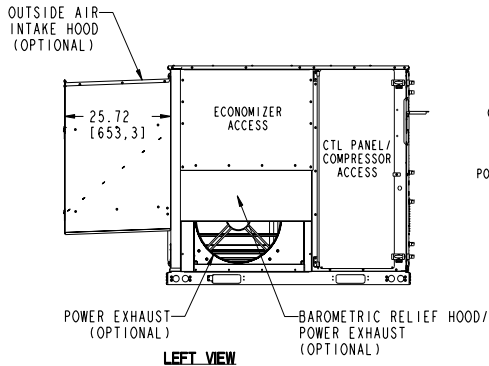
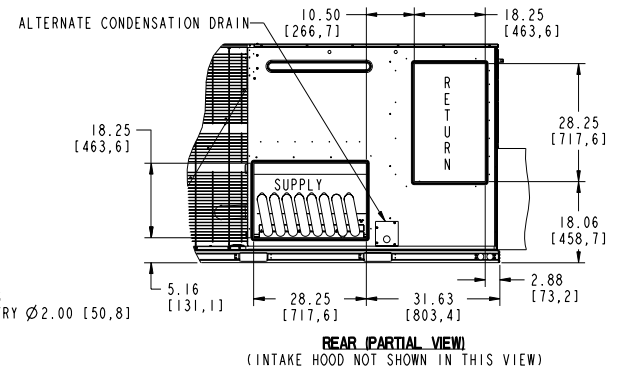
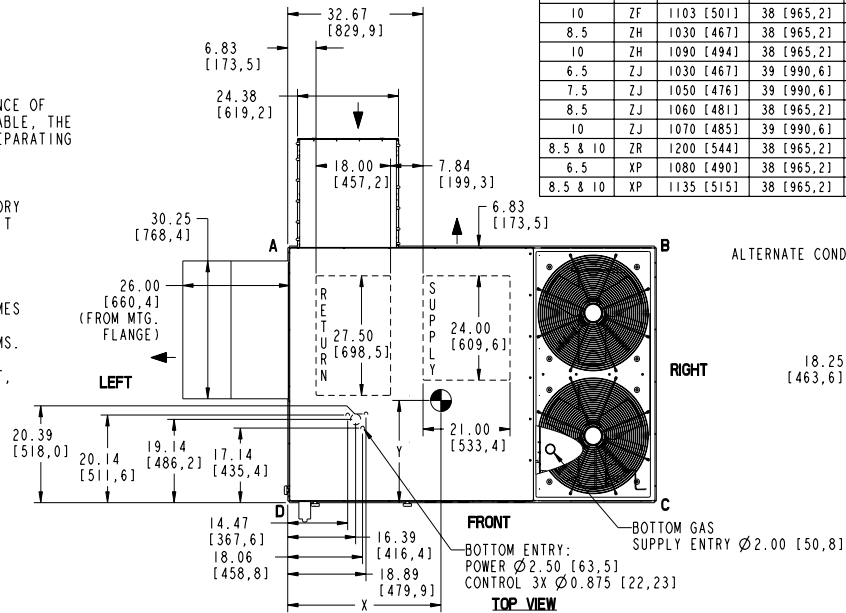
1. FOR OUTDOOR USE ONLY.
2. WEIGHTS SHOWN ARE FOR COOLING ONLY UNITS.
3. MIN. CLEARANCES TO BE:
 RIGHT SIDE: 12 [305]
 LEFT SIDE: 36 [915]
 FRONT: 36 [915]
 REAR: 36 [915]
 TOP: 72 [1830]
 BOTTOM: 0 [0]
4. TO REMOVE THE SLIDE-OUT DRAIN PAN, A REAR CLEARANCE OF 60 in (1525 mm) IS REQUIRED. IF SPACE IS UNAVAILABLE, THE DRAIN PAN CAN BE REMOVED THROUGH THE FRONT BY SEPARATING THE CORNER WALL.
5. FOR SMALLER SERVICE AND OPERATIONAL CLEARANCES CONTACT YOUR APPLICATION ENGINEERING DEPARTMENT.
6. DOWNFLOW DUCTS DESIGNED TO BE ATTACHED TO ACCESSORY ROOF CURB ONLY. IF UNIT IS MOUNTED SIDE SUPPLY, IT IS RECOMMENDED THAT THE DUCTS ARE SUPPORTED BY CROSS BRACES, AS DONE ON ACCESSORY ROOF CURBS.
7. SIDE DUCT FLANGES ARE 0.75" HIGH. BOTTOM DUCTS DO NOT HAVE FLANGES.
8. MINIMUM CONDENSATION TRAP HEIGHT SHALL BE 1.5 TIMES THE LOWEST NEGATIVE STATIC.
9. DIMENSIONS IN [] ARE IN MILLIMETERS OR KILOGRAMS.
10. OPTIONAL COIL GUARDS, POWER EXHAUST, GAS HEAT, ECONOMIZER, DISCONNECT SWITCH, CONVENIENCE OUTLET, AND BAROMETRIC RELIEF HOOD SHOWN.

EXCEPT XP (HEAT PUMP) UNITS.

DIRECTION OF AIRFLOW

CENTER OF GRAVITY

TONNAGE	UNIT	OPERATING WEIGHT (LBS) (BASE UNIT)	CENTER OF GRAVITY LOCATION (BASE UNIT)		4 POINT CORNER LOADS (LBS) (BASE UNIT)			
			X	Y	A	B	C	D
8.5	ZF	1007 [458]	38 [965,2]	24 [609,6]	235 [107]	175 [79]	255 [116]	342 [155]
10	ZF	1103 [501]	38 [965,2]	24 [609,6]	257 [117]	192 [87]	279 [127]	375 [170]
8.5	ZH	1030 [467]	38 [965,2]	24 [609,6]	240 [109]	179 [81]	261 [118]	350 [159]
10	ZH	1090 [494]	38 [965,2]	24 [609,6]	254 [115]	189 [86]	276 [125]	371 [168]
6.5	ZJ	1030 [467]	39 [990,6]	25 [635]	245 [111]	191 [87]	260 [118]	333 [151]
7.5	ZJ	1050 [476]	39 [990,6]	25 [635]	250 [113]	195 [89]	265 [120]	340 [154]
8.5	ZJ	1060 [481]	38 [965,2]	24 [609,6]	247 [112]	184 [84]	268 [122]	360 [163]
10	ZJ	1070 [485]	39 [990,6]	24 [609,6]	245 [111]	191 [87]	278 [126]	357 [162]
8.5 & 10	ZR	1200 [544]	38 [965,2]	25.5 [647,7]	297 [135]	221 [100]	291 [132]	390 [177]
6.5	XP	1080 [490]	38 [965,2]	25 [635]	262 [119]	195 [89]	266 [121]	357 [162]
8.5 & 10	XP	1135 [515]	38 [965,2]	25.5 [647,7]	281 [128]	209 [95]	275 [125]	369 [167]



Project Name: **Aphis Std RTU**

 Unit Model #: **T07ZFC00A2AAA5**

 Quantity: **1** Tag #: **RTU-4**

 System: **T07ZFC00A2AAA5**

Cooling Performance

Total capacity	89.2 MBH
Sensible capacity	59.4 MBH
Refrigerant type	R-410A
Efficiency (at ARI)	11.20 EER
Integrated eff. (at ARI)	12.30 IEER
Ambient DB temp.	95.0 °F
Entering DB temp.	80.0 °F
Entering WB temp.	67.0 °F
Leaving DB temp.	56.6 °F
Leaving WB temp.	54.7 °F
Part load efficiency	12.1 IPLV
Power input (w/o blower)	7.20 kW
Sound power	83 dB(A)

Heating Performance

Entering DB temp.	60 °F
Heating output capacity (Max)	61.4 MBH
Nominal electric heat	18 kW
Applied electric heat	18.0 kW
Installed	Field
Leaving DB temp.	84.2 °F
Air temp. rise	24.2 °F
Stages	2

Supply Air Blower Performance

Supply air	2350 CFM
Ext. static pressure	0.5 IWG
Unit static resistance	0.10 IWG
Blower speed	1016 RPM
Max BHP of Motor (including service factor)	1.73 HP
Duct location	Bottom
Motor rating	1.50 HP
Actual required BHP	1.14 HP
Power input	1.07 kW
Elevation	0 ft.
Drive type	BELT

Outside/Mixed Air

Outside Air Cfm	280 CFM
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Electrical Data

Power supply	230-3-60
Unit min circuit ampacity	61.60 Amps
Unit max over-current protection	70 Amps

Dimensions & Weight

Hgt	42 in.	Len	89 in.	Wth	59 in.
Weight with factory installed options	885 lbs.				

Clearances

Right	12 in.	Front	36 in.	Back	36 in.
Top	72 in.	Bottom	0 in.	Left	36 in.

Note: Please refer to the tech guide for listed maximum static pressures



7.5 Ton

- All units are manufactured at an ISO 9001 registered facility and each rooftop is completely computer-run tested prior to shipment.

Unit Features

- Unit Cabinet Constructed of Powder Painted Steel, Certified At 1000 Hours Salt Spray Test (ASTM B-117 Standards)
- Through-the-Curb and Through-the-Base Utility Connections
- Either supply and/or return can be field converted from vertical to horizontal configuration without cutting panels.
- Full perimeter base rails with built in rigging capabilities
- Hinged Access Panels
- Slide-Out Condensate Drain Pan
- Two Stage Cooling
- Solid Core Liquid Line Filter Driers
- Microchannel Condenser Coil
- No Factory Installed Electric Heat
- 1.5 HP Standard Static Belt Drive Blower
- Unit Ships with 2" Throwaway Filters with a Standard Filter Rack that will Accept up to 4" Filters
- Single Point Power Connection
- Short Circuit Current: 5kA RMS Symmetrical

Standard Unit Controller: Simplicity® Control Board

- An integrated low-ambient control, anti-short cycle protection, lead-lag, fan on and fan off delays, low voltage protection, on-board diagnostic and fault code display.
- Safety Monitoring - Monitors the high and low-pressure switches, the freezestats, the gas valve, if applicable, and the temperature limit switch on gas and electric heat units. The unit control board will alarm on ignition failures, safety lockouts and repeated limit switch trips.

Warranty

- One (1) Year Limited Warranty on the Complete Unit
- Five (5) Year Warranty - Compressors and Electric Heater Elements

Project Name: **Aphis Std RTU**

Unit Model #: **T07ZFC00A2AAA5**

Quantity: **1** Tag #: **RTU-4**

System: **T07ZFC00A2AAA5**

Factory Installed Options

T07ZFC00A2AAA5

Nominal Cooling Capacity:	T07	7.5 Ton Two Stage Cooling
Product Category:	Z	Single Packaged R-410A Air Conditioner
Product Identifier:	F	11.2 EER / 12.5 IEER
Heat Type and Nominal Heat Capacity:	C00	No Factory Installed Electric Heat
Airflow:	A	1.5 HP Standard Static Belt Drive Blower 2" Throwaway Filters
Voltage:	2	208/230-3-60
Installation Options:	A	
Additional Options:	AA	Microchannel Condenser Coil Composite Drain Pan
Product Generation:	5	

Field Installed Accessories

- 1CG0427 - Coil Guard (20.0 lbs)
- 2LA04704632 - Low Ambient Kit (6.0 lbs)
- 2MD04703224 - Bottom Return Motorized Damper without Barometric Relief (66.0 lbs)
- 2SD04700924 - Smoke Detector for Return (10.0 lbs)
- 2TP04541825 - 18 kW 208/230-3 Electric Heat (30.0 lbs)

Project Name: **Aphis Std RTU**

 Unit Model #: **T07ZFC00A2AAA5**

 Quantity: **1** Tag #: **RTU-4**

 System: **T07ZFC00A2AAA5**
ZF090 Consolidated Drawing
NOTES:

1. FOR OUTDOOR USE ONLY.
 2. WEIGHTS SHOWN ARE FOR COOLING ONLY UNITS.
 3. MIN. CLEARANCES TO BE:
 RIGHT SIDE: 12 [305]
 LEFT SIDE: 36 [915]
 FRONT: 36 [915]
 REAR: 36 [915]
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 BOTTOM: 0 [0]
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 7. SIDE DUCT FLANGES ARE 0.75" HIGH. BOTTOM DUCTS DO NOT HAVE FLANGES.
 8. MINIMUM CONDENSATION TRAP HEIGHT SHALL BE 1.5 TIMES THE LOWEST NEGATIVE STATIC.
 9. DIMENSIONS IN [] ARE IN MILLIMETERS OR KILOGRAMS.
 10. OPTIONAL COIL GUARDS, POWER EXHAUST, GAS HEAT, ECONOMIZER, DISCONNECT SWITCH, CONVENIENCE OUTLET, AND BAROMETRIC RELIEF HOOD SHOWN.
- EXCEPT XP (HEAT PUMP) UNITS.
 12. 8 TUBE HEAT EXCHANGER IS NOT AVAILABLE FOR 4 TON UNITS.

- DIRECTION OF AIRFLOW
- CENTER OF GRAVITY

TONNAGE	UNIT	OPERATING WEIGHT (LBS) (BASE UNIT)	CENTER OF GRAVITY LOCATION (BASE UNIT)		4 POINT CORNER LOADS (LBS) (BASE UNIT)			
			X	Y	A	B	C	D
6.5	ZF	860 [390]	38 [965,2]	24 [609,6]	200 [91]	149 [68]	218 [99]	292 [133]
7.5	ZF	880 [399]	38 [965,2]	24 [609,6]	205 [93]	153 [69]	223 [101]	299 [136]
5	ZH	864 [393]	40 [1016]	26 [660,4]	210 [95]	171 [78]	217 [99]	266 [121]
6.5 & 7.5	ZH	910 [413]	38 [965,2]	24 [609,6]	212 [96]	158 [72]	230 [104]	309 [140]
5	ZJ	770 [349]	40 [1016]	24 [609,6]	172 [78]	141 [64]	205 [93]	251 [114]
4	ZR	880 [399]	40 [1016]	26 [660,4]	214 [97]	174 [79]	221 [100]	271 [123]
5	ZR	868 [394]	40 [1016]	26 [660,4]	211 [96]	172 [78]	218 [99]	267 [121]
6.5	ZR	957 [435]	38 [965,2]	23 [584,2]	214 [97]	161 [73]	249 [113]	333 [151]
7.5	ZR	965 [438]	38 [965,2]	23 [584,2]	216 [98]	161 [73]	251 [114]	337 [153]
7.5	XP	920 [417]	38 [965,2]	23 [584,2]	206 [93]	153 [69]	240 [109]	322 [146]

