Gmail

Jerrick Hernandez <jhernandez@guamopa.com>

Fw: UOG's Rebuttal to Comments on Agency Report - Docket No. OPA-PA-22-002

Cynthia Guerrero <cguerrero@triton.uog.edu> Thu, Mar 10, 2022 at 6:18 PM
To: Jerrick Hernandez <jhernandez@guamopa.com>, Seth Forman <forman@guamlawoffice.com>
Cc: "Camacho, Anthony" <arcamacho@triton.uog.edu>

I apologize. Attached is a copy of the document as described above. If you are unable to access the attachment, I've provided a link below:

UOG's Rebuttal to Comments on Agency Report - Docket No. OPA-PA-22-002.pdf

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Si Yu'os ma'åse',

Cynthia T. Guerrero, MPA

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From: mfp-pres@triton.uog.edu <mfp-pres@triton.uog.edu>
Sent: Friday, March 11, 2022 2:51 AM
To: Cynthia Guerrero <cguerrero@triton.uog.edu>; Carmelita Blas <cgblas@triton.uog.edu>
Subject: UOG's Rebuttal to Comments on Agency Report - Docket No. OPA-PA-22-002

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2332K

ANTHONY R. CAMACHO, ESQ.
UNIVERSITY OF GUAM
UOG Station
Mangilao, Guam 96923

Appearing as Counsel for University of Guam

PROCUREMENT APPEAL

IN THE MATTER OF	)	DOCKET NO. OPA-PA-22-002
	)	
ALL BUSINESS ENTERPRISES, CORP.,	)	**UNIVERSITY OF GUAM'S**
	)	**REBUTTAL TO COMMENTS**
Appellant.	)	**ON AGENCY REPORT**
	)	

COMES NOW, Purchasing Agency UNIVERSITY OF GUAM (UOG), through its General Counsel, ANTHONY R. CAMACHO, ESQ., who, in accordance with 2 G.A.R., Div. 4, §12104(c)(4), submits its Rebuttal to the Appellant ALL BUSINESS ENTERPRISES, CORP. (ABE) Comments on UOG's Agency Report filed in this matter and said rebuttal is as follows:

A. TONY'S WORKSHOP'S BID WAS RESPONSIVE

As shown in UOG's Agency Report, TONY'S WORKSHOP's bid was responsive. In its comments to the agency report, ABE argues that the condenser coil coatings of the HVAC units were a material specification that TONY'S WORKSHOP's bid failed to meet. Generally, a responsive bidder means a person who has submitted a bid which conforms in all material respects to the Invitation for Bids. Section 1.9.43, UOG Procurement

Regulations (UOGPR).[1] Such argument invites the OPA to ignore the forest and look at only the trees and the OPA must decline such invitation because UOG was not soliciting for condenser coils only but was soliciting for entire HVAC units. Hence, the condenser coils are merely components of HVAC units UOG was soliciting for. As shown in UOG's Agency Report, Section 2.2.1.1 of UOG-IFB-B21-17 (Purchasing of HVAC Units)'s (IFB) specifications required that the successful bidder provide condenser coils that are copper finned and coat the condenser and evaporator coils with a uniformly applied epoxy electrodeposition, phenolic, or vinyl type coating to all coil surface areas without material bridging between fins. There is nothing special, unique, or difficult in these alternative coil coatings because they are typical types of corrosion coatings used in commercial and military projects, most American brands should have this available because it is a common industry standard, especially for equipment in our region, and it is reasonable to anticipate that the contractor selected for the award of the IFB's contract should have no issue providing corrosion protective coating compliant with this specification. See Jonathan Javellana, P.E., Letter dated March 9, 2022 attached herein at page UOG1. Further, as shown in UOG's Agency Report, Section 2.1 of the IFB's specifications state that the successful bidder must provide UOG with the Manufacturer's standard catalog data, at least five (5) weeks prior to the purchase or installation of a particular component, highlights to show material, size, options, performance charts and curves, etc., in adequate

[1] Throughout its ABE's comments on UOG's Agency Report, ABE cites sections of the Government of Guam Procurement Regulations as codified in 2 G.A.R., Div. 4, §1101 *et.seq.* The OPA must ignore those citations because they do not apply to UOG which is authorized to have its own procurement Regulations. See 5 G.C.A. §5030(k), §5125, §5102, and §5131.

detail to demonstrate compliance with contract requirements, and, for the six units identified by ABE as not having descriptions of which of the three condenser coil coatings authorized by the specifications the units will have, the specifications require TONY'S WORKSHOP to provide the manufacturers standard catalog data at least five (5) weeks prior to the purchase or installation of a the six (6) units at issue showing compliance with the condenser coating requirement.

The real material specifications for the HVAC units were specified in the bid form. Said form specifically states that the bid award was to be based on the required items in Table 1.0, price, compliance with the specification, to include, but not limited to Sections 2.2.1.1 and 2.1 cited above, services, delivery, and any requirements in the bid package. See Exhibit B, IFB attached herein at page UOG51. For the six (6) HVAC units in question, Table 1.0 required one (1) fifteen (15) ton HVAC unit for the 20RFK Building first floor main entrance. Id. In response, TONY'S WORKSHOP's bid offered one (1) fifteen (15) ton Carrier Model 38AUD with condenser coils. See Excerpt of TONY'S WORKSHOP'S bid attached herein as page UOG3. Table 1.0 required the same type of fifteen (15) ton unit for 7.5RFK Building First Floor AV Room. See Exhibit B, IFB attached herein at page UOG51. In response, TONY'S WORKSHOP's bid offered one (1) fifteen (15) ton Carrier Model 38AUD with condenser coils. See Excerpt of TONY'S WORKSHOP'S bid attached herein as page UOG4. Table 1.0 required one (1) twenty (20) ton HVAC unit for the 7.5RFK Building first floor offices. See Exhibit B, IFB attached herein at page UOG51. In response, TONY'S WORKSHOP's bid offered one (1) twenty (20) ton Carrier Model 38AUD with condenser coils. See Excerpt of TONY'S

WORKSHOP'S bid attached herein as page UOG5. Table 1.0 required the same type of twenty (20) ton unit for PIP (GLE) Second Floor. See Exhibit B, IFB attached herein at page UOG51. In response, TONY'S WORKSHOP's bid offered one (1) twenty (20) ton Carrier Model 38AUD with condenser coils. See Excerpt of TONY'S WORKSHOP's bid attached herein as page UOG6. Table 1.0 required the same type of twenty (20) ton unit for 20Scinece Building Third Floor. See Exhibit B, IFB attached herein at page UOG51. In response, TONY'S WORKSHOP's bid offered one (1) twenty (20) ton Carrier Model 38AUD with condenser coils. See Excerpt of TONY'S WORKSHOP's bid attached herein as page UOG7. Finally, Table 1.0 required one (1) twenty (20) ton HVAC unit for the Lecture Hall Auditorium. See Exhibit B, IFB attached herein at page UOG52. In response, TONY'S WORKSHOP's bid offered one (1) twenty (20) ton unit with condenser coils. See Excerpt of TONY'S WORKSHOP's bid attached herein as page UOG7. For the fifty (50) and forty (40) ton units bid by TONY'S WORKSHOP, they all had condenser coils and coil fins that were coated with a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins. See excerpt of TONY'S WORKSHOP's bid attached herein as page UOG53. This is a standard coating, not an optional coating, on all the Carrier HVAC units was providing, to include but not limited to the fifteen (15) and twenty (20) ton Carrier HVAC units at issue here, and this type of coating is a type of electrodeposition coating which complies with Section 2.2.1.1 of the IFB's specifications. See Letter from Arnel Francisco, Carrier Guam Inc., attached herein as pages UOG9-12.

Based on the foregoing, TONY'S WORKSHOP's bid submitted in response to the IFB conformed in all material respects to the IFB and ABE's allegations to the contrary have no merit.

Alternatively, should the OPA find that TONY'S WORKSHOP's bid was non-responsive, UOG has options other than rejecting the bid as argued by ABE in its comments to UOG's Agency Report. Generally, if a mistake is discovered after opening and prior to award, UOG may waive the mistake if it a minor informality. Section 3.9.13.4, UOG Procurement Regulations. A minor informality is a matter of form, rather than substance evident from the bid document, or insignificant mistakes that can be waived or corrected without prejudice to other bidders, that is the effect on price, quantify, quality, delivery, or contractual conditions is negligible and UOG's President or his designee shall waive such informalities or allow the bidder to correct them depending on which is in the best interest of UOG. Section 3.9.13.4.1, UOG Procurement Regulations. Here, the omission of the coating information for the six units in question was a minor informality because it was an insignificant mistake that had no effect on price, quantity, quality, as set forth above the standard coating applied to the units complies with the IFB specifications, or contractual conditions. Thus, should the OPA terminate UOG's award of the contract to TONY'S WORKSHOP, UOG must be permitted to treat the omission of the coating information for the six units in question as a minor informality and either waive such deficiency or allow TONY'S WORKSHOP to correct it. UOG could also treat the omission of the coating information for the six (6) units in question as a mistake discovered after award and UOG's President may allow TONY'S WORKSHOP to correct

the mistake if it would be unconscionable not to do so. Section 3.9.13.5, UOG Procurement Regulations. Here, it would be unconscionable not to allow TONY'S WORKSHOP to correct the mistake because the six (6) units in question would come standard from the factory with a coating that complied with the IFB specifications and the correction would not cost extra. UOG could ratify the contract to TONY'S WORKSHOP if the OPA finds that it violated Guam Procurement Law. Generally, upon finding after award that a UOG employee made an unauthorized award of a contract or that a contract award is otherwise in violation of law where there is no finding of fraud or bad faith, UOG's President may ratify or affirm the contract. Section 9.7.1.1, UOG Procurement Regulations. Further, if the violation can be waived without prejudice to UOG or other bidders, the preferred action is to ratify and affirm the contract. Section 9.7.1.2, UOG Procurement Regulations. Here, there is no fraud or bad faith for the omission of the coating information for the six (6) HVAC units in question and there is no prejudice to the other bidders. Thus, if the OPA finds that UOG violated Guam Procurement Law by awarding the IFB contract to TONY'S WORKSHOP, UOG must be allowed to ratify and affirm the contract which is the preferred action in this case. Finally, the IFB allows UOG to award the IFB contract to TONY'S WORKSHOP minus the six (6) units at issue here. The IFB specifically states that UOG's President has the authority to award or reject bids, in whole or in part for any one or more items if he determines it is in the public interest. See IFB Excerpt attached herein as page UOG54. Further, the IFB stated that UOG's President may accept any combination of bids. Id., at page UOG55. Thus, should the OPA terminate the award of the IFB Contract to TONY'S WORKSHOP, UOG may award

the IFB contract to TONY'S WORKSHOP for the units that are not in question here, and to the next lowest responsive bidders for the six (6) units that are in question here.

B. JWS' BID WAS RESPONSIVE

ABE's allegations that JWS' bid was nonresponsive have no merit. In fact, ABE admits in its comments to UOG's Agency Report that its allegations that JWS' bid violated the Buy America Act are now moot. ABE should have researched whether this allegation was true prior to making this allegation during its protest and this appeal. Indeed, despite making this admission, ABE attempts to continue to cast doubt on the Dunham Bush HVAC units JWS offered in its bid by stating that despite its "googling" it does not know whether Dunham Bush's Florida location is a factory or a dealership office and ABE appears to assume that, given the distances, the Dunham Bush HVAC units would be manufactured in Malaysia instead of Florida. To put these allegations to rest, JWS has clarified, and UOG will be prepared to prove at a formal hearing in this matter, that JWS is well aware of the IFB's Buy America Act requirements, that JWS has recently provided Buy America Act compliant Dunham Bush HVAC units for Anderson Air Force Base , Guam, and those HVAC units and the HVAC units it was offering in response to the IFB all came from or would come from Dunham Bush's factory in Homestead, Florida. See Tony Scragg's Letter attached herein as page UOG13 and Leonardo Ampie, Dunham-Bush USA, LLC Sales Manager's Letter dated March 8, 2022 attached herein as page UOG15. Hence, there never was any merit to ABE's allegations that JWS' bid violated the Buy

American Act, and the OPA must consider this baseless allegation when it considers the credibility and veracity of ABE's other allegations.

ABE's other allegation in its comments to UOG's Agency Report that JWS made no mention of coating for any of the units it was offering is equally without merit. In its bid, JWS offered two (2) fifteen (15) ton Dunham Bush Model ACCS220 HVAC units for the RFK second floor and RFK first floor, respectively. See Excerpt of JWS's Bid attached herein at page UOG26. The technical report for this model of HVAC indicates that it would have a condenser coil with an optional copper condenser coil fin. See Excerpt of JWS's Bid attached herein at page UOG27. The specifications for this model of HVAC indicate that the condenser coil will be mechanically bonded to the fins and coated with a Hydrophilic protective coating. Id., at pages UOG28-29. In its bid, JWS offered four (4) twenty (20) ton Dunham Bush Model ACCS290 HVAC units for the RFK offices, PIP second floor, Science third floor, and the Lecture Hall, respectively. Id, at page UOG26. The technical report for this model of HVAC indicates that it would have a condenser coil with an optional copper condenser coil fin. Id., at page UOG30. The specifications for this model of HVAC indicate that the condenser coil will be mechanically bonded to the fins and coated with a Hydrophilic protective coating. Id., at pages UOG31-32. In its bid, JWS offered three (3) thirty (30) ton Dunham Bush Model ACCS435 HVAC units for the English Communication Building and the HSS Building, respectively. Id., at page UOG26. The technical report for this model of HVAC indicates that it would have a condenser coil with an optional copper condenser coil fin. Id., at page UOG36. The specifications for this model of HVAC indicate that the condenser coil will be

mechanically bonded to the fins and coated with a Hydrophilic protective coating. Id., at pages UOG37-38. In its bid, JWS offered three (3) forty (40) ton Dunham Bush Model ACCS570 HVAC units for the RFK first floor, the Science Building first floor, and the Science Building second floor, respectively. Id., at page UOG26. The technical report for this model of HVAC indicates that it would have a condenser coil with an optional copper condenser coil fin. Id., at page UOG42. The specifications for this model of HVAC indicate that the condenser coil will be mechanically bonded to the fins and coated with a Hydrophilic protective coating. Id., at pages UOG43-44. In its bid, JWS offered three (3) fifty (50) ton Dunham Bush Model ACCS700 HVAC units for the RFK second floor, the Computer Center OIT, and HSS Building 1, respectively. Id., at page UOG26. The technical report for this model of HVAC indicates that it would have a condenser coil with an optional copper condenser coil fin. Id., at page UOG45. The specifications for this model of HVAC indicate that the condenser coil will be mechanically bonded to the fins and coated with a Hydrophilic protective coating. Id., at pages UOG46-47. Hence, all the condenser coils and fins for the models offered by JWS would be coated with a Hydrophilic protective coating. This coating is a type of Phenolic coating which complies with Section 2.2.1.1 of the IFB Specifications. See Letters from Tony Scragg and Leonardo Ampie attached herein as pages UOG 14-15, and Technical Specification for the protective coating attached herein as pages UOG16-24.

Based on the foregoing, there is no merit to ABE's allegations that JWS' bid was non-responsive.

C. THE OPA MUST DISMISS THE ALLEGATIONS CONCERNING JWS' BID

ABE has no defense to filing it protest or this appeal regarding JWS's Bid. As shown in the agency report, UOG has not awarded a contract to JWS. Hence, neither 5 G.C.A. §5425(a) or Section 9.2.3.2, UOG Procurement Regulations give ABE the right to protest JWS' bid because the bid, by itself, does not constitute a method of source selection, a solicitation or an award of a contract. Thus, the OPA must dismiss ABE's claims concerning JWS' bid because they are not properly before the OPA.

D. UOG MUST BE AWARDED ITS LEGAL FEES

ABE's allegations that UOG's request for award of its reasonable attorney fees is unwarranted have no merit. As shown in UOG's Agency Report and this pleading, not only has ABE made baseless allegations concerning TONY'S WORKSHOP's compliance with the IFB specifications and JWS' compliance with the Buy America Act and the IFB specifications in its initial protest and this appeal, ABE had no authority to bring its allegations in the form of a protest or appeal. UOG has incurred costs and legal fees responding to these frivolous and possibly fraudulent allegations, and should be reimbursed those costs should it prevail in this matter.

CONCLUSION

Based on the foregoing, the OPA must deny ABE's appeal, sustain UOG's January 25, 2022 protest decision, and the OPA must find that ABE's protest and this appeal are at least frivolous, and possibly fraudulent, and meant solely to disrupt the procurement process and award UOG its reasonable costs and reasonable attorney fees in responding to them.

SUBMITTED this 10th day of March, 2022 by:

Anthony R. Camacho

ANTHONY R. CAMACHO, ESQ.
Attorney for the University of Guam

AMORIENT

09 March 2022

SUBJECT: **Coil Corrosion Protection**

PROJECT: **UOG BID Contract #B21-17**

To whom it may concern:

My name is Jonathan Javellana, and I work with Amorient Engineering as their mechanical engineer. We were tasked by the University of Guam to prepare the technical specifications for the replacement and/or repair of HVAC equipment at various locations across campus for Bid Number B21-17. These specifications were derived from the Unified Facilities Guide Specifications which are used as a basis for military projects on our island and across the United States.

The reason for this letter is regarding the type of coil corrosion protection in question. According to the specs we prepared, epoxy electrodeposition, phenolic coating, or vinyl type coating are acceptable options for the HVAC equipment coil corrosion protection. These are all typical types of corrosion coating used in commercial and military projects. Most American brands should have this available seeing as it is a common industry standard, especially for equipment in our region. I would assume that the contractor/manufacturer selected should have no issue providing corrosion protective coating compliant with this spec.

Please do not hesitate to contact me should you have any questions/concerns.

Sincerely,

Jonathan Javellana, P. E.

SUBMITTAL

Project

HA-1702-21-11 UOG IFB B21-17 PURCHASING HVAC EQUIP

Date

Wednesday, December 1, 2021

Project Number

HA-1702-21-11

Contractor

UNIVERSITY OF GUAM - PROCUREMENT OFFICE

BERNARD LLARENAS
CARRIER GUAM INC.

Outdoor Unit Parameters

Unit Quantity	1	
Unit Model	38AUD	
Unit Size	15 Tons	
Voltage	208-3-60	V-Ph-Hz
Condenser Coil	Cu/Cu	
No. of Stages	Dual Stage	

System Parameter

System Quantity	1	
Refrigerant Type	PURON	
Compressor Quantity	2	
Compressor Type	Scroll	
Std. Capacity Steps	50, 100	
Std. Min. Outdoor Temp(Cooling)	35.0	°F
No. of Outdoor fans	3	

Outdoor Unit Dimensions and Weight

Unit Length	7' 2.4"	
Unit Width	3' 7.4"	
Unit Height	4' 2.4"	
Unit Shipping Weight	731	lb
Unit Operating Weight	731	lb

Warranty Information Outdoor (Note: for US & Canada only)
First Year - Parts Only (Standard)

NOTE: Please see Warranty Catalog 808-218 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
Base Unit - Outdoor		
38AUDA16A0E5-0A0A0		1
	Base Unit	
	Cu/Cu Condensing Coil	1
	Standard Refrigerant Options	1
	Service Options - None	1
	Electrical Options - None	1
	Packaging Options - Standard	1
	Standard Electrical Mechanical Controls	1
	Refrig Circ/Compressor Staging - Two Circuits/ Dual Stage	1
Accessories		
EF680035	Liquid Line Solenoid Valve for Outdoor Unit	2
EF680037	Liquid Line Solenoid Valve for Outdoor Unit	2

Outdoor Unit Parameters

Unit Quantity:	1	
Unit Model:	38AUD	
Unit Size:	15 Tons	
Voltage:	208-3-60	V-Ph-Hz
Condenser Coil:	Cu/Cu	
No. of Stages:	Dual Stage	

System Parameter

System Quantity:	1	
Refrigerant Type:	PURON	
Compressor Quantity:	2	
Compressor Type:	Scroll	
Std. Capacity Steps:	50, 100	
Std. Min. Outdoor Temp(Cooling):	35.0	°F
No. of Outdoor fans:	3	

Outdoor Unit Dimensions and Weight

Unit Length:	7' 2.4"	
Unit Width:	3' 7.4"	
Unit Height:	4' 2.4"	
Unit Shipping Weight:	731	lb
Unit Operating Weight:	731	lb

Warranty Information Outdoor (Note: for US & Canada only)
First Year - Parts Only (Standard)

NOTE: Please see Warranty Catalog 808-218 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
Base Unit - Outdoor		
38AUDA16A0E5-0A0A0		1
	Base Unit	
	Cu/Cu Condensing Coil	1
	Standard Refrigerant Options	1
	Service Options - None	1
	Electrical Options - None	1
	Packaging Options - Standard	1
	Standard Electrical Mechanical Controls	1
	Refrig Circ/Compressor Staging - Two Circuits/ Dual Stage	1
Accessories		
EF680035	Liquid Line Solenoid Valve for Outdoor Unit	2
EF680037	Liquid Line Solenoid Valve for Outdoor Unit	2

Outdoor Unit Parameters

Unit Quantity	1	
Unit Model:	38AUD	
Unit Size	20 Tons	
Voltage	208-3-60	V-Ph-Hz
Condenser Coil	Cu/Cu	
No. of Stages	Dual Stage	

System Parameter

System Quantity	1	
Refrigerant Type	PURON	
Compressor Quantity	2	
Compressor Type	Scroll	
Std. Capacity Steps	50, 100	
Std. Min. Outdoor Temp(Cooling)	35.0	°F
No. of Outdoor fans	4	

Outdoor Unit Dimensions and Weight

Unit Length:	7' 2.1"	
Unit Width:	5' 7.1"	
Unit Height:	4' 2.4"	
Unit Shipping Weight	978	lb
Unit Operating Weight:	978	lb

Warranty Information Outdoor (Note: for US & Canada only)
First Year - Parts Only (Standard)

NOTE: Please see Warranty Catalog 808-218 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
Base Unit - Outdoor		
38AUDA25A0E5-0A0A0		1
	Base Unit	
	Cu/Cu Condensing Coil	1
	Standard Refrigerant Options	1
	Service Options - None	1
	Electrical Options - None	1
	Packaging Options - Standard	1
	Standard Electrical Mechanical Controls	1
	Refrig Circ/Compressor Staging - Two Circuits/ Dual Stage	1
Accessories		
EF680035	Liquid Line Solenoid Valve for Outdoor Unit	2
EF680037	Liquid Line Solenoid Valve for Outdoor Unit	2

Outdoor Unit Parameters

Unit Quantity	1	
Unit Model:	38AUD	
Unit Size:	20 Tons	
Voltage	208-3-60	V-Ph-Hz
Condenser Coil	Cu/Cu	
No. of Stages	Dual Stage	

System Parameter

System Quantity	1	
Refrigerant Type:	PURON	
Compressor Quantity:	2	
Compressor Type:	Scroll	
Std. Capacity Steps:	50, 100	
Std. Min. Outdoor Temp(Cooling):	35.0	°F
No. of Outdoor fans:	4	

Outdoor Unit Dimensions and Weight

Unit Length:	7' 2.1"	
Unit Width:	5' 7.1"	
Unit Height:	4' 2.4"	
Unit Shipping Weight:	978	lb
Unit Operating Weight:	978	lb

Warranty Information Outdoor (Note: for US & Canada only)

First Year - Parts Only (Standard)

NOTE: Please see Warranty Catalog 808-218 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
Base Unit - Outdoor		
38AUDA25A0E5-0A0A0		1
	Base Unit	
	Cu/Cu Condensing Coil	1
	Standard Refrigerant Options	1
	Service Options - None	1
	Electrical Options - None	1
	Packaging Options - Standard	1
	Standard Electrical Mechanical Controls	1
	Refrig Circ/Compressor Staging - Two Circuits/ Dual Stage	1
Accessories		
EF680035	Liquid Line Solenoid Valve for Outdoor Unit	2
EF680037	Liquid Line Solenoid Valve for Outdoor Unit	2

Outdoor Unit Parameters

Unit Quantity	1	
Unit Model	38AUD	
Unit Size	20 Tons	
Voltage	208-3-60	V-Ph-Hz
Condenser Coil	Cu/Cu	
No. of Stages	Dual Stage	

System Parameter

System Quantity	1	
Refrigerant Type	PURON	
Compressor Quantity	2	
Compressor Type	Scroll	
Std. Capacity Steps	50, 100	
Std. Min. Outdoor Temp(Cooling)	35.0	°F
No. of Outdoor fans	4	

Outdoor Unit Dimensions and Weight

Unit Length	7' 2.1"	
Unit Width	5' 7.1"	
Unit Height	4' 2.4"	
Unit Shipping Weight	978	lb
Unit Operating Weight	978	lb

Warranty Information Outdoor (Note: for US & Canada only)
First Year - Parts Only (Standard)

NOTE: Please see Warranty Catalog 808-218 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
Base Unit - Outdoor		
38AUDA25A0E5-0A0A0		1
	Base Unit	
	Cu/Cu Condensing Coil	1
	Standard Refrigerant Options	1
	Service Options - None	1
	Electrical Options - None	1
	Packaging Options - Standard	1
	Standard Electrical Mechanical Controls	1
	Refrig Circ/Compressor Staging - Two Circuits/ Dual Stage	1
Accessories		
EF680035	Liquid Line Solenoid Valve for Outdoor Unit	2
EF680037	Liquid Line Solenoid Valve for Outdoor Unit	2

Outdoor Unit Parameters

Unit Quantity	1	
Unit Model	38AUD	
Unit Size	20 Tons	
Voltage	208-3-60	V-Ph-Hz
Condenser Coil	Cu/Cu	
No. of Stages	Dual Stage	

System Parameter

System Quantity	1	
Refrigerant Type	PURON	
Compressor Quantity	2	
Compressor Type	Scroll	
Std. Capacity Steps	50, 100	
Std. Min. Outdoor Temp(Cooling)	35.0	°F
No. of Outdoor fans	4	

Outdoor Unit Dimensions and Weight

Unit Length	7' 2.1"	
Unit Width	5' 7.1"	
Unit Height	4' 2.4"	
Unit Shipping Weight	978	lb
Unit Operating Weight	978	lb

Warranty Information Outdoor (Note: for US & Canada only)
First Year - Parts Only (Standard)

NOTE: Please see Warranty Catalog 808-218 for explanation of policies and ordering methods.

Ordering Information

Part Number	Description	Quantity
Base Unit - Outdoor		
38AUDA25A0E5-0A0A0		1
	Base Unit	
	Cu/Cu Condensing Coil	1
	Standard Refrigerant Options	1
	Service Options - None	1
	Electrical Options - None	1
	Packaging Options - Standard	1
	Standard Electrical Mechanical Controls	1
	Refrig Circ/Compressor Staging - Two Circuits/ Dual Stage	1
Accessories		
EF680035	Liquid Line Solenoid Valve for Outdoor Unit	2
EF680037	Liquid Line Solenoid Valve for Outdoor Unit	2

March 8, 2022

Mr. Michael Ecalnea
Tony's Workshop
P.O. Box 23066 GMF
Barrigada, Guam 96921-3066
Mobile: (671) 888-3159
Tel: (671) 637-3060
Fax: (671) 637-3139

Subject: Letter of Guarantee (**UOG IFB B21-17**)

Dear Mr. Ecalnea,

Per your Inquiry, we would like to confirm that our CARRIER® Air-cooled Condensing Units which we have offered to supply for the above subject Project are complying with the UOG specifications i.e., COIL PROTECTION CORROSION.

Our Proposed 38A (PD/PS/UD/UZ) series ACCU comes standard with **E-coated CU fin, CU tubes condenser coils**. This type of coating known as Electrocoating is called the "**Electrodeposition**" which is also stated in the above-mentioned project specification reference section 2.6.1. We attach herewith Carrier literature (TECHNICAL DESCRIPTION: The E-coat Process) for your reference.

Please do not hesitate to contact us if you need further assistance.

Very truly yours,

Arnel Francisco
Carrier Guam, Inc.

TECHNICAL DESCRIPTION:

The *E-Coat* Process

Carrier®

The *E-Coat* Process

The *E-Coat* process ensures that an extremely durable and flexible epoxy coating is uniformly applied over all coil surfaces for complete encapsulation from exposure to the contaminated environment. A consistent coating is achieved through a precisely controlled electrodeposition process that bonds a thin impermeable epoxy coating on the specially prepared coil surfaces.

Electrodeposition, also known as electrocoating (*E-Coat*) is a multistep process that ensures ultraclean coils are properly coated, cured, and protected from environmental attack (Fig 1). This process includes complete immersion degreasing to remove contamination and ensure that all surfaces are ultraclean. The water bath rinses residual dust and contamination away in preparation for the *E-Coat* process. The fundamental principle of electrocoating is that the materials with opposite electrical charges attract each other. An electrocoating system applies a DC charge to the coil immersed in a bath of oppositely charged epoxy molecules. The molecules are drawn to the metal, forming an even, continuous film over the entire surface. At a certain point, the coating film insulates the metal, stopping the attraction and preventing further coating deposition.

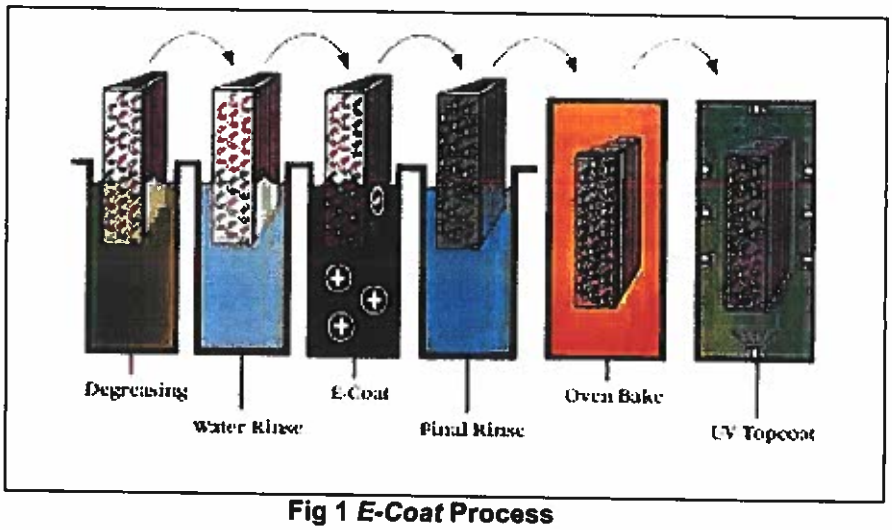


Fig 1 *E-Coat* Process

The final rinse bath removes and recovers residual coating material to ensure a smooth coating and minimize process waste. A precisely controlled oven bake cures the coating uniformly to ensure consistent adhesion on all coil surfaces. And finally, a protective UV topcoat is applied to protect the finish from ultraviolet attack and to ensure coating durability and long life. This final process is applied only to condenser coils that are susceptible to sunlight exposure.

E-Coat creates a smooth, consistent, and flexible protection that penetrates deep into all coil cavities and covers the entire coil assembly, including the fin edges (Fig 2). The process in conjunction with the coating material results in a less brittle, more resilient and more durable coating than previous phenolic coatings without bridging between adjacent fins. Coils treated with *E-Coat* provide superior protection in the most severe environments.

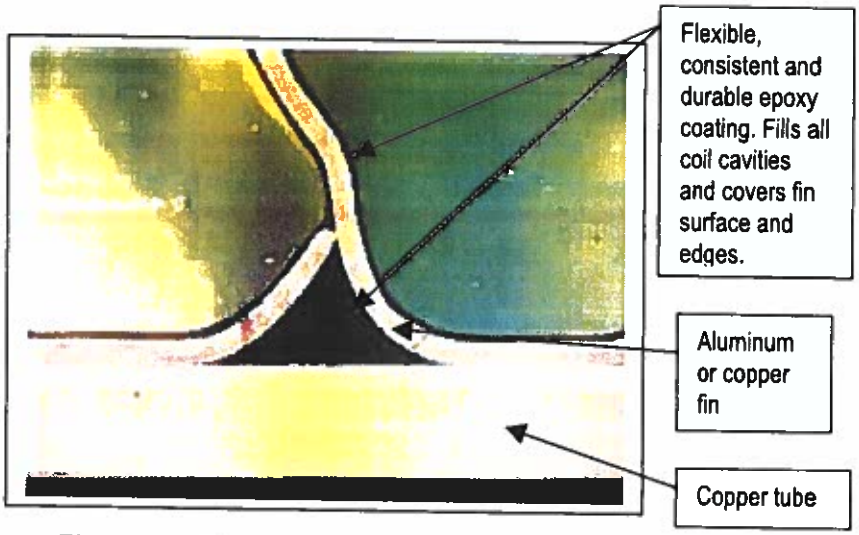


Fig 2. 50X Magnification of *E-Coat* Applied to Aluminum-Fin Copper-Tube Coil

JWS Refrigeration & Air Conditioning, Ltd.
290 Tun Jose Salas Street, Suite A
Tamuning, GU 96913
Tel: (671) 646-7662
Fax: (671) 649-0053

To: University of Guam
University Drive
Mangilao, Guam 96923

From: Tony Scragg
JWS Refrigeration and A/C LTD.
290 Tun Jose Sales Street
Tamuning, Guam 96913

To whom it may concern,

Thank you for allowing the opportunity to respond issued raised by the protesting party of UOG-IFB-B21-17.

1. Violation of the buy America Act

It was stated that Dunham Bush products violated the Buy America Act because the product is made in Malaysia. Dunham Bush is quite a large HVAC Manufacturer with Factories all over the world including Malaysia, China, Great Britain and in Florida, USA.

We were very aware of the Buy American Act and specifically required that all the Equipment for this Job be produced in the United States. This is not a unique situation for JWS and Dunham Bush Products. We have recently have provided, (and currently on order) and rather large number of Units for Anderson Air Force Base, Guam. All of this equipment had to be procured in accordance to the Buy America Act and has all come from the Dunham Bush Factory in Homestead, Florida.
In fact, Mr. John Scragg, JWS CEO and myself had the opportunity to visit the Factory in Homestead and were pleasantly surprised by the volume of Equipment in Production.
Attached is a Letter from our Dunham Bush Accounts Sales Manager, Leo Ampie, that assures that all equipment for this job, if awarded, will be produced in the USA.

DUNHAM-BUSH

JWS Refrigeration & Air Conditioning, Ltd.
290 Tun Jose Salas Street, Suite A
Tamuning, GU 96913
Tel: (671) 646-7662
Fax: (671) 649-0053

2. JWS to identify the Coating that would be used on the Condenser and Evaporator Coils.

JWS did indicated that the Coils will meet that which is required. That all Condenser Coils would be Copper Tube with Copper Fin and have a Corrosion Coating. So that is clearly a mute argument.
Also attached in the Letter from Dunham Bush is the type of Coating including details of Application, Thickness, Immersion Process and the Hours of Salt Spray Exposure, 6000 Hours, which is over and above what is required by ASTM B-117.

I am hopeful that this response along with the accompanying documentation is sufficient in rebutting these two issues of contention.

Please let me know if there are any further questions, comments or concerns and I will address accordingly

Regards,

Tony Scragg

DB
DUNHAM-BUSH

DUNHAM-BUSH
Dunham-Bush USA, LLC
1800 SE 38th Ave
Homestead Florida 33035
W: www.dunham-bush.com

Date: March 8, 2022

Ref: Concerns regarding bid UOG-IFB-B21-17

Attn: Tony Scragg

Dear Tony,

It has been brought to our attention that there are some apprehensions regarding our proposal for various condensers intended for the University of Guam (bid UOG-IFB-B21-17). Please let this letter serve to clarify the below points:

1) The units proposed, if awarded to Dunham Bush, are set to be manufactured in the contiguous 48 states of the United States of America. Specifically in the state of Florida, at our Homestead facility. Address as follows:

   Dunham-Bush USA
   1800 SE 38th Avenue
   Homestead, FL. 33035

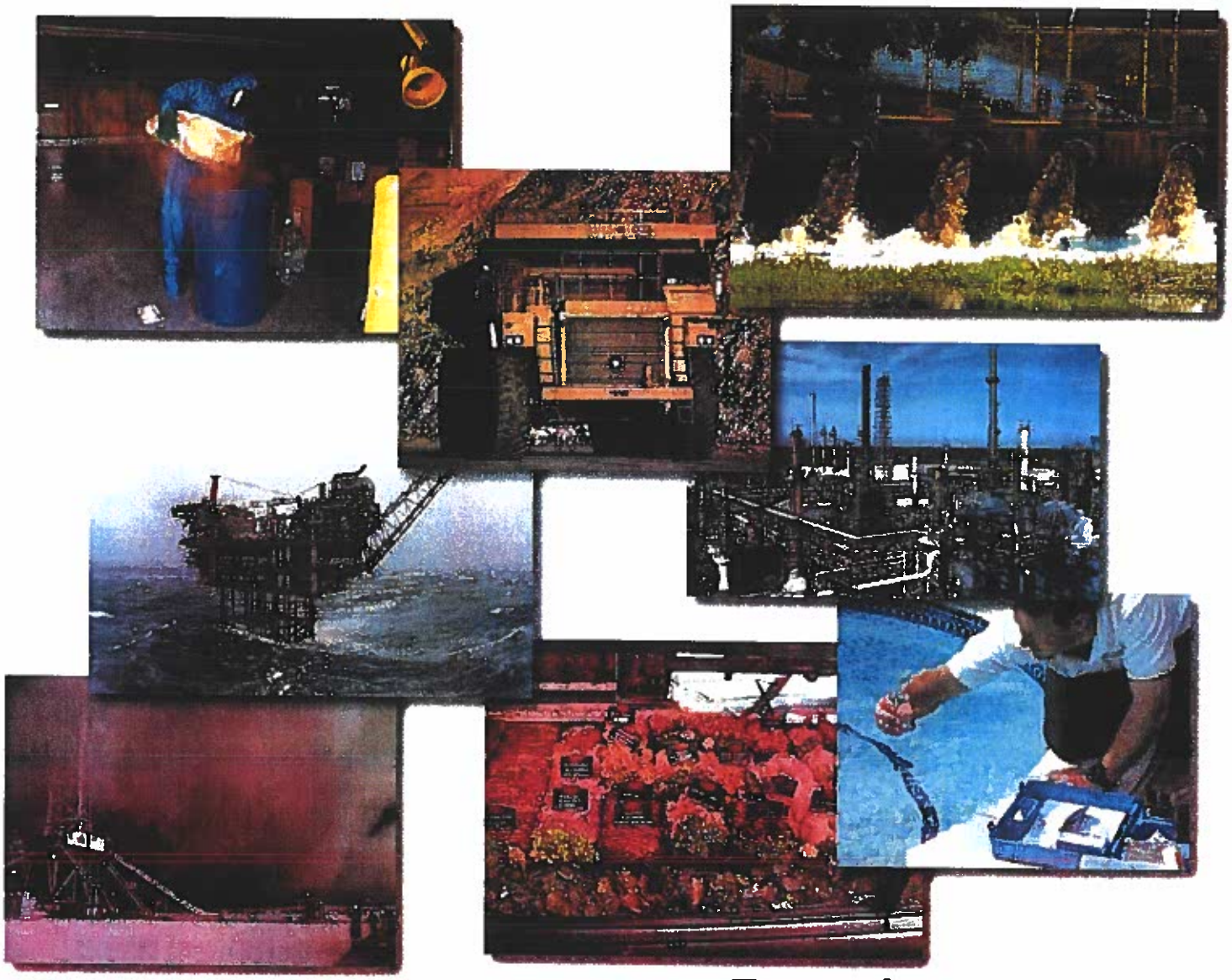
2) Condenser coils for the proposed condenser are confirmed to include copper tube and copper fin combination with a top protection coat of 6,000 hr of continues salt spray protection per ASTM. You may find technical specification in the following pages as well as the application procedure.

If you have any further questions, please contact me.

Regards,

Leonardo Ample
Sales Manager

When Performance Matters...



...Experience Counts

HERESITE
PROTECTIVE COATINGS©, LLC

For over five decades our clients have made Heresite their coating of choice for a remarkably wide variety of applications to deliver superior corrosion protection against the harshest operating conditions.

Experience Matters

For over five decades Heresite has produced corrosion protection coating solutions for heat transfer applications that deliver the highest standards of performance.

Each HERESITE® corrosion protection solution is a combination of a superior coating product - proven over years of use in the field across a wide variety of the most demanding operating environments – that can be tailored to meet the unique requirements of specific industry applications, AND a consistently superior level of customer service that produces unsurpassed customer benefits.

This combination explains why Heresite is the coating of choice for applications that require chemical or high salinity resistance properties under the harshest of industrial, coastal, or marine conditions, from Heat Transfer Equipment to Transportation and Storage.

The Heresite plant in the 1930's

Phenolic Based Coatings

Because our coatings are phenolics, they have superior chemical and salinity resistance properties. Because they come from Heresite Protective Coatings, they come with an unsurpassed commitment to quality and service.

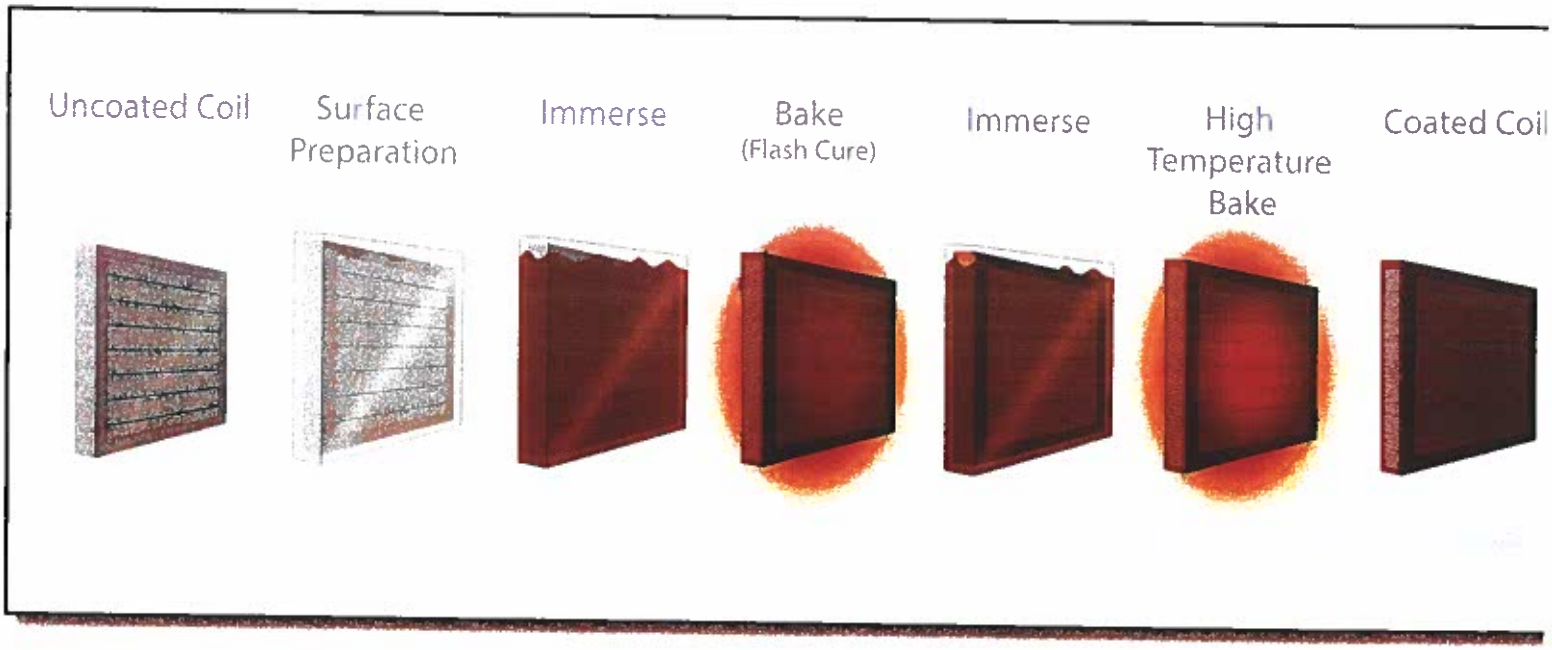
We start by manufacturing the coating using carefully selected raw materials and time tested formulas. This quality continues through the coating process which includes, surface preparation, multiple coil immersions or sprays, a bake between each coat, and a final, high temperature cure.

Heresite Coating Products Include:

P-413C Modified Baked Phenolic

Plasticizers have been added to this baked phenolic to make it more flexible for use on light gauge metal like finned tube coils, fans, duct. The P-413C baking phenolic will withstand exposure to practically all corrosive and chemical fumes.

Because it is a good thermal conductor, there is no need to add additional heating or cooling surface.



VR-500 Air Dry (Spray) Phenolic

These thin film air dry phenolics are excellent for corrosive fume atmospheres, and are particularly good in coastal and marine salt air environments. These thin film coatings exhibit excellent durability, good adhesion and flexibility. Typical applications include Structural Steel, Sewage Plants, Coastal and Marine installations, Finned Tube Coils, and HVAC/R equipment exposed to saline and other corrosive atmospheres.

The Proven Choice

Heresite Protective Coatings provide consistent protection across a remarkable range of operating conditions and have been used for decades to solve corrosion problems in almost every industry. The two phenolic coatings used in heat transfer equipment are P-413C heat cured phenolic applied by immersion and bake procedures and the VR- 500 series air dry phenolic applied by spraying techniques.

All types and sizes of Coils, Radiators and HVAC/R equipment can be Heresite Coated with our P-413C heat cured phenolic in our facility. It will protect them against damaging environments such as salt air, acid rain, and swimming pool chlorine, as well as most other corrosive atmospheres. The coating will extend the life of the coil or radiator several times compared to an uncoated coil and the effect on heat transfer is negligible.

Coatings can be custom tailored to clients' needs

Heresite's continued success today is due to our commitment to combine a superior product line with individualized customer service and expert technical assistance. We strive to satisfy each customer's specialized, long-term needs for industrial coating and lining systems. There is a Heresite high performance coating system to meet your requirements.

We coat: Radiators, Finned Tube Heat Exchangers, Evaporator Coils, Fans/Blowers/Housings, Valves, Pipes, Unit Heaters, Tube Bundles, Air Compressor Coolers, Oil Coolers.

Our team of Chemists, Application Experts, and Field Representatives can analyze your operating environment and recommend a Heresite high performance coating system to meet your toughest requirements.

When corrosion protection is the challenge, Heresite is the answer.

The Heresite Immersion Coating Process

The Heresite 5-Step coil coating process is central to our commitment of consistent and assured quality. After intake, the coil is first inspected, then a thorough surface preparation ensures the coil is ready for coating.

After surface preparation is complete, the coil is immersed in the specific coating formulation tailored to the customer's requirements.

The coated coil is then baked as a 'flash cure' and immersed a second time. This second immersion is followed by a spray coat to assure full and complete coverage. The coil then undergoes a high temperature baking, before a final inspection and packing for shipment.

For equipment with unusual dimensions, flow coating is used in conjunction with the immersion process.

Heresite P-413C Baked Phenolic Coating

Plasticizers have been added to this baked phenolic to make it more flexible for use on light gauge metal. The P-413C baked phenolic will withstand exposure to practically all corrosive and chemical fumes and it is a good thermal conductor.

TYPE: Baked Phenolic

RECOMMENDED USAGE:

HERESITE P-413C is a high performance coating used principally for products fabricated of light gauge metal. The corrosion resistance of HERESITE P-413C appreciably increases service life of aluminum, stainless, copper, carbon steel, and galvanized equipment.

Some uses of the P-413C coating are: Radiators, Finned tube heat exchangers, Evaporator coils, Fans/blowers/housings, Valves, Pipes, Unit heaters, Tube bundles, Air compressor coolers, Oil coolers.

Heresite P-413C

- Salt Spray: 6,000 hours per ASTM B-117
- Humidity Resistance: 2,000 hours per ASTM D2247-99
- Adhesion: 5B per ASTM B-3359
- Hardness: 8H Pencil
- Impact: >100 lbs/square inch direct per ASTM D2794 (w/primer)
- Sea Water: >1 year service history; Sea water immersion: lab simulated 1,000 hours
- Temperature Resistance: 10 cycles heat/cold; 4 hr@190°C, cool to room temperature, 4hr@ -75°C: 5B adhesion after 10 cycles per ASTM B-3359
- Temperature Limitation: HERESITE P-413C accepts dry heat temperatures up to 400°F (205°C)
- Mandrel Bend: Passes 1/4 inch per ASTM D522-93A
- pH Range: 1-12; based on 350 hour exposure at room temperature
- Abrasion Resistance: A 30 mg loss is observed with a CS-17F wheel and 1000 g weight after 1000 cycles

CHEMICAL RESISTANCE GUIDE:

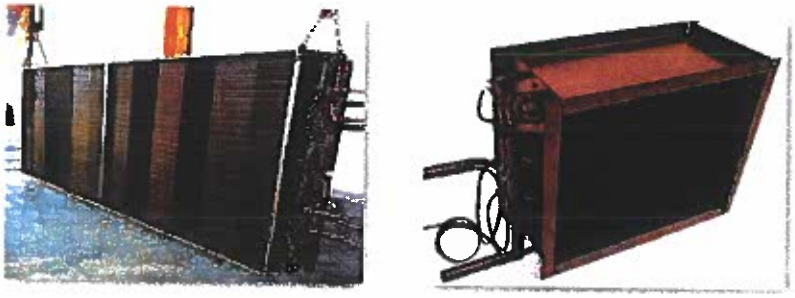
Exposure	*Immersion*	*Fumes*
Acids	Good	Excellent
Solvents	Excellent	Excellent
Inorganic Salts	Good	Excellent
Water	Excellent	Excellent

COVERAGE: Recommended dry film thickness is 2.0 to 3.0 mils.

Heresite Serves Multiple Markets

Heresite Protective Coatings have been used for decades to solve corrosion problems in almost every industry. These include:

Finned Tube Coils, Radiators, Heat Pipes, Air-to-Air Heat Exchangers, Refrigeration Coils



Heresite coatings extend the life of coils both large and small.

Fifty years ago, Heresite was the first company in North America to apply coatings to aluminum finned copper tube coils. Today Heresite is one of the leading aftermarket coil coatings in the world because Heresite Phenolics combine superior chemical resistance with ease of application.

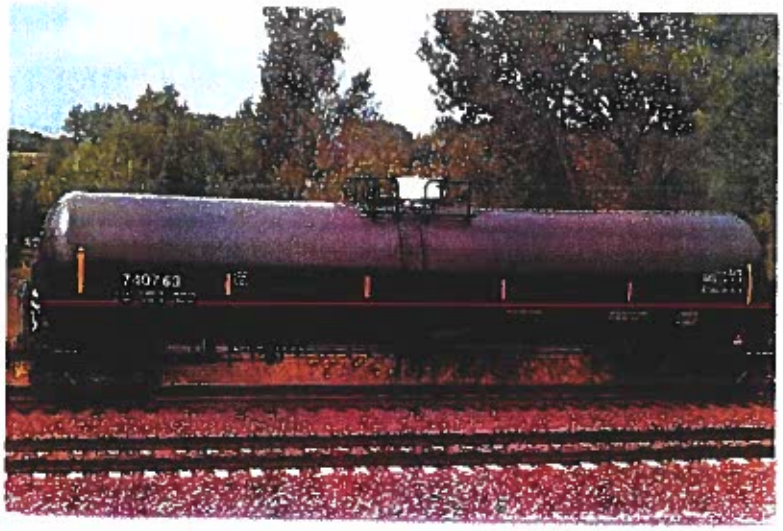
The two phenolic coatings used in heat transfer equipment are P-413C heat cured phenolic applied by dip and bake procedures and VR- 500 series air dry phenolic applied by spraying techniques.

Transportation

Heresite Coatings have been trusted for years by companies that haul chemicals to protect their tanks from the risks of corrosive attacks by the various chemicals that they transport. These include Tanker Trucks, Railcars and ISO tanks.

Heresite coatings have earned a reputation for their ability to handle severe concentrated chemicals such as 70% to 98% Sulfuric Acid, 73% Sodium Hydroxide (Caustic) at 275°F and hundreds of others.

Contact us for our Heresite Chemical Resistance Guide and our recommendations for your chemical environment. Many of the Heresite Linings meet FDA requirements of 21 CFR 175.300.

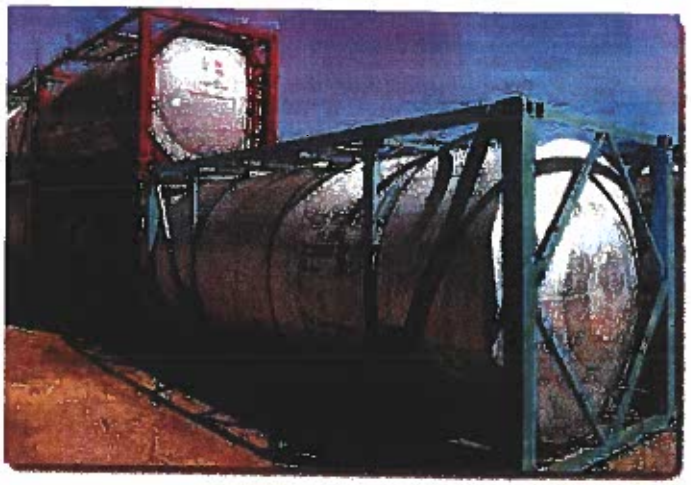


Heresite coatings protect railcars from corrosive attacks.

Storage Tanks, Vessels and Pipes

For over 70 years, Heresite Coatings have been used to protect Storage Tanks, Vessels and Pipes. Heresite can provide linings to protect the interior substrates from harsh chemical environments as well as coatings to protect the vessels exterior from exposure to UV rays and other corrosive elements.

We offer both heat cured and cold set coating and linings including phenolics, epoxy phenolics, epoxies, and urethanes. Our linings are designed for extreme immersion service with resistance to acids, alkalines, and high salinity environments. They are resistant to high and low pH environments and most meet FDA requirements of 21 CFR 175.300.



Heresite lining protects iso-tanks from harsh chemicals.

When Performance Counts, the Choice is Heresite

First and foremost, the coating you select has to perform. No heat transfer coating surpasses Heresite for performance in harsh environments. Through heat, cold, chemical and salt environments, Heresite protects your equipment... better and longer.

The following are real world environments where Heresite is the choice for performance.

When the military needs to safely destroy chemical warfare gases, including mustard gas and corrosive chemicals, it relies on a proprietary process and coils coated with Heresite. Heresite and special alloy coils are the only corrosion protection combination that has stood up to this extreme heat and chemical environment.

Because sewage and wastewater treatment plants must reliably operate through conditions that include severely corrosive chemicals, including hydrogen sulfide and sulfuric acid, Heresite is the choice for coated coils and equipment used by plants around the country.

When the Marines needed a coating to extend the service life for radiators in their Amphibious Landing Craft they chose Heresite. Because of their Heresite coating, these radiators, while continuously exposed to severe salt environments, can operate without failure.

The U.S. State Department specifies Heresite coated coils to assure reliable performance for the HVAC installations in the embassies it maintains in coastal installations in all parts of the world.

When stainless steel coils failed, a major glass manufacturer turned to Heresite coated coils to endure placement in one of their harshest manufacturing process environments.

A major international oil services firm uses Heresite to assure 24/7 operation in environmentally harsh and corrosive salt and chemical environments, for its offshore platform's radiators around the world.

HERESITE
PROTECTIVE COATINGS, LLC

822 S. 14th Street – P.O. Box 250
Manitowoc, WI 54220
920.684.6646 • FAX: 920.684.0110

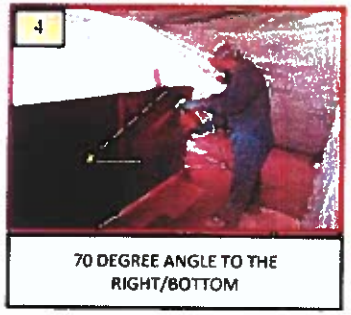
1.800.558.7747
E-Mail: sales@heresite.com

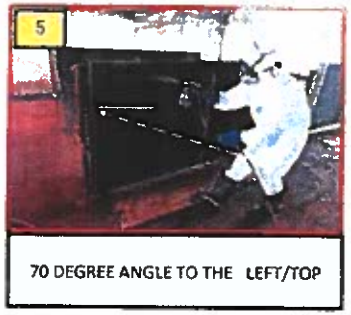
www.heresite.com

DB Products that perform. By people who care.

CS3 SERIES
MANUFACTURING WORK INSTRUNCTIONS

WORK CENTER:	ROUTING NO:	MANUFACTURING PROCESS : Heresite Coating for Coil





WORK CONTENT

● / ◇ / +

1. Surface Preparation.

a. Clean all oily surface using oil remover (Cleaning solvent). Make sure the surface dry before start spraying. ● ◇ +

b. Clean and remove all dust and dirt using air duster or rags. ● ◇ +

c. Protect the area that exposed to spray paint especially the unpainted product. (Optional) 2 ● ◇ +

2. Preparation of Paint.

Mix the paint **VR-514** with **Thinner L1002.** 1

Ratio : 3 or 4 parts coating(VR-514) : 1 part solvent(Thinner L1002)....2 layer of film coating.(6FPI to 10 FPI) ● ◇ +

OR Ratio : 1 or 2 parts coating(VR-514) : 1 part solvent(Thinner L1002)....4 layer of film coating.(11FPI -14 FPI) ● ◇ +

(For calibration the spraying coils quality reduce VR-514 with Thinner L1002 solvent to 16-28 seconds with Zahn#2 viscosity cup...refer to Instruction for use Zahn, viscosity cup). 9 10 ● ◇ +

● : CRITICAL PROCESS | ◇ : QUALITY | + : SAFETY | : NORMAL

MODEL	WI NO.	REV	DATE	PA
	WI 258	01	12/9/2017	1 c

STANDARD BILL OF MATERIAL

NO.	PART NUMBER	DESCRIPTION	Q
1	7001100264	VR-514	1 L
~~2~~	~~7001100265~~	~~S-440~~	~~1~~
3	7001100041	THINNER L1002-GTGG-0045A	1 L

ASSEMBLY TOOLS

NO.	TOOL NUMBER	TOOL NAME	Q
T1	-	Spray Equipment	1 s
M1		Zahn Cup #2	1 s

TECHNICAL SPECIFICATION

NO.	PART NUMBER	SPECIFICATION

REVISION CONTROL

REV NO.	DESCRIPTION	DA

PREPARED BY	CHECKED BY	APPROVED BY	DA
AzlanHanasi	Lee Yan Wen	ENG	14
		PROD	14
		QC	14

DBI/PRO/WI/29 REV.2

UNCONTROLLED DOCUMENT
DO NOT USE FOR
PRODUCTION OR PURCHASING

UOG22

DB Products that perform. By people who care.

CS3 SERIES
MANUFACTURING WORK INSTRUNCTIONS

MODEL	WI NO.	REV	DATE	PAGE
	WI 258	01	12/9/2017	2 of 3

WORK CENTER: | ROUTING NO: | MANUFACTURING PROCESS : Heresite Coating

SPRAY EQUIPMENT

FINISHED PRODUCT

WORK CONTENT

● ◇ +

3. Spraying equipment and application.

a. The spraying is using conventional air spray gun with the working pressure is between **50 psi to 75 psi.** (3.5 bar - 5.2 bar) [6] ● ◇ +

b. The sprayer must wearing half mask respirator, nitrile glove, goggle and cover all with special personal attire during do the spraying. [7] ● ◇ +

c. Coil shall be coated on both sides of fins (outside in and inside out), holding spray gun approximately **6" to 8"** from coil surface. ● ◇ +

d. Moving spray gun slowly. Each coat consists of 3 spray passes: [3] [4] [5] ● ◇ +

i) Straight to the fins. ii) 70 degree angle to the right/bottom. iii) 70 degree angle to the left/top.

These 3 spray passes are considered **ONE Coat.** Allow some dry time between passes to avoid runs/sags.

e. Always flush spray equipment with solvent to clean prior to applying coating. ● ◇ +

4. Quality of Finish Product [8]

a. Dry thickness : 75 to 100 microns(3-4 mils) per coat. Average 18.75-37.5 microns(0.75-1.5 mils) per film thickness. ● ◇

b. Air dry with ventilation are required. ● ◇

c. Average air drying time per coat: **5 to 6 hrs at 35°C. A force cure at 180°F for 30 minutes** is an option if an oven is available. ● ◇ +

● : CRITICAL PROCESS | ◇ : QUALITY | + : SAFETY | : NORMAL

STANDARD BILL OF MATERIAL

NO.	PART NUMBER	DESCRIPTION	QTY
1	7001100264	VR-514	1 Lot
~~2~~	~~7001100265~~	~~S-440~~	~~1 Lot~~
3	7001100041	THINNER L1002-GTGG-0045A	1 Lot

ASSEMBLY TOOLS

NO.	TOOL NUMBER	TOOL NAME	QTY
T1	-	Spray Equipment	1 set
M1		Zahn Cup #2	1 set

TECHNICAL SPECIFICATION

NO.	PART NUMBER	SPECIFICATION

REVISION CONTROL

REV NO.	DESCRIPTION	DATE

PREPARED BY	CHECKED BY	APPROVED BY	DATE
AzlanHanasi	Lee Yan Wen	ENG	14/7
		PROD	14/7
		QC	18/7

DB Products that perform. By people who care.

CS3 SERIES
MANUFACTURING WORK INSTRUNCTIONS

WORK CENTER:	ROUTING NO:	MANUFACTURING PROCESS : Heresite Coating

MODEL	WI NO.	REV	DATE	PAGE
	WI 258	01	12/9/2017	3 of 3

STANDARD BILL OF MATERIAL

NO.	PART NUMBER	DESCRIPTION	QTY
1	7001100264	VR-514	1 Lot
~~2~~	~~7001100265~~	~~S-440~~	~~1 Lot~~
3	7001100041	THINNER L1002-GTGG-0045A	1 Lot

ASSEMBLY TOOLS

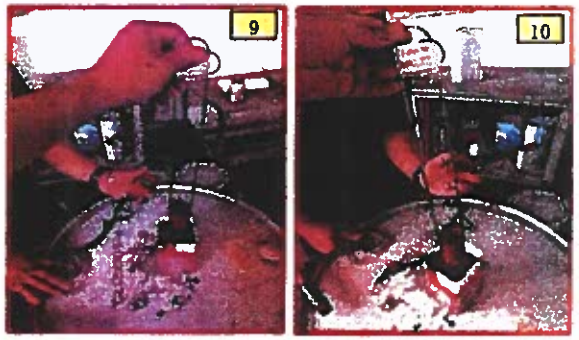
NO.	TOOL NUMBER	TOOL NAME	QTY
T1	-	Spray Equipment	1 set
M1		Zahn Cup #2	1 set

TECHNICAL SPECIFICATION

NO.	PART NUMBER	SPECIFICATION

REVISION CONTROL

REV NO.	DESCRIPTION	DATE



VISCOSITY CUP

WORK CONTENT

●	◇	+

5. Instruction for use Zahn, viscosity cup.

a. Select Zahn cup #2, which is de-pendent on the expected viscosity range of the material to be measured. (Example: Zahn #2....12 to 60 sec) — ● ◇

b. Insure that the cup is clean and that there is no residual dried material in or around the orifice. — ● ◇

c. Completely immerse the cup into the material to be measured in a location free from bubbles or foam, holding the cup vertically by means of the stainless steel split key ring. — ● ◇

d. Hold cup vertically by inserting index finger into handle ring. In a quick, steady motion, lift the cup out of the sample material, starting the timer when the top edge of the cup breaks the surface. During the flow time, hold the cup not more than 6" above the level of the sample material. 9 10 — ● ◇

e. Stop the timer when the first definite break in the stream at the base of the cup is observed. — ● ◇

f. Record the number of seconds of efflux time and the cup number. (Example: Zahn No. 2 Dip Cup, 21 seconds) — ● ◇

Care of cup.

g. Promptly clean the cup unless it will be used immediately for a rerun of the same material. After use a cup, allow to drain and then clean with suitable solvent and dry cup with soft lint-free cloth. Be sure that orifice is clean and dry. Do not use metal object to clean the orifice. Use care not to score or scratch orifice. Use a length of nylon fishing line to clean the orifice. — ● ◇ +

● : CRITICAL PROCESS	◇ : QUALITY	+ : SAFETY	: NORMAL

PREPARED BY	CHECKED BY	APPROVED BY	DATE
AzlanHanasi	Lee Yan Wen	ENG	14/12
		PROD	14/12
		QC	16/12

UOG24

JWS REFRIGERATION & AIR CONDITIONING LTD

UOG BID NO. B21-17

PURCHASING OF HVAC EQUIPMENT

Dunham Bush Equipment Listing for UOG Bid No. B21-17

LOCATION/NAME	QUANTITY	TON	VOLTAGE	CIRCUIT	Model	PRICE
RFK 2nd Floor	1	50	208	dual	ACCS700	$74,837.72
RFK 1st Floor	1	40	208	dual	ACCS570	$59,870.18
RFK Main Entrance	1	15	208	single	ACCS220	$22,451.32
RFK AV Room	1	15	208	single	ACCS220	$22,451.32
RFK Offices	1	20	208	single	ACCS290	$29,935.09
PIP 2nd Floor	1	20	460	dual	ACCS290	$29,935.09
Science 1st floor	1	40	208	dual	ACCS570	$59,870.18
Science 2nd floor	1	40	208	dual	ACCS570	$59,870.18
Science 3rd floor	1	20	208	dual	ACCS290	$29,935.09
English Com.	1	30	208	dual	ACCS435	$44,902.64
Comp. Center OIT	1	50	460	dual	ACCS700	$74,837.73
Lecture Hall	1	20	460	dual	ACCS290	$29,935.09
HSS Building 1	2	50	460	dual	ACCS700	$74,837.73
HSS Building 2	1	30	460	dual	ACCS435	$44,902.64
					TOTALS	$658,572.00

TECHNICAL REPORT

Project name	OOG condensers				
Submitted by	Leo			Date	11/22/2021
Customer	JWS			Quantity	1
OVERVIEW					
System Type	Air-Cooled Split		Refrigerant	R410A	
Series	ACCS		Power supply	208V/3/60HZ	
Unit nomenclature	6ACCS220-QG + 6HEB220D-QG				
Altitude	0	ft	Approval		
FILTER					
Type	Filter 1" 70% Eff				
Size (Qty)	25x20x1(1), 25x25x1(2)				
DX COOLING COIL					
Type	Ø3/8		Number of coil	1	
Rows	3		Face area	13.22	ft²
Fins per inch	12		Face velocity	408	ft/min
Refrigerant	R410A		Entering air (DB)	80	°F
Capacity (Total)	190397	Btu/h	Entering air (WB)	67	°F
Capacity (Sensible)	134438	Btu/h	Leaving air (DB)	56.8	°F
Air pressure drop	0.3	inH2O	Leaving air (WB)	55.4	°F
COMPRESSOR (OR EQUIVALENT MODELS)					
Compressor				ZP182	
Type	Scroll, Fixed Speed		Quantity	1	
Total LRA	340.0	A	Total Power	15.7	kW
			Total Amps	51	A
FAN (EVAPORATOR)					
Type	Belt Driven		Model	15/15	
Air Flow	5400	CFM	Fan Speed	772	RPM
External Static Pressure	0.5	inH2O	Absorbed Power	1.6	kW
Total Static Pressure	1.2	inH2O	Motor Horsepower	3	HP
Quantity	1		FLA	10.3	A
			Locked rotor current (LRA)	64	A
CONDENSER (AIR COOLED)					
Model	Ø3/8		Motor HP (each)	1	HP
Quantity	1		FLA (each)	2.9	A
Condenser Fan Motor	26" (660MM)		Ambient Temperature	95	°F
Quantity	2				
ELECTRICAL SUMMARY					
Unit FLA	67.1	A	MCA	79.9	A
Total Power Input	18.89	kW	MFS	150	A
EER	10.08		IEER	n/a	

OPTIONS

DESCRIPTION
SV: Suction/Discharge/Liquid Line Service Valves
CU-C: Condenser Coil Fin Materials - Copper
CG: Condenser Coil Guard
DOL2: IEC DOL (Non UL)
MII: Door Interlock Main Incoming Isolator
PFR: UVR/Phase Failure Protect
IR33: Controller - IR33

NOTES

Manufacturer reserves the right to change specifications without prior notice.

SPECIFICATIONS

1 GENERAL

The air-cooled condensing section shall consist of the compressor(s); condenser coil; propeller condenser fan(s) with motor and drive assembly.
The evaporator blower section shall consist of the blower fan and motor assembly; direct expansion coil and a filter frame for flat filters. The units shall be capable to operate up to 115oF [46oC] ambient temperature without failure.

2 CABINET

The unit cabinet shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance up to 1000 hours salt spray test according to ASTM B-117. Evaporator section shall be of 1/2"[13mm] thick x 1 1/2 lb/ft³ [24kg/m³] density (up to model 760) and 1"[25mm] thick x 2 lb/ft³ [32kg/m³] density (model 800 and above) single skin lined with thermal conductivity of 0.0346W/m.K [0.24Btu.in/ft2.h.oF] acoustical fiberglass insulation. The insulation shall have fire resistant of Class O (BS 476 Part 6, 7). Access doors shall be provided for easy service and maintenance of unit internal parts.

3 COMPRESSOR & REFRIGERATION PIPING

Compressor(s) shall be scroll, refrigerant gas cooled and mounted on the base via vibration isolators. 1, 2, 3 or 4 refrigeration circuits shall be piped with copper tubing and include expansion valve with external equalizer, suction accumulator (standard for heat pump models), pressure fittings of manual reset high pressure control and auto reset low pressure safety cutouts as well as charging/access ports in each circuit. Each compressor shall have a crankcase heater installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles. The compressors comply with the internationally recognized standards CE and UL.

4 EVAPORATOR COIL

Evaporator coil shall be of draw through air design for uniform air distribution. The evaporator coil shall be quality construction of staggered row of 3/8"OD (model 68 to 570) and 1/2"OD (model 640 and above) seamless copper tube, mechanically bonded to aluminium fins with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system. A galvanized and painted drain pan shall be provided to cover the entire coil area. The drain pan shall be designed to incorporate sloped gutter for complete condensate removal.

5 EVAPORATOR BLOWER AND MOTOR

Evaporator blower shall be direct-driven (model 68 to 95) and belt driven (model 108 and above), double-inlet-double-width (DIDW) forward curved. All blowers are statically and dynamically balanced to ensure quiet operation and smooth performance. Heavy-duty V-belt fan drive with cast iron pulleys keyed and secured to the blower shaft shall be provided (model 108 and above).
Motors shall be of totally enclosed fan cooled (TEFC) with IP55 enclosure rating, 4-poles with class F insulation. Motors shall be mounted to an adjustable motor frame. Motor pulleys shall be cast iron, keyed and secured to the motor shaft (model 108 and above).

6 CONDENSER COIL

Condenser coil shall be air cooled with integral sub-cooling circuit, constructed from staggered row of 3/8"OD inner grooved seamless copper tube, mechanically bonded to aluminium fins (aluminium coated fin/ hydrophilic fin for heat pump models) with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system under water.

7 CONDENSER FAN AND MOTOR

Condenser fan shall be direct driven propeller type. Condenser fan motors shall be of totally enclosed air over (TEAO), 6-poles with class F insulation and wired to unit control panel. Condenser fans shall be constructed of corrosion resistant blades and are statically and dynamically balanced (model 68 and above). The condenser fan assembly shall be provided with heavy gauge and rust resistant steel wire fan guard.

8 FILTERS

Evaporator unit shall be provided with 1" thick washable filters having average arrestance efficiency of 70% as per ASHRAE Standard 52.1 (or equivalent).

9 CONTROL PANEL

The unit mounted control panel enclosure shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance. The enclosure shall conform to IP54. Access door shall be provided for easy access and security. The control panel shall be wired without starter and control.

OPTIONS

1. Hot Gas Bypass
The refrigerant circuit (applicable to first in last out refrigeration system only) shall be provided with a hot gas bypass system for low load and low ambient condition (evaporator freeze protection).

2. Suction/Discharge/Liquid Line Service Valves
Service valves shall be provided at each refrigerant lines for service convenience.

3. Evaporator Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin
- Copper Fin
- Aluminium fin with DB-CoatTM

4. Condenser Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin

(only applicable for cooling only models)
- Copper Fin
- Aluminium fin with DB-CoatTM

5. Stainless Steel Drain Pan
A stainless steel condensate drain pan shall be provided for the evaporator section in lieu of standard galvanized and painted drain pan.

6. Replaceable Core Filter Drier
(Shipped loose, field installed)
Replaceable filter core drier shall be provided for the convenience of filter driers core replacement.

7. Closed Cell Elastomer Insulation
Evaporator section shall be single skin and lined with 1" closed celled insulation (in lieu of fiberglass insulation) with fire resistant of Class O (BS476 Part 6) and Class 1 (BS476 Part 7).

8. Liquid Line Solenoid Valve (LLSV)
(Shipped loose, field installed)
Liquid line solenoid valve shall be provided for each refrigeration circuit.

9. Condenser Coil Guard
Powder coated wire mesh guard shall be provided for better condenser coil protection.

10. Suction accumulator (only applicable for cooling only models)
Suction accumulator shall be provided to prevent liquid refrigerant migration to compressor during system off-cycle.

11. High and Low Pressure Gauges
Each compressor is provided with unit mounted pressure gauges to monitor high and low side operating pressure.

12. Stainless Steel Fasteners
Stainless steel fasteners shall be provided for outdoor condensing unit in lieu of standard fasteners for corrosion resistance application.

13. Belt Guard
Belt guard shall be provided for belt and pulleys non- contact exposure (model 108 and above, not application to free blow type units).

14. Evaporator Blower Isolator
Rubber or spring isolator shall be provided to dampen vibration caused by motor and blower (model 108 and above, not application to free blow type units).

15. Filter Dryer

TECHNICAL REPORT

Project name	OOG condensers				
Submitted by	Leo			Date	11/22/2021
Customer	JWS			Quantity	1
OVERVIEW					
System Type	Air-Cooled Split		Refrigerant	R410A	
Series	ACCS		Power supply	460V/3/60HZ	
Unit nomenclature	6ACCS290-QG + 6EB290D-QG				
Altitude	0	ft	Approval		
FILTER					
Type	Filter 1" 70% Eff				
Size (Qty)	25x16x1(3), 25x20x1(3)				
DX COOLING COIL					
Type	Ø3/8		Number of coil	1	
Rows	3		Face area	16.53	ft²
Fins per inch	12		Face velocity	454	ft/min
Refrigerant	R410A		Entering air (DB)	80	°F
Capacity (Total)	253522	Btu/h	Entering air (WB)	67	°F
Capacity (Sensible)	181867	Btu/h	Leaving air (DB)	57.4	°F
Air pressure drop	0.4	inH2O	Leaving air (WB)	55.9	°F
COMPRESSOR (OR EQUIVALENT MODELS)					
Compressor				2 X ZP122	
Type	Scroll, Fixed Speed		Quantity	2	
Total LRA	280.0	A	Total Power	22.5	kW
			Total Amps	34.3	A
FAN (EVAPORATOR)					
Type	Belt Driven		Model	18/13	
Air Flow	7500	CFM	Fan Speed	693	RPM
External Static Pressure	0.5	inH2O	Absorbed Power	2.9	kW
Total Static Pressure	1.3	inH2O	Motor Horsepower	5.5	HP
Quantity	1		FLA	8.2	A
			Locked rotor current (LRA)	50.5	A
CONDENSER (AIR COOLED)					
Model	Ø3/8		Motor HP (each)	1	HP
Quantity	1		FLA (each)	1.6	A
Condenser Fan Motor	26" (660MM)		Ambient Temperature	95	°F
Quantity	2				
ELECTRICAL SUMMARY					
Unit FLA	45.7	A	MCA	50	A
Total Power Input	27.04	kW	MFS	70	A
EER	9.38		IEER	n/a	

OPTIONS

DESCRIPTION
SV: Suction/Discharge/Liquid Line Service Valves
CU-C: Condenser Coil Fin Materials - Copper
CG: Condenser Coil Guard
DOL2: IEC DOL (Non UL)
MII: Door Interlock Main Incoming Isolator
PFR: UVR/Phase Failure Protect
IR33: Controller - IR33

NOTES

Manufacturer reserves the right to change specifications without prior notice.

SPECIFICATIONS

1 GENERAL

The air-cooled condensing section shall consist of the compressor(s); condenser coil; propeller condenser fan(s) with motor and drive assembly.
The evaporator blower section shall consist of the blower fan and motor assembly; direct expansion coil and a filter frame for flat filters. The units shall be capable to operate up to 115oF [46oC] ambient temperature without failure.

2 CABINET

The unit cabinet shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance up to 1000 hours salt spray test according to ASTM B-117. Evaporator section shall be of 1/2"[13mm] thick x 1 1/2 lb/ft³ [24kg/m³] density (up to model 760) and 1"[25mm] thick x 2 lb/ft³ [32kg/m³] density (model 800 and above) single skin lined with thermal conductivity of 0.0346W/m.K [0.24Btu.in/ft2.h.oF] acoustical fiberglass insulation. The insulation shall have fire resistant of Class O (BS 476 Part 6, 7). Access doors shall be provided for easy service and maintenance of unit internal parts.

3 COMPRESSOR & REFRIGERATION PIPING

Compressor(s) shall be scroll, refrigerant gas cooled and mounted on the base via vibration isolators. 1, 2, 3 or 4 refrigeration circuits shall be piped with copper tubing and include expansion valve with external equalizer, suction accumulator (standard for heat pump models), pressure fittings of manual reset high pressure control and auto reset low pressure safety cutouts as well as charging/access ports in each circuit. Each compressor shall have a crankcase heater installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles. The compressors comply with the internationally recognized standards CE and UL.

4 EVAPORATOR COIL

Evaporator coil shall be of draw through air design for uniform air distribution. The evaporator coil shall be quality construction of staggered row of 3/8"OD (model 68 to 570) and 1/2"OD (model 640 and above) seamless copper tube, mechanically bonded to aluminium fins with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system. A galvanized and painted drain pan shall be provided to cover the entire coil area. The drain pan shall be designed to incorporate sloped gutter for complete condensate removal.

5 EVAPORATOR BLOWER AND MOTOR

Evaporator blower shall be direct-driven (model 68 to 95) and belt driven (model 108 and above), double-inlet-double-width (DIDW) forward curved. All blowers are statically and dynamically balanced to ensure quiet operation and smooth performance. Heavy-duty V-belt fan drive with cast iron pulleys keyed and secured to the blower shaft shall be provided (model 108 and above).
Motors shall be of totally enclosed fan cooled (TEFC) with IP55 enclosure rating, 4-poles with class F insulation. Motors shall be mounted to an adjustable motor frame. Motor pulleys shall be cast iron, keyed and secured to the motor shaft (model 108 and above).

6 CONDENSER COIL

Condenser coil shall be air cooled with integral sub-cooling circuit, constructed from staggered row of 3/8"OD inner grooved seamless copper tube, mechanically bonded to aluminium fins (aluminium coated fin/ hydrophilic fin for heat pump models) with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system under water.

7 CONDENSER FAN AND MOTOR

Condenser fan shall be direct driven propeller type. Condenser fan motors shall be of totally enclosed air over (TEAO), 6-poles with class F insulation and wired to unit control panel. Condenser fans shall be constructed of corrosion resistant blades and are statically and dynamically balanced (model 68 and above). The condenser fan assembly shall be provided with heavy gauge and rust resistant steel wire fan guard.

8 FILTERS

Evaporator unit shall be provided with 1" thick washable filters having average arrestance efficiency of 70% as per ASHRAE Standard 52.1 (or equivalent).

9 CONTROL PANEL

The unit mounted control panel enclosure shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance. The enclosure shall conform to IP54. Access door shall be provided for easy access and security. The control panel shall be wired without starter and control.

OPTIONS

1. Hot Gas Bypass
The refrigerant circuit (applicable to first in last out refrigeration system only) shall be provided with a hot gas bypass system for low load and low ambient condition (evaporator freeze protection).

2. Suction/Discharge/Liquid Line Service Valves
Service valves shall be provided at each refrigerant lines for service convenience.

3. Evaporator Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin
- Copper Fin
- Aluminium fin with DB-CoatTM

4. Condenser Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin

(only applicable for cooling only models)
- Copper Fin
- Aluminium fin with DB-CoatTM

5. Stainless Steel Drain Pan
A stainless steel condensate drain pan shall be provided for the evaporator section in lieu of standard galvanized and painted drain pan.

6. Replaceable Core Filter Drier
(Shipped loose, field installed)
Replaceable filter core drier shall be provided for the convenience of filter driers core replacement.

7. Closed Cell Elastomer Insulation
Evaporator section shall be single skin and lined with 1" closed celled insulation (in lieu of fiberglass insulation) with fire resistant of Class O (BS476 Part 6) and Class 1 (BS476 Part 7).

8. Liquid Line Solenoid Valve (LLSV)
(Shipped loose, field installed)
Liquid line solenoid valve shall be provided for each refrigeration circuit.

9. Condenser Coil Guard
Powder coated wire mesh guard shall be provided for better condenser coil protection.

10. Suction accumulator (only applicable for cooling only models)
Suction accumulator shall be provided to prevent liquid refrigerant migration to compressor during system off-cycle.

11. High and Low Pressure Gauges
Each compressor is provided with unit mounted pressure gauges to monitor high and low side operating pressure.

12. Stainless Steel Fasteners
Stainless steel fasteners shall be provided for outdoor condensing unit in lieu of standard fasteners for corrosion resistance application.

13. Belt Guard
Belt guard shall be provided for belt and pulleys non- contact exposure (model 108 and above, not application to free blow type units).

14. Evaporator Blower Isolator
Rubber or spring isolator shall be provided to dampen vibration caused by motor and blower (model 108 and above, not application to free blow type units).

15. Filter Dryer

TECHNICAL REPORT

Project name	OOG condensers				
Submitted by	Leo			Date	11/22/2021
Customer	JWS			Quantity	1
OVERVIEW					
System Type	Air-Cooled Split		Refrigerant	R410A	
Series	ACCS		Power supply	208V/3/60HZ	
Unit nomenclature	6ACCS290-QG + 6EB290D-QG				
Altitude	0	ft	Approval		
FILTER					
Type	Filter 1" 70% Eff				
Size (Qty)	25x16x1(3), 25x20x1(3)				
DX COOLING COIL					
Type	Ø3/8		Number of coil	1	
Rows	3		Face area	16.53	ft²
Fins per inch	12		Face velocity	454	ft/min
Refrigerant	R410A		Entering air (DB)	80	°F
Capacity (Total)	249769	Btu/h	Entering air (WB)	67	°F
Capacity (Sensible)	180502	Btu/h	Leaving air (DB)	57.6	°F
Air pressure drop	0.4	inH2O	Leaving air (WB)	56.1	°F
COMPRESSOR (OR EQUIVALENT MODELS)					
Compressor				2 X ZP122	
Type	Scroll, Fixed Speed		Quantity	2	
Total LRA	480.0	A	Total Power	22.9	kW
			Total Amps	63.7	A
FAN (EVAPORATOR)					
Type	Belt Driven		Model	18/13	
Air Flow	7500	CFM	Fan Speed	693	RPM
External Static Pressure	0.5	inH2O	Absorbed Power	2.9	kW
Total Static Pressure	1.3	inH2O	Motor Horsepower	5.5	HP
Quantity	1		FLA	18.1	A
			Locked rotor current (LRA)	112	A
CONDENSER (AIR COOLED)					
Model	Ø3/8		Motor HP (each)	1	HP
Quantity	1		FLA (each)	2.9	A
Condenser Fan Motor	26" (660MM)		Ambient Temperature	95	°F
Quantity	2				
ELECTRICAL SUMMARY					
Unit FLA	87.6	A	MCA	95.5	A
Total Power Input	27.3	kW	MFS	150	A
EER	9.15		IEER	n/a	

OPTIONS

DESCRIPTION
SV: Suction/Discharge/Liquid Line Service Valves
CU-C: Condenser Coil Fin Materials - Copper
SSD: Stainless Steel Drain Pan
CG: Condenser Coil Guard
DOL2: IEC DOL (Non UL)
MII: Door Interlock Main Incoming Isolator
PFR: UVR/Phase Failure Protect
IR33: Controller - IR33

NOTES

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SPECIFICATIONS

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The evaporator blower section shall consist of the blower fan and motor assembly; direct expansion coil and a filter frame for flat filters. The units shall be capable to operate up to 115oF [46oC] ambient temperature without failure.

2 CABINET

The unit cabinet shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance up to 1000 hours salt spray test according to ASTM B-117. Evaporator section shall be of 1/2"[13mm] thick x 1 1/2 lb/ft³ [24kg/m³] density (up to model 760) and 1"[25mm] thick x 2 lb/ft³ [32kg/m³] density (model 800 and above) single skin lined with thermal conductivity of 0.0346W/m.K [0.24Btu.in/ft2.h.oF] acoustical fiberglass insulation. The insulation shall have fire resistant of Class O (BS 476 Part 6, 7). Access doors shall be provided for easy service and maintenance of unit internal parts.

3 COMPRESSOR & REFRIGERATION PIPING

Compressor(s) shall be scroll, refrigerant gas cooled and mounted on the base via vibration isolators. 1, 2, 3 or 4 refrigeration circuits shall be piped with copper tubing and include expansion valve with external equalizer, suction accumulator (standard for heat pump models), pressure fittings of manual reset high pressure control and auto reset low pressure safety cutouts as well as charging/access ports in each circuit. Each compressor shall have a crankcase heater installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles. The compressors comply with the internationally recognized standards CE and UL.

4 EVAPORATOR COIL

Evaporator coil shall be of draw through air design for uniform air distribution. The evaporator coil shall be quality construction of staggered row of 3/8"OD (model 68 to 570) and 1/2"OD (model 640 and above) seamless copper tube, mechanically bonded to aluminium fins with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system. A galvanized and painted drain pan shall be provided to cover the entire coil area. The drain pan shall be designed to incorporate sloped gutter for complete condensate removal.

5 EVAPORATOR BLOWER AND MOTOR

Evaporator blower shall be direct-driven (model 68 to 95) and belt driven (model 108 and above), double-inlet-double-width (DIDW) forward curved. All blowers are statically and dynamically balanced to ensure quiet operation and smooth performance. Heavy-duty V-belt fan drive with cast iron pulleys keyed and secured to the blower shaft shall be provided (model 108 and above).
Motors shall be of totally enclosed fan cooled (TEFC) with IP55 enclosure rating, 4-poles with class F insulation. Motors shall be mounted to an adjustable motor frame. Motor pulleys shall be cast iron, keyed and secured to the motor shaft (model 108 and above).

6 CONDENSER COIL

Condenser coil shall be air cooled with integral sub-cooling circuit, constructed from staggered row of 3/8"OD inner grooved seamless copper tube, mechanically bonded to aluminium fins (aluminium coated fin/ hydrophilic fin for heat pump models) with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system under water.

7 CONDENSER FAN AND MOTOR

Condenser fan shall be direct driven propeller type. Condenser fan motors shall be of totally enclosed air over (TEAO), 6-poles with class F insulation and wired to unit control panel. Condenser fans shall be constructed of corrosion resistant blades and are statically and dynamically balanced (model 68 and above). The condenser fan assembly shall be provided with heavy gauge and rust resistant steel wire fan guard.

8 FILTERS

Evaporator unit shall be provided with 1" thick washable filters having average arrestance efficiency of 70% as per ASHRAE Standard 52.1 (or equivalent).

9 CONTROL PANEL

The unit mounted control panel enclosure shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance. The enclosure shall conform to IP54. Access door shall be provided for easy access and security. The control panel shall be wired without starter and control.

OPTIONS

1. Hot Gas Bypass
The refrigerant circuit (applicable to first in last out refrigeration system only) shall be provided with a hot gas bypass system for low load and low ambient condition (evaporator freeze protection).

2. Suction/Discharge/Liquid Line Service Valves
Service valves shall be provided at each refrigerant lines for service convenience.

3. Evaporator Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin
- Copper Fin
- Aluminium fin with DB-CoatTM

4. Condenser Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin

(only applicable for cooling only models)
- Copper Fin
- Aluminium fin with DB-CoatTM

5. Stainless Steel Drain Pan
A stainless steel condensate drain pan shall be provided for the evaporator section in lieu of standard galvanized and painted drain pan.

6. Replaceable Core Filter Drier
(Shipped loose, field installed)
Replaceable filter core drier shall be provided for the convenience of filter driers core replacement.

7. Closed Cell Elastomer Insulation
Evaporator section shall be single skin and lined with 1" closed celled insulation (in lieu of fiberglass insulation) with fire resistant of Class O (BS476 Part 6) and Class 1 (BS476 Part 7).

8. Liquid Line Solenoid Valve (LLSV)
(Shipped loose, field installed)
Liquid line solenoid valve shall be provided for each refrigeration circuit.

9. Condenser Coil Guard
Powder coated wire mesh guard shall be provided for better condenser coil protection.

10. Suction accumulator (only applicable for cooling only models)
Suction accumulator shall be provided to prevent liquid refrigerant migration to compressor during system off-cycle.

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Each compressor is provided with unit mounted pressure gauges to monitor high and low side operating pressure.

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Belt guard shall be provided for belt and pulleys non- contact exposure (model 108 and above, not application to free blow type units).

14. Evaporator Blower Isolator
Rubber or spring isolator shall be provided to dampen vibration caused by motor and blower (model 108 and above, not application to free blow type units).

15. Filter Dryer

TECHNICAL REPORT

Project name	OOG condensers				
Submitted by	Leo			Date	11/22/2021
Customer	JWS			Quantity	1
OVERVIEW					
System Type	Air-Cooled Split		Refrigerant	R410A	
Series	ACCS		Power supply	460V/3/60HZ	
Unit nomenclature	6ACCS435-QG + 6EB435D-QG				
Altitude	0	ft	Approval		
FILTER					
Type	Filter 1" 70% Eff				
Size (Qty)	20x25x1(3), 25x25x1(3)				
DX COOLING COIL					
Type	Ø3/8		Number of coil	1	
Rows	3		Face area	21.39	ft²
Fins per inch	13		Face velocity	538	ft/min
Refrigerant	R410A		Entering air (DB)	80	°F
Capacity (Total)	377724	Btu/h	Entering air (WB)	67	°F
Capacity (Sensible)	274677	Btu/h	Leaving air (DB)	57.7	°F
Air pressure drop	0.5	inH2O	Leaving air (WB)	56.3	°F
COMPRESSOR (OR EQUIVALENT MODELS)					
Compressor				2 X ZP182	
Type	Scroll, Fixed Speed		Quantity	2	
Total LRA	358.0	A	Total Power	31.2	kW
			Total Amps	50.6	A
FAN (EVAPORATOR)					
Type	Belt Driven		Model	450	
Air Flow	11500	CFM	Fan Speed	763	RPM
External Static Pressure	0.5	inH2O	Absorbed Power	5.4	kW
Total Static Pressure	1.4	inH2O	Motor Horsepower	10	HP
Quantity	1		FLA	14.4	A
			Locked rotor current (LRA)	85.7	A
CONDENSER (AIR COOLED)					
Model	Ø3/8		Motor HP (each)	1	HP
Quantity	1		FLA (each)	1.6	A
Condenser Fan Motor	26" (660MM)		Ambient Temperature	95	°F
Quantity	3				
ELECTRICAL SUMMARY					
Unit FLA	69.8	A	MCA	76.1	A
Total Power Input	39.02	kW	MFS	125	A
EER	9.68		IEER	n/a	
OPTIONS					
DESCRIPTION					
SV: Suction/Discharge/Liquid Line Service Valves					
CU-C: Condenser Coil Fin Materials - Copper					
CG: Condenser Coil Guard					
DOL2: IEC DOL (Non UL)					
MII: Door Interlock Main Incoming Isolator					
PFR: UVR/Phase Failure Protect					
IR33: Controller - IR33					
NOTES					
Manufacturer reserves the right to change specifications without prior notice.					

SPECIFICATIONS

1 GENERAL

The air-cooled condensing section shall consist of the compressor(s); condenser coil; propeller condenser fan(s) with motor and drive assembly.
The evaporator blower section shall consist of the blower fan and motor assembly; direct expansion coil and a filter frame for flat filters. The units shall be capable to operate up to 115oF [46oC] ambient temperature without failure.

2 CABINET

The unit cabinet shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance up to 1000 hours salt spray test according to ASTM B-117. Evaporator section shall be of 1/2"[13mm] thick x 1 1/2 lb/ft³ [24kg/m³] density (up to model 760) and 1"[25mm] thick x 2 lb/ft³ [32kg/m³] density (model 800 and above) single skin lined with thermal conductivity of 0.0346W/m.K [0.24Btu.in/ft2.h.oF] acoustical fiberglass insulation. The insulation shall have fire resistant of Class O (BS 476 Part 6, 7). Access doors shall be provided for easy service and maintenance of unit internal parts.

3 COMPRESSOR & REFRIGERATION PIPING

Compressor(s) shall be scroll, refrigerant gas cooled and mounted on the base via vibration isolators. 1, 2, 3 or 4 refrigeration circuits shall be piped with copper tubing and include expansion valve with external equalizer, suction accumulator (standard for heat pump models), pressure fittings of manual reset high pressure control and auto reset low pressure safety cutouts as well as charging/access ports in each circuit. Each compressor shall have a crankcase heater installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles. The compressors comply with the internationally recognized standards CE and UL.

4 EVAPORATOR COIL

Evaporator coil shall be of draw through air design for uniform air distribution. The evaporator coil shall be quality construction of staggered row of 3/8"OD (model 68 to 570) and 1/2"OD (model 640 and above) seamless copper tube, mechanically bonded to aluminium fins with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system. A galvanized and painted drain pan shall be provided to cover the entire coil area. The drain pan shall be designed to incorporate sloped gutter for complete condensate removal.

5 EVAPORATOR BLOWER AND MOTOR

Evaporator blower shall be direct-driven (model 68 to 95) and belt driven (model 108 and above), double-inlet-double-width (DIDW) forward curved. All blowers are statically and dynamically balanced to ensure quiet operation and smooth performance. Heavy-duty V-belt fan drive with cast iron pulleys keyed and secured to the blower shaft shall be provided (model 108 and above).
Motors shall be of totally enclosed fan cooled (TEFC) with IP55 enclosure rating, 4-poles with class F insulation. Motors shall be mounted to an adjustable motor frame. Motor pulleys shall be cast iron, keyed and secured to the motor shaft (model 108 and above).

6 CONDENSER COIL

Condenser coil shall be air cooled with integral sub-cooling circuit, constructed from staggered row of 3/8"OD inner grooved seamless copper tube, mechanically bonded to aluminium fins (aluminium coated fin/ hydrophilic fin for heat pump models) with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system under water.

7 CONDENSER FAN AND MOTOR

Condenser fan shall be direct driven propeller type. Condenser fan motors shall be of totally enclosed air over (TEAO), 6-poles with class F insulation and wired to unit control panel. Condenser fans shall be constructed of corrosion resistant blades and are statically and dynamically balanced (model 68 and above). The condenser fan assembly shall be provided with heavy gauge and rust resistant steel wire fan guard.

8 FILTERS

Evaporator unit shall be provided with 1" thick washable filters having average arrestance efficiency of 70% as per ASHRAE Standard 52.1 (or equivalent).

9 CONTROL PANEL

The unit mounted control panel enclosure shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance. The enclosure shall conform to IP54. Access door shall be provided for easy access and security. The control panel shall be wired without starter and control.

OPTIONS

1. Hot Gas Bypass
The refrigerant circuit (applicable to first in last out refrigeration system only) shall be provided with a hot gas bypass system for low load and low ambient condition (evaporator freeze protection).

2. Suction/Discharge/Liquid Line Service Valves
Service valves shall be provided at each refrigerant lines for service convenience.

3. Evaporator Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin
- Copper Fin
- Aluminium fin with DB-CoatTM

4. Condenser Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin

(only applicable for cooling only models)
- Copper Fin
- Aluminium fin with DB-CoatTM

5. Stainless Steel Drain Pan
A stainless steel condensate drain pan shall be provided for the evaporator section in lieu of standard galvanized and painted drain pan.

6. Replaceable Core Filter Drier
(Shipped loose, field installed)
Replaceable filter core drier shall be provided for the convenience of filter driers core replacement.

7. Closed Cell Elastomer Insulation
Evaporator section shall be single skin and lined with 1" closed celled insulation (in lieu of fiberglass insulation) with fire resistant of Class O (BS476 Part 6) and Class 1 (BS476 Part 7).

8. Liquid Line Solenoid Valve (LLSV)
(Shipped loose, field installed)
Liquid line solenoid valve shall be provided for each refrigeration circuit.

9. Condenser Coil Guard
Powder coated wire mesh guard shall be provided for better condenser coil protection.

10. Suction accumulator (only applicable for cooling only models)
Suction accumulator shall be provided to prevent liquid refrigerant migration to compressor during system off-cycle.

11. High and Low Pressure Gauges
Each compressor is provided with unit mounted pressure gauges to monitor high and low side operating pressure.

12. Stainless Steel Fasteners
Stainless steel fasteners shall be provided for outdoor condensing unit in lieu of standard fasteners for corrosion resistance application.

13. Belt Guard
Belt guard shall be provided for belt and pulleys non- contact exposure (model 108 and above, not application to free blow type units).

14. Evaporator Blower Isolator
Rubber or spring isolator shall be provided to dampen vibration caused by motor and blower (model 108 and above, not application to free blow type units).

15. Filter Dryer

TECHNICAL REPORT

Project name	OOG condensers				
Submitted by	Leo			Date	11/22/2021
Customer	JWS			Quantity	1
OVERVIEW					
System Type	Air-Cooled Split		Refrigerant	R410A	
Series	ACCS		Power supply	208V/3/60HZ	
Unit nomenclature	6ACCS435-QG + 6EB435D-QG				
Altitude	0	ft	Approval		
FILTER					
Type	Filter 1" 70% Eff				
Size (Qty)	20x25x1(3), 25x25x1(3)				
DX COOLING COIL					
Type	Ø3/8		Number of coil	1	
Rows	3		Face area	21.39	ft²
Fins per inch	13		Face velocity	538	ft/min
Refrigerant	R410A		Entering air (DB)	80	°F
Capacity (Total)	376700	Btu/h	Entering air (WB)	67	°F
Capacity (Sensible)	273995	Btu/h	Leaving air (DB)	57.7	°F
Air pressure drop	0.5	inH2O	Leaving air (WB)	56.3	°F
COMPRESSOR (OR EQUIVALENT MODELS)					
Compressor				2 X ZP182	
Type	Scroll, Fixed Speed		Quantity	2	
Total LRA	680.0	A	Total Power	32.1	kW
			Total Amps	103.6	A
FAN (EVAPORATOR)					
Type	Belt Driven		Model	450	
Air Flow	11500	CFM	Fan Speed	762	RPM
External Static Pressure	0.5	inH2O	Absorbed Power	5.4	kW
Total Static Pressure	1.4	inH2O	Motor Horsepower	10	HP
Quantity	1		FLA	31.8	A
			Locked rotor current (LRA)	190.1	A
CONDENSER (AIR COOLED)					
Model	Ø3/8		Motor HP (each)	1	HP
Quantity	1		FLA (each)	2.9	A
Condenser Fan Motor	26" (660MM)		Ambient Temperature	95	°F
Quantity	3				
ELECTRICAL SUMMARY					
Unit FLA	144.1	A	MCA	157	A
Total Power Input	39.8	kW	MFS	225	A
EER	9.47		IEER	n/a	

OPTIONS

DESCRIPTION
SV: Suction/Discharge/Liquid Line Service Valves
CU-C: Condenser Coil Fin Materials - Copper
CG: Condenser Coil Guard
DOL2: IEC DOL (Non UL)
MII: Door Interlock Main Incoming Isolator
PFR: UVR/Phase Failure Protect
IR33: Controller - IR33

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The evaporator blower section shall consist of the blower fan and motor assembly; direct expansion coil and a filter frame for flat filters. The units shall be capable to operate up to 115oF [46oC] ambient temperature without failure.

2 CABINET

The unit cabinet shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance up to 1000 hours salt spray test according to ASTM B-117. Evaporator section shall be of 1/2"[13mm] thick x 1 1/2 lb/ft³ [24kg/m³] density (up to model 760) and 1"[25mm] thick x 2 lb/ft³ [32kg/m³] density (model 800 and above) single skin lined with thermal conductivity of 0.0346W/m.K [0.24Btu.in/ft2.h.oF] acoustical fiberglass insulation. The insulation shall have fire resistant of Class O (BS 476 Part 6, 7). Access doors shall be provided for easy service and maintenance of unit internal parts.

3 COMPRESSOR & REFRIGERATION PIPING

Compressor(s) shall be scroll, refrigerant gas cooled and mounted on the base via vibration isolators. 1, 2, 3 or 4 refrigeration circuits shall be piped with copper tubing and include expansion valve with external equalizer, suction accumulator (standard for heat pump models), pressure fittings of manual reset high pressure control and auto reset low pressure safety cutouts as well as charging/access ports in each circuit. Each compressor shall have a crankcase heater installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles. The compressors comply with the internationally recognized standards CE and UL.

4 EVAPORATOR COIL

Evaporator coil shall be of draw through air design for uniform air distribution. The evaporator coil shall be quality construction of staggered row of 3/8"OD (model 68 to 570) and 1/2"OD (model 640 and above) seamless copper tube, mechanically bonded to aluminium fins with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system. A galvanized and painted drain pan shall be provided to cover the entire coil area. The drain pan shall be designed to incorporate sloped gutter for complete condensate removal.

5 EVAPORATOR BLOWER AND MOTOR

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Motors shall be of totally enclosed fan cooled (TEFC) with IP55 enclosure rating, 4-poles with class F insulation. Motors shall be mounted to an adjustable motor frame. Motor pulleys shall be cast iron, keyed and secured to the motor shaft (model 108 and above).

6 CONDENSER COIL

Condenser coil shall be air cooled with integral sub-cooling circuit, constructed from staggered row of 3/8"OD inner grooved seamless copper tube, mechanically bonded to aluminium fins (aluminium coated fin/ hydrophilic fin for heat pump models) with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system under water.

7 CONDENSER FAN AND MOTOR

Condenser fan shall be direct driven propeller type. Condenser fan motors shall be of totally enclosed air over (TEAO), 6-poles with class F insulation and wired to unit control panel. Condenser fans shall be constructed of corrosion resistant blades and are statically and dynamically balanced (model 68 and above). The condenser fan assembly shall be provided with heavy gauge and rust resistant steel wire fan guard.

8 FILTERS

Evaporator unit shall be provided with 1" thick washable filters having average arrestance efficiency of 70% as per ASHRAE Standard 52.1 (or equivalent).

9 CONTROL PANEL

The unit mounted control panel enclosure shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance. The enclosure shall conform to IP54. Access door shall be provided for easy access and security. The control panel shall be wired without starter and control.

OPTIONS

1. Hot Gas Bypass
The refrigerant circuit (applicable to first in last out refrigeration system only) shall be provided with a hot gas bypass system for low load and low ambient condition (evaporator freeze protection).

2. Suction/Discharge/Liquid Line Service Valves
Service valves shall be provided at each refrigerant lines for service convenience.

3. Evaporator Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin
- Copper Fin
- Aluminium fin with DB-CoatTM

4. Condenser Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin

(only applicable for cooling only models)
- Copper Fin
- Aluminium fin with DB-CoatTM

5. Stainless Steel Drain Pan
A stainless steel condensate drain pan shall be provided for the evaporator section in lieu of standard galvanized and painted drain pan.

6. Replaceable Core Filter Drier
(Shipped loose, field installed)
Replaceable filter core drier shall be provided for the convenience of filter driers core replacement.

7. Closed Cell Elastomer Insulation
Evaporator section shall be single skin and lined with 1" closed celled insulation (in lieu of fiberglass insulation) with fire resistant of Class O (BS476 Part 6) and Class 1 (BS476 Part 7).

8. Liquid Line Solenoid Valve (LLSV)
(Shipped loose, field installed)
Liquid line solenoid valve shall be provided for each refrigeration circuit.

9. Condenser Coil Guard
Powder coated wire mesh guard shall be provided for better condenser coil protection.

10. Suction accumulator (only applicable for cooling only models)
Suction accumulator shall be provided to prevent liquid refrigerant migration to compressor during system off-cycle.

11. High and Low Pressure Gauges
Each compressor is provided with unit mounted pressure gauges to monitor high and low side operating pressure.

12. Stainless Steel Fasteners
Stainless steel fasteners shall be provided for outdoor condensing unit in lieu of standard fasteners for corrosion resistance application.

13. Belt Guard
Belt guard shall be provided for belt and pulleys non- contact exposure (model 108 and above, not application to free blow type units).

14. Evaporator Blower Isolator
Rubber or spring isolator shall be provided to dampen vibration caused by motor and blower (model 108 and above, not application to free blow type units).

15. Filter Dryer

TECHNICAL REPORT

Project name	OOG condensers				
Submitted by	Leo			Date	11/22/2021
Customer	JWS			Quantity	1
OVERVIEW					
System Type	Air-Cooled Split		Refrigerant	R410A	
Series	ACCS		Power supply	208V/3/60HZ	
Unit nomenclature	6ACCS570-QG + 6EB570D-QG				
Altitude	0	ft	Approval		
FILTER					
Type	Filter 1" 70% Eff				
Size (Qty)	20x25x1(9)				
DX COOLING COIL					
Type	Ø3/8		Number of coil	1	
Rows	3		Face area	29.17	ft²
Fins per inch	12		Face velocity	514	ft/min
Refrigerant	R410A		Entering air (DB)	80	°F
Capacity (Total)	497149	Btu/h	Entering air (WB)	67	°F
Capacity (Sensible)	357934	Btu/h	Leaving air (DB)	57.7	°F
Air pressure drop	0.5	inH2O	Leaving air (WB)	56.3	°F
COMPRESSOR (OR EQUIVALENT MODELS)					
Compressor				2 X ZP154 + ZP182	
Type	Scroll, Fixed Speed		Quantity	3	
Total LRA	2x300 1x340	A	Total Power	44.2	kW
			Total Amps	137.4	A
FAN (EVAPORATOR)					
Type	Belt Driven		Model	500	
Air Flow	15000	CFM	Fan Speed	727	RPM
External Static Pressure	0.5	inH2O	Absorbed Power	7.2	kW
Total Static Pressure	1.4	inH2O	Motor Horsepower	15	HP
Quantity	1		FLA	44.2	A
			Locked rotor current (LRA)	286.1	A
CONDENSER (AIR COOLED)					
Model	Ø3/8		Motor HP (each)	1	HP
Quantity	1		FLA (each)	2.9	A
Condenser Fan Motor	26" (660MM)		Ambient Temperature	95	°F
Quantity	4				
ELECTRICAL SUMMARY					
Unit FLA	193.2	A	MCA	206.2	A
Total Power Input	54.42	kW	MFS	300	A
EER	9.14		IEER	n/a	

OPTIONS

DESCRIPTION
SV: Suction/Discharge/Liquid Line Service Valves
CU-C: Condenser Coil Fin Materials - Copper
CG: Condenser Coil Guard
DOL2: IEC DOL (Non UL)
MII: Door Interlock Main Incoming Isolator
PFR: UVR/Phase Failure Protect
IR33: Controller - IR33

NOTES

Manufacturer reserves the right to change specifications without prior notice.

SPECIFICATIONS

1 GENERAL

The air-cooled condensing section shall consist of the compressor(s); condenser coil; propeller condenser fan(s) with motor and drive assembly.
The evaporator blower section shall consist of the blower fan and motor assembly; direct expansion coil and a filter frame for flat filters. The units shall be capable to operate up to 115oF [46oC] ambient temperature without failure.

2 CABINET

The unit cabinet shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance up to 1000 hours salt spray test according to ASTM B-117. Evaporator section shall be of 1/2"[13mm] thick x 1 1/2 lb/ft³ [24kg/m³] density (up to model 760) and 1"[25mm] thick x 2 lb/ft³ [32kg/m³] density (model 800 and above) single skin lined with thermal conductivity of 0.0346W/m.K [0.24Btu.in/ft2.h.oF] acoustical fiberglass insulation. The insulation shall have fire resistant of Class O (BS 476 Part 6, 7). Access doors shall be provided for easy service and maintenance of unit internal parts.

3 COMPRESSOR & REFRIGERATION PIPING

Compressor(s) shall be scroll, refrigerant gas cooled and mounted on the base via vibration isolators. 1, 2, 3 or 4 refrigeration circuits shall be piped with copper tubing and include expansion valve with external equalizer, suction accumulator (standard for heat pump models), pressure fittings of manual reset high pressure control and auto reset low pressure safety cutouts as well as charging/access ports in each circuit. Each compressor shall have a crankcase heater installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles. The compressors comply with the internationally recognized standards CE and UL.

4 EVAPORATOR COIL

Evaporator coil shall be of draw through air design for uniform air distribution. The evaporator coil shall be quality construction of staggered row of 3/8"OD (model 68 to 570) and 1/2"OD (model 640 and above) seamless copper tube, mechanically bonded to aluminium fins with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system. A galvanized and painted drain pan shall be provided to cover the entire coil area. The drain pan shall be designed to incorporate sloped gutter for complete condensate removal.

5 EVAPORATOR BLOWER AND MOTOR

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Condenser coil shall be air cooled with integral sub-cooling circuit, constructed from staggered row of 3/8"OD inner grooved seamless copper tube, mechanically bonded to aluminium fins (aluminium coated fin/ hydrophilic fin for heat pump models) with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system under water.

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OPTIONS

1. Hot Gas Bypass
The refrigerant circuit (applicable to first in last out refrigeration system only) shall be provided with a hot gas bypass system for low load and low ambient condition (evaporator freeze protection).

2. Suction/Discharge/Liquid Line Service Valves
Service valves shall be provided at each refrigerant lines for service convenience.

3. Evaporator Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin
- Copper Fin
- Aluminium fin with DB-CoatTM

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In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
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(only applicable for cooling only models)
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5. Stainless Steel Drain Pan
A stainless steel condensate drain pan shall be provided for the evaporator section in lieu of standard galvanized and painted drain pan.

6. Replaceable Core Filter Drier
(Shipped loose, field installed)
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Liquid line solenoid valve shall be provided for each refrigeration circuit.

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15. Filter Dryer

TECHNICAL REPORT

Project name	OOG condensers				
Submitted by	Leo			Date	11/22/2021
Customer	JWS			Quantity	1
OVERVIEW					
System Type	Air-Cooled Split		Refrigerant	R410A	
Series	ACCS		Power supply	460V/3/60HZ	
Unit nomenclature	6ACCS700-QG + 6EB700D-QG				
Altitude	0	ft	Approval		
FILTER					
Type	Filter 1" 70% Eff				
Size (Qty)	20x25x1(3), 25x25x1(6)				
DX COOLING COIL					
Type	Ø1/2		Number of coil	1	
Rows	4		Face area	34.03	ft²
Fins per inch	10		Face velocity	505	ft/min
Refrigerant	R410A		Entering air (DB)	80	°F
Capacity (Total)	640800	Btu/h	Entering air (WB)	67	°F
Capacity (Sensible)	442555	Btu/h	Leaving air (DB)	55.9	°F
Air pressure drop	0.6	inH2O	Leaving air (WB)	54.7	°F
COMPRESSOR (OR EQUIVALENT MODELS)					
Compressor				2 X ZP154 TDM	
Type	Scroll, Fixed Speed		Quantity	4	
Total LRA	600.0	A	Total Power	49.8	kW
			Total Amps	74.9	A
FAN (EVAPORATOR)					
Type	Belt Driven		Model	560	
Air Flow	17200	CFM	Fan Speed	630	RPM
External Static Pressure	0.5	inH2O	Absorbed Power	7.2	kW
Total Static Pressure	1.5	inH2O	Motor Horsepower	15	HP
Quantity	1		FLA	19.9	A
			Locked rotor current (LRA)	129.1	A
CONDENSER (AIR COOLED)					
Model	Ø3/8		Motor HP (each)	2 2/3	HP
Quantity	1		FLA (each)	4	A
Condenser Fan Motor	800MM		Ambient Temperature	95	°F
Quantity	3				
ELECTRICAL SUMMARY					
Unit FLA	106.8	A	MCA	111.5	A
Total Power Input	63.68	kW	MFS	150	A
EER	10.06		IEER	n/a	
OPTIONS					
DESCRIPTION					
SV: Suction/Discharge/Liquid Line Service Valves					
CU-C: Condenser Coil Fin Materials - Copper					
CG: Condenser Coil Guard					
DOL2: IEC DOL (Non UL)					
MII: Door Interlock Main Incoming Isolator					
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Compressor(s) shall be scroll, refrigerant gas cooled and mounted on the base via vibration isolators. 1, 2, 3 or 4 refrigeration circuits shall be piped with copper tubing and include expansion valve with external equalizer, suction accumulator (standard for heat pump models), pressure fittings of manual reset high pressure control and auto reset low pressure safety cutouts as well as charging/access ports in each circuit. Each compressor shall have a crankcase heater installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles. The compressors comply with the internationally recognized standards CE and UL.

4 EVAPORATOR COIL

Evaporator coil shall be of draw through air design for uniform air distribution. The evaporator coil shall be quality construction of staggered row of 3/8"OD (model 68 to 570) and 1/2"OD (model 640 and above) seamless copper tube, mechanically bonded to aluminium fins with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system. A galvanized and painted drain pan shall be provided to cover the entire coil area. The drain pan shall be designed to incorporate sloped gutter for complete condensate removal.

5 EVAPORATOR BLOWER AND MOTOR

Evaporator blower shall be direct-driven (model 68 to 95) and belt driven (model 108 and above), double-inlet-double-width (DIDW) forward curved. All blowers are statically and dynamically balanced to ensure quiet operation and smooth performance. Heavy-duty V-belt fan drive with cast iron pulleys keyed and secured to the blower shaft shall be provided (model 108 and above).
Motors shall be of totally enclosed fan cooled (TEFC) with IP55 enclosure rating, 4-poles with class F insulation. Motors shall be mounted to an adjustable motor frame. Motor pulleys shall be cast iron, keyed and secured to the motor shaft (model 108 and above).

6 CONDENSER COIL

Condenser coil shall be air cooled with integral sub-cooling circuit, constructed from staggered row of 3/8"OD inner grooved seamless copper tube, mechanically bonded to aluminium fins (aluminium coated fin/ hydrophilic fin for heat pump models) with galvanized coil plates. The coil shall be factory leak and pressure tested to 650psig (45 bar) for R410A system, 450psig (31 bar) for R407C system under water.

7 CONDENSER FAN AND MOTOR

Condenser fan shall be direct driven propeller type. Condenser fan motors shall be of totally enclosed air over (TEAO), 6-poles with class F insulation and wired to unit control panel. Condenser fans shall be constructed of corrosion resistant blades and are statically and dynamically balanced (model 68 and above). The condenser fan assembly shall be provided with heavy gauge and rust resistant steel wire fan guard.

8 FILTERS

Evaporator unit shall be provided with 1" thick washable filters having average arrestance efficiency of 70% as per ASHRAE Standard 52.1 (or equivalent).

9 CONTROL PANEL

The unit mounted control panel enclosure shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance. The enclosure shall conform to IP54. Access door shall be provided for easy access and security. The control panel shall be wired without starter and control.

OPTIONS

1. Hot Gas Bypass
The refrigerant circuit (applicable to first in last out refrigeration system only) shall be provided with a hot gas bypass system for low load and low ambient condition (evaporator freeze protection).

2. Suction/Discharge/Liquid Line Service Valves
Service valves shall be provided at each refrigerant lines for service convenience.

3. Evaporator Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin
- Copper Fin
- Aluminium fin with DB-CoatTM

4. Condenser Coil Fin Materials
In lieu of standard aluminium fin, alternative fin material and/or protective coating include,
- Hydrophilic coated aluminium fin

(only applicable for cooling only models)
- Copper Fin
- Aluminium fin with DB-CoatTM

5. Stainless Steel Drain Pan
A stainless steel condensate drain pan shall be provided for the evaporator section in lieu of standard galvanized and painted drain pan.

6. Replaceable Core Filter Drier
(Shipped loose, field installed)
Replaceable filter core drier shall be provided for the convenience of filter driers core replacement.

7. Closed Cell Elastomer Insulation
Evaporator section shall be single skin and lined with 1" closed celled insulation (in lieu of fiberglass insulation) with fire resistant of Class O (BS476 Part 6) and Class 1 (BS476 Part 7).

8. Liquid Line Solenoid Valve (LLSV)
(Shipped loose, field installed)
Liquid line solenoid valve shall be provided for each refrigeration circuit.

9. Condenser Coil Guard
Powder coated wire mesh guard shall be provided for better condenser coil protection.

10. Suction accumulator (only applicable for cooling only models)
Suction accumulator shall be provided to prevent liquid refrigerant migration to compressor during system off-cycle.

11. High and Low Pressure Gauges
Each compressor is provided with unit mounted pressure gauges to monitor high and low side operating pressure.

12. Stainless Steel Fasteners
Stainless steel fasteners shall be provided for outdoor condensing unit in lieu of standard fasteners for corrosion resistance application.

13. Belt Guard
Belt guard shall be provided for belt and pulleys non- contact exposure (model 108 and above, not application to free blow type units).

14. Evaporator Blower Isolator
Rubber or spring isolator shall be provided to dampen vibration caused by motor and blower (model 108 and above, not application to free blow type units).

15. Filter Dryer

TECHNICAL REPORT

Project name	OOG condensers				
Submitted by	Leo			Date	11/22/2021
Customer	JWS			Quantity	1
OVERVIEW					
System Type	Air-Cooled Split		Refrigerant	R410A	
Series	ACCS		Power supply	208V/3/60HZ	
Unit nomenclature	6ACCS700-QG + 6EB700D-QG				
Altitude	0	ft	Approval		
FILTER					
Type	Filter 1" 70% Eff				
Size (Qty)	20x25x1(3), 25x25x1(6)				
DX COOLING COIL					
Type	Ø1/2		Number of coil	1	
Rows	4		Face area	34.03	ft²
Fins per inch	10		Face velocity	505	ft/min
Refrigerant	R410A		Entering air (DB)	80	°F
Capacity (Total)	639094	Btu/h	Entering air (WB)	67	°F
Capacity (Sensible)	441872	Btu/h	Leaving air (DB)	56.1	°F
Air pressure drop	0.6	inH2O	Leaving air (WB)	54.7	°F
COMPRESSOR (OR EQUIVALENT MODELS)					
Compressor				2 X ZP154 TDM	
Type	Scroll, Fixed Speed		Quantity	4	
Total LRA	1200.0	A	Total Power	51.8	kW
			Total Amps	161.3	A
FAN (EVAPORATOR)					
Type	Belt Driven		Model	560	
Air Flow	17200	CFM	Fan Speed	630	RPM
External Static Pressure	0.5	inH2O	Absorbed Power	7.2	kW
Total Static Pressure	1.5	inH2O	Motor Horsepower	15	HP
Quantity	1		FLA	44.2	A
			Locked rotor current (LRA)	286.1	A
CONDENSER (AIR COOLED)					
Model	Ø3/8		Motor HP (each)	2 2/3	HP
Quantity	1		FLA (each)	7.5	A
Condenser Fan Motor	800MM		Ambient Temperature	95	°F
Quantity	3				
ELECTRICAL SUMMARY					
Unit FLA	228	A	MCA	238.1	A
Total Power Input	65.26	kW	MFS	300	A
EER	9.79		IEER	n/a	

OPTIONS
DESCRIPTION
SV: Suction/Discharge/Liquid Line Service Valves
CU-C: Condenser Coil Fin Materials - Copper
CG: Condenser Coil Guard
DOL2: IEC DOL (Non UL)
MII: Door Interlock Main Incoming Isolator
PFR: UVR/Phase Failure Protect
IR33: Controller - IR33
NOTES
Manufacturer reserves the right to change specifications without prior notice.

SPECIFICATIONS

1 GENERAL

The air-cooled condensing section shall consist of the compressor(s); condenser coil; propeller condenser fan(s) with motor and drive assembly.
The evaporator blower section shall consist of the blower fan and motor assembly; direct expansion coil and a filter frame for flat filters. The units shall be capable to operate up to 115oF [46oC] ambient temperature without failure.

2 CABINET

The unit cabinet shall be constructed from heavy gauge galvanized steel with epoxy painted for excellent finished, weatherability and corrosion resistance up to 1000 hours salt spray test according to ASTM B-117. Evaporator section shall be of 1/2"[13mm] thick x 1 1/2 lb/ft³ [24kg/m³] density (up to model 760) and 1"[25mm] thick x 2 lb/ft³ [32kg/m³] density (model 800 and above) single skin lined with thermal conductivity of 0.0346W/m.K [0.24Btu.in/ft2.h.oF] acoustical fiberglass insulation. The insulation shall have fire resistant of Class O (BS 476 Part 6, 7). Access doors shall be provided for easy service and maintenance of unit internal parts.

3 COMPRESSOR & REFRIGERATION PIPING

Compressor(s) shall be scroll, refrigerant gas cooled and mounted on the base via vibration isolators. 1, 2, 3 or 4 refrigeration circuits shall be piped with copper tubing and include expansion valve with external equalizer, suction accumulator (standard for heat pump models), pressure fittings of manual reset high pressure control and auto reset low pressure safety cutouts as well as charging/access ports in each circuit. Each compressor shall have a crankcase heater installed, properly sized to minimize the amount of liquid refrigerant present in the oil sump during off cycles. The compressors comply with the internationally recognized standards CE and UL.

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15. Filter Dryer

EXHIBIT B

UOG BID NO. B21-

17

PURCHASING OF HVAC EQUIPMENT OF THE UNIVERSITY OF GUAM

Scope of Work

1. Scope of the Work
   This bid is to select and award a contract for the purchasing of multiple Air Conditioning units for the University of Guam.

2. Bid Submittals

   a) Bid prices shall be submitted on Bid Price Form. All prices shall include shipping, delivery,and manufacturer's warranty. Any additional cost not stated in this bid but are required to complete the delivery and installation must be included in the bidder's price.

   b) Bidder shall submit an electronic copy to the Share folder that UOG procurement officeprovides.

   Contractor is required to submit prices for Table 1.0.
   Bid award to be based on the required items in Table 1.0 and to be based on price, compliance to the specification, services, delivery and any requirements in the BID package, BID NO. B21-17.

Table 1.0 Bid Price Form

No.	ITEM DESCRIPTION					BID Price
1	LOCATION	UNIT	TONS	VOLTAGE	TVX	
	RFK BUILDING SECOND FLOOR	1	50	208 / 230	2 EA. - 25	
	RFK BUILDING FIRST FLOOR	1	40	208 / 230	2 EA. -	
	20RFK BUILDING FIRST FLOOR MAIN ENTRANCE	1	15	208 / 230	2 EA. -	
	7.5RFK BUILDING FIRST FLOOR AV ROOM	1	15	208 / 230	2 EA. -	
	7.5RFK BUILDING FIRST FLOOR OFFICES	1	20	208 / 230	2 EA. - 10	
	PIP (GLE) SECOND FLOOR	1	20	208 / 230	2 EA. -	
	10SCIENCE BUILDING FIRST FLOOR	1	40	208 / 230	2 EA. -	
	20SCIENCE BUILDING SECOND FLOOR	1	40	208 / 230	2 EA. -	
	20SCIENCE BUILDING THIRD FLOOR	1	20	208 / 230	2 EA. -	
	10EGLISH COMMUNICATION BUILDING CLASSROO	1	30	208 / 230	2 EA. -	
	15COMPUTER CENTER OIT					

	BUILDING FIRST FLOOR	1	50	277 / 460	2 EA. - 25	
	LECTURE HALL AUDITORIUM	1	20	277 / 460	2 EA. - 10	
	MARINE LAB FIRST FLOOR	2	10	208 / 230	2 EA. - 5	
	MARINE LAB SECOND FLOOR	2	10	208 / 230	2 EA. – 5	
	HSS BUILDING	2	50	277 / 460	2 EA. – 25	
	HSS BUILDING	1	30	277 / 460	2 EA. – 15	
Grand Total						
Delivery:_____weeks after receipt of purchase order						

OPTIONS

For Table 2.0 Options, the bidder's price will not be included as part of the total price evaluation for this bid award. UOG reserves the right to excercise any or part of the options requested. Insert any additional options recommended.

Table 2.0 Options

No.	Item Description	Price
1	Services for Maintenance and upkeep.	
2	Services for disposal.	
3	Replacement/trade in program	

OTHER NOTES:

1. These specifications have been written to describe minimum equipment and performance requirements to be supplied by the equipment manufacturer bidding. Reasonable tests may be conducted upon delivery before acceptance.

2. The University reserves the right to accept and/or reject any and all bids, to waive any defects, irregularities, or specification discrepancies and to award the bid deemed to be in the best interest of the University.

NOTE: Name and title of author of specifications:

University of Guam

Glenn Leon Guerrero, Director, Facilities Mangement & Services, Email: glennlg@triton.uog.edu

Emily Gumataotao, Supply Management Administrator, Email: eggumataotao@triton.uog.edu

12. Alarm relay output to indicate when unit is in alarm condition.

B. Minimum unit safety devices shall include:
   1. Solid-state compressor lockout to provide optional reset capability at the space thermostat if any of the following safety devices trip and shut off compressor.
      a. Compressor lockout protection for internal or external overload.
      b. Low pressure protection.
      c. High pressure protection (high pressure switch or internal).
      d. Compressor reverse rotation protection.
      e. Loss of charge protection.
      f. Low suction superheat protection.
      g. Short cycle protection.
      h. Suction and discharge pressure transducers.
      i. Circuit breakers or fuses for short circuit protection of compressors.

2.08. Operating Characteristics:
   A. The capacity of the condensing unit shall meet or exceed ____ Btuh (____ kW) at a suction temperature of ____ F (____ C). The power consumption at full load shall not exceed ____ Btuh (____ kW).
   B. The combination of the condensing unit and the evaporator or air handling unit shall have a total net cooling capacity of ____ Btuh (____ kW) or greater at conditions of ____ cfm (____ L/s) entering-air temperature at the evaporator at ____ F (____ C) wet bulb and ____ F (____ C) dry bulb, and air entering the condensing unit at ____ F (____ C).
   C. The system shall have an Energy Efficiency Ratio (EER) of ____ Btuh/watt or greater at standard AHRI conditions.

2.09. Electrical Requirements:
   A. All unit power wiring shall enter unit cabinet at a single location. Unit shall be provided with a XL starter and a terminal block.

2.10. Special Features:
   A. Optional E-coated copper-fin coils:
      1. Coil shall have a flexible epoxy polymer coating uniformly applied to all coil surface areas without material bridging between fins. Coating process shall ensure complete coil encapsulation. Color shall be high gloss black with gloss; 60° of 65 to 90% per ASTM D523-89. Uniform dry film thickness from 0.8 to 1.2 mil on all surface areas including fin edges. Superior hardness characteristics of 2H per ASTM D3363-92A and cross hatch adhesion of 4B-5B per ASTM D3359-93. Impact resistance shall be up to 160 in./lb (ASTM D2794-93). Humidity and water immersion resistance shall be up to minimum 1000 and 250 hours respectively (ASTM D2247-92 and ASTM D870-92). Corrosion durability shall be confirmed through testing to no less than 3000 hours salt spray per ASTM B117-90. Coil construction shall be copper-fins mechanically bonded to copper tube sheets. Galvanized steel tube sheets shall not be acceptable. A polymer strip shall prevent coil assembly from contacting sheet metal coil pan to maintain coating integrity and minimize corrosion potential between the coil and pan.
   B. Navigator™ Hand Held Display:
      1. Portable hand held display module with a minimum of 4 lines and 20 characters per line, of clear English, French, Spanish, or Portuguese language.
      2. Display menus shall provide clear language descriptions of all menu items, operating modes, configuration points and alarm diagnostics. Reference to factory codes shall not be accepted.
      3. RJ-14 connection plug shall allow display module to be connected to factory-installed receptacle.
      4. Industrial grade coiled extension cord shall allow the display module to be moved around the unit.
      5. Magnets shall hold the display module to any sheet metal panel to allow hands-free operation.
      6. Display module shall have NEMA (National Electrical Manufacturers Association, U.S.A.) 4x housing suitable for use in outdoor environments.
      7. Display shall have back light and contrast adjustment for easy viewing in bright sunlight or night conditions.
      8. Navigator module shall have raised surface buttons with positive tactile response.
      9. Navigator module shall be available as field-installed accessory for all units.

amendment shall refer to the portions of the Invitation forBids it amends. Amendments shall be sent to all prospective Bidders known to have received an Invitation for Bids. Amendments shall be distributed within a reasonable time to allow prospective Bidders to considerthe amendment in preparing their Bids. If the time and date set for receipt of bids will not permit such preparation, such time shall be increased to the extent possible in the amendment or, if necessary, by email or telephone and confirmed in the amendment.

11. CANCELLATION OF SOLICITATION: Prior to the date set for opening bids, a solicitation may be cancelled in whole or in part when the President or his designee determines in writing that the cancellation of the solicitation is in the University's best interest, in accordance with the University's Procurement Rulesand Regulations.

12. METHOD OF AWARD: Bid shall be awarded to the [x] lowest, [ ] highest, responsible and responsive bidder whose bid meets the requirements and criteria set forth in the Invitation for Bids. A responsible bidder is one who has the capability in all respects to perform fully the contract requirements, and the integrity and reliability which will assure good faith performance. A responsive bidder is one who has submitted a bid which conforms in all material respects to the Invitation for Bids. The University reserves the right to waive any minor information of irregularity in Bids received. The President shall have the authority to award or reject Bids, in whole or in part for any one or more items if he determines it is in the public interest.

Award issued to the [x] lowest, [ ] highest, responsible and responsive bidder within the specified time foracceptance as indicated in the Bid, results in a binding contract without further action by either party provided the successful bidder executes a formal contract with the University. In case of any error in the extension of prices, unit price will govern. It is the policy of the Government of Guam to award Bids to qualified local vendors.

13. SUBMISSION OF BIDS:

a. Bids and modifications thereof shall be submitted through electronic submission to the Share folder that UOG procurement office provides and addressed to the office specified in the Solicitation The electronic file submission will show the hour and date of submission as specifiedin the Solicitation for receipt. The file should identify the Solicitation number, and the name of the bidder.

b. Bids may be modified or withdrawn by written or telegraphic notice, provided such notice is received prior to the hour and date specified for receipt (see paragraph 9 of these instructions).

c. Samples of items, when required, must be submitted within the time specified, unless otherwise specified by the University, at no expense to the University. If not destroyed by testing, sampleswill be returned at bidder's request and expense, unless otherwise specified by the Solicitation.

d. Samples or descriptive literature should not be submitted unless it is required on this Solicitation. Regardless of any attempt by a bidder to condition the bid, unsolicited samples or descriptive literature will not be examined or tested at the bidder's risk, and will not be deemed to vary any ofthe provisions of this Solicitation.

4. MAJOR SHAREHOLDERS AFFIDAVIT (Attachment E): As a condition to submitting of bids or proposals, any partnership, sole proprietorship or corporation doing business with the University of Guam shall submit an affidavit that lists the name and address of any person who has held more than ten percent (10) of outstanding shares in said partnership, sole proprietorship or corporation at any time during the twelve (12) month period immediately preceding submission of a proposal. The affidavit shall contain thenumber of shares or the percentage of all assets of such partnership, sole proprietorship or corporation which have been held by each person during the twelve (12) month period. In addition, the affidavit shall contain the name and address of any person who has received or is entitled to receive a commission, gratuity or other compensation for the procuring or assisting in obtaining business related to the bid or proposal for the Offeror and shall contain the amounts of any shall commission, gratuity or other compensation. The affidavit shall be open and available for inspection and copying.

5. AFFIDAVIT RE GRATUITIES, KICKBACKS AND FAVORS (Attachment G): The bidder, offeror or contractor represents that it will not violate the prohibition against gratuities and kickbacks and favors set forth (Gratuities and Kickbacks) in 5 GCA, Chapter 5, Article 11, Ethics in Public Contracting and Section 11.7 (Gratuities and Kickbacks and Favors) of the UOG Procurement Manual.

6. AFFIDAVIT RE ETHICAL STANDARDS (Attachment H): The bidder, offeror, or contractor representsthat it has not knowingly influenced and promises that it will not knowingly influence a government employee to breach any of the ethical standards set forth in 5 GCA, Chapter 5, Article 11, and in Chapter 11 (Ethics in Public Contracting) of the UOG Procurement Manual.

7. COVENANT AGAINST CONTINGENT FEES (Attachment I): The prospective contractor represents aspart of such contractor's bid or proposal that such contractor has/has not (Circle applicable word or words) retained any person or agency on a percentage, commission, or other contingent arrangement, except for retention of bona fide employees or bona fide established commercial selling agencies for the purpose of securing business.

8. DECLARATION RE COMPLIANCE WITH U.S. DEPARTMENT OF LABOR WAGE DETERMINATION (Attachment J): In accordance with 5 GCA §§ 5801 and 5802, as may be applicable, each bidder certifies that any of its employees whose purpose, in whole or in part, is the direct delivery of service contracted by the University shall be paid in accordance with the Wage Determination for Guam and the Northern Mariana Islands issued and promulgated by the U.S. Department of Labor for such labor as is employed in the direct delivery of contract deliverables to the University, including health and other similar benefits. Theupdated wage rate with the most current revision shall be included in the bid submission.

9. RIGHT TO ACCEPT AND REJECT BIDS: The President of the University of Guam reserves the unqualified right, in his sole and absolute discretion, to reject any and all bids, or to accept that bid or combination of bids, if any, which in his sole and absolute judgment will under all circumstances best servethe interests of the University of Guam. In the event that the successful bidder fails to execute the contract upon his part or to furnish a satisfactory performance and payment bond, the University, after declaring thesecurity deposit of such bidder forfeited, reserves the option to accept the bid of any other bidder within ten (10) days from such default, in which case such acceptance shall have the same effect as to such bidderas though he was the originally successful bidder.

10. MODIFICATIONS PRIOR TO DATE SET FOR OPENING BIDS: The University reserves the right to revise or amend the specifications prior to the date set for opening bids. Such revisions and amendments, ifany, will be announced by an amendment or amendments to this Invitation for Bids and shall be identified as such. It is required that the bidders acknowledge in writing receipt of all amendments issued and such acknowledgment must be included in the bid. The