AMENDMENT OF SOLICITATION/MODIFICATION OF CONTRACT

1. CONTRACT ID CODE	PAGE OF PAGES
	1 | 1

2. AMENDMENT/MODIFICATION NO.	3. EFFECTIVE DATE	4. REQUISITION/PURCHASE REQ. NO.	5. PROJECT NO.(If applicable)
U0001	26-Jun-2007		

6. ISSUED BY	CODE	7. ADMINISTERED BY (If other than item 6)	CODE
AFGHANISTAN ENGINEER DISTRICT US ARMY CORPS OF ENGINEERS KABUL APO AE 09356	W917PM	See Item 6	

8. NAME AND ADDRESS OF CONTRACTOR (No., Street, County, State and Zip Code)		
	X	9A. AMENDMENT OF SOLICITATION NO. W917PM-07-R-0082
	X	9B. DATED (SEE ITEM 11) 14-Jun-2007
		10A. MOD. OF CONTRACT/ORDER NO.
		10B. DATED (SEE ITEM 13)
CODE / FACILITY CODE		

11. THIS ITEM ONLY APPLIES TO AMENDMENTS OF SOLICITATIONS

[X] The above numbered solicitation is amended as set forth in Item 14. The hour and date specified for receipt of Offer [ ] is extended, [X] is not extended.

Offer must acknowledge receipt of this amendment prior to the hour and date specified in the solicitation or as amended by one of the following methods: (a) By completing Items 8 and 15, and returning 1 copies of the amendment; (b) By acknowledging receipt of this amendment on each copy of the offer submitted; or (c) By separate letter or telegram which includes a reference to the solicitation and amendment numbers. FAILURE OF YOUR ACKNOWLEDGMENT TO BE RECEIVED AT THE PLACE DESIGNATED FOR THE RECEIPT OF OFFERS PRIOR TO THE HOUR AND DATE SPECIFIED MAY RESULT IN REJECTION OF YOUR OFFER. If by virtue of this amendment you desire to change an offer already submitted, such change may be made by telegram or letter, provided each telegram or letter makes reference to the solicitation and this amendment, and is received prior to the opening hour and date specified.

12. ACCOUNTING AND APPROPRIATION DATA (If required)

13. THIS ITEM APPLIES ONLY TO MODIFICATIONS OF CONTRACTS/ORDERS. IT MODIFIES THE CONTRACT/ORDER NO. AS DESCRIBED IN ITEM 14.

[ ] A. THIS CHANGE ORDER IS ISSUED PURSUANT TO: (Specify authority) THE CHANGES SET FORTH IN ITEM 14 ARE MADE IN THE CONTRACT ORDER NO. IN ITEM 10A.

[ ] B. THE ABOVE NUMBERED CONTRACT/ORDER IS MODIFIED TO REFLECT THE ADMINISTRATIVE CHANGES (such as changes in paying office, appropriation date, etc.) SET FORTH IN ITEM 14, PURSUANT TO THE AUTHORITY OF FAR 43.103(B).

[ ] C. THIS SUPPLEMENTAL AGREEMENT IS ENTERED INTO PURSUANT TO AUTHORITY OF:

[ ] D. OTHER (Specify type of modification and authority)

E. IMPORTANT: Contractor [ ] is not, [ ] is required to sign this document and return _____ copies to the issuing office.

14. DESCRIPTION OF AMENDMENT/MODIFICATION (Organized by UCF section headings, including solicitation/contract subject matter where feasible.)

ANA Cooling and Heating Upgrades

Add Appendix A, drawings and Appendix B, data sheet to the above mentioned solicitation.

All other terms and conditions remain unchanged.

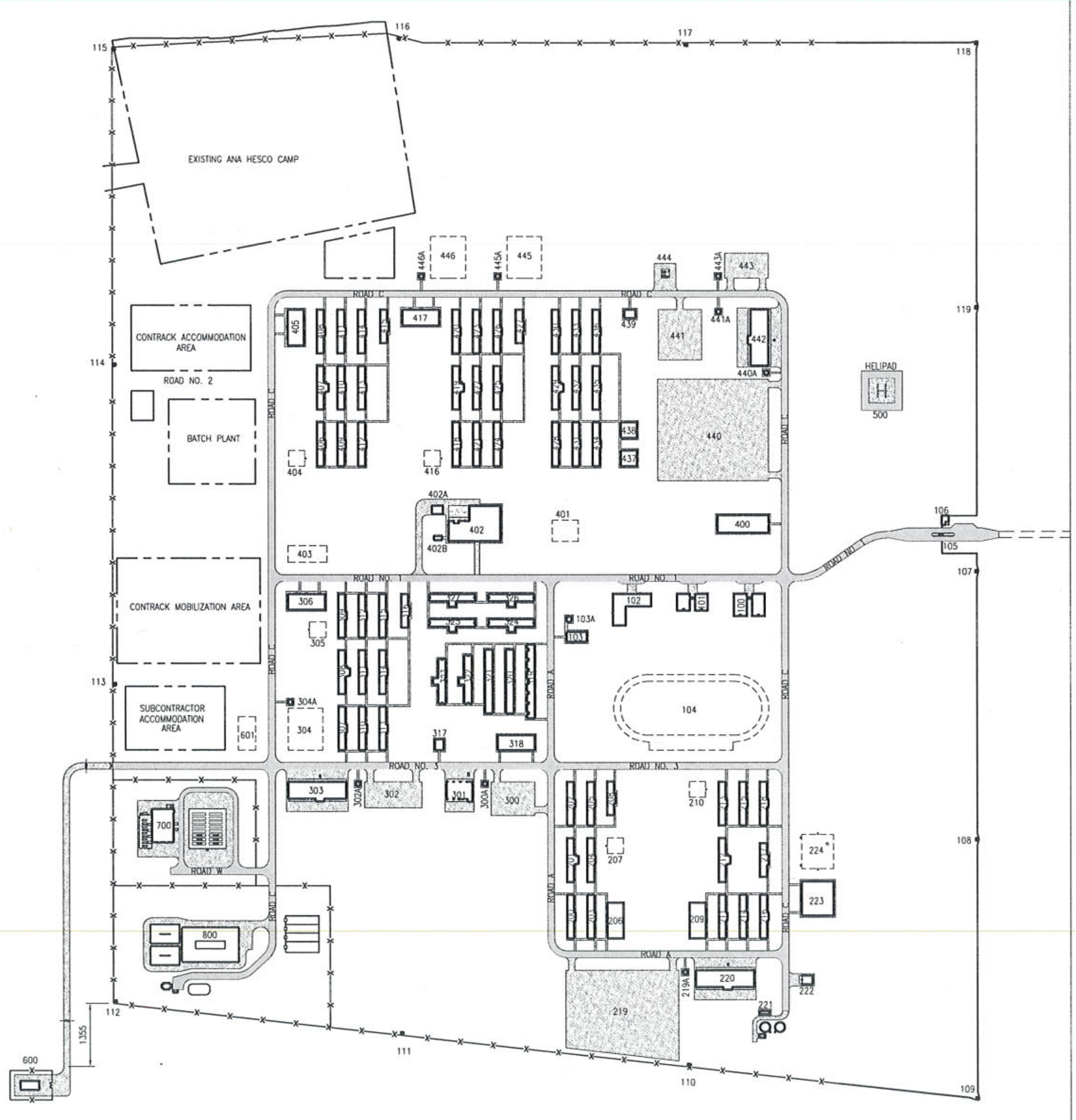
Except as provided herein, all terms and conditions of the document referenced in Item 9A or 10A, as heretofore changed, remains unchanged and in full force and effect.

15A. NAME AND TITLE OF SIGNER (Type or print)	16A. NAME AND TITLE OF CONTRACTING OFFICER (Type or print)
	TEL: EMAIL:

15B. CONTRACTOR/OFFEROR	15C. DATE SIGNED	16B. UNITED STATES OF AMERICA	16C. DATE SIGNED
(Signature of person authorized to sign)		BY (Signature of Contracting Officer)	

Appendix A

Drawings



BUILDING LEGEND:

100 CORPS HEADQUARTERS BUILDING
101 BRIGADE HEADQUARTERS BUILDING
102 GARRISON HEADQUARTERS BUILDING
103 COMMUNICATIONS CENTER
103A COMMUNICATIONS CENTER ANNEX
104 SPORTS FIELD (FUTURE)
105 GUARD HOUSE AT MAIN GATE
106 RECEPTION BUILDING
107-119 GUARD TOWERS

200 BATTALION BARRACK TYPE D
201 TOILET/SHOWER BUILDING
202 BATTALION BARRACK TYPE B
203 BATTALION BARRACK TYPE D
204 BATTALION BARRACK TYPE A
205 BATTALION BARRACK TYPE B
206 BATTALION STORAGE BUILDING
207 ARMS SUPPLY BUILDING (FUTURE)
208 BATTALION HEADQUARTERS BUILDING
209 BATTALION STORAGE BUILDING
210 ARMS SUPPLY BUILDING (FUTURE)
211 BATTALION BARRACK TYPE C
212 TOILET/SHOWER BUILDING
213 BATTALION BARRACK TYPE D
214 BATTALION BARRACK TYPE B
215 BATTALION BARRACK TYPE C
216 BATTALION BARRACK TYPE B
217 BATTALION HEADQUARTERS BUILDING
218 BATTALION BARRACK TYPE A
219 MOTOR POOL (CENTRAL MAINTENANCE)
219A POL STORAGE
220 MAINTENANCE GARAGE
221 PUMP STATION
222 FIRE STATION
223 CENTRAL WAREHOUSE
224 CENTRAL WAREHOUSE (FUTURE)

300 MOTOR POOL (CS)
300A POL STORAGE
301 CS BATTALION GARAGE
302 MOTOR POOL (CSS)
302A POL STORAGE
303 MAINTENANCE GARAGE
304 MOTOR POOL (IBC)
304A POL STORAGE
305 ARMS SUPPLY BUILDING (FUTURE)
306 BATTALION STORAGE BUILDING
307 BATTALION BARRACK TYPE A
308 TOILET/SHOWER BUILDING
309 BATTALION BARRACK TYPE B
310 BATTALION BARRACK TYPE B
311 BATTALION BARRACK TYPE B
312 BATTALION BARRACK TYPE A
313 BATTALION BARRACK TYPE A
314 BATTALION BARRACK TYPE C
315 BATTALION BARRACK TYPE B
316 BATTALION HEADQUARTERS BUILDING
317 SOLID WASTE COLLECTION POINT
318 CLASS VII STORAGE FACILITY
319 BACHELOR OFFICERS QUARTERS 04
320 BACHELOR OFFICERS QUARTERS 03
321 BACHELOR OFFICERS QUARTERS 03
322 BACHELOR OFFICERS QUARTERS 02
323 BACHELOR OFFICERS QUARTERS 01
324 BACHELOR OFFICERS QUARTERS 01
325 BACHELOR OFFICERS QUARTERS 01
326 BACHELOR OFFICERS QUARTERS 01
327 BACHELOR OFFICERS QUARTERS 01

400 TRAINING BUILDING
401 MOSQUE (FUTURE)
402 DINING FACILITY
402A SOLID WASTE COLLECTION POINT
402B TEA BREWING BUILDING
403 COMMUNITY CENTER (FUTURE)
404 ARMS SUPPLY BUILDING (FUTURE)
405 BATTALION STORAGE BUILDING
406 BATTALION BARRACK TYPE A
407 TOILET/SHOWER BUILDING
408 BATTALION BARRACK TYPE B
409 BATTALION BARRACK TYPE B
410 BATTALION BARRACK TYPE B
411 BATTALION BARRACK TYPE A
412 BATTALION BARRACK TYPE A
413 BATTALION BARRACK TYPE C
414 BATTALION BARRACK TYPE B
415 BATTALION HEADQUARTERS BUILDING
416 ARMS SUPPLY BUILDING (FUTURE)
417 BATTALION STORAGE BUILDING
418 BATTALION BARRACK TYPE A
419 TOILET/SHOWER BUILDING
420 BATTALION BARRACK TYPE B
421 BATTALION BARRACK TYPE B
422 BATTALION BARRACK TYPE B
423 BATTALION BARRACK TYPE A
424 BATTALION BARRACK TYPE A
425 BATTALION BARRACK TYPE C
426 BATTALION BARRACK TYPE B
427 BATTALION HEADQUARTERS BUILDING
428 NON COMMISSION OFFICER BUILDING
429 TOILET/SHOWER BUILDING
430 BATTALION BARRACK TYPE A
431 BATTALION BARRACK TYPE A
432 BATTALION BARRACK TYPE D
433 BATTALION BARRACK TYPE A
434 BATTALION BARRACK TYPE A
435 BATTALION BARRACK TYPE A
436 BATTALION BARRACK TYPE A
437 ARMS SUPPLY BUILDING
438 ARMS SUPPLY BUILDING
439 SOLID WASTE COLLECTION POINT
440 MOTOR POOL (GHC)
440A POL STORAGE
441 MOTOR POOL (CHC)
441A POL STORAGE
442 MAINTENANCE GARAGE
443 MOTOR POOL (BHC)
443A POL STORAGE
444 FUEL POINT
445 MOTOR POOL (IBC)
445A POL STORAGE
446 MOTOR POOL (IBC)
446A POL STORAGE

500 HELIPAD

600 AMMUNITION SUPPLY POINT
601 DPW SHOP (FUTURE)

700 POWER PLANT

800 WASTE WATER TREATMENT FACILITY

ABBREVIATION

BHC BRIGADE HEADQUARTERS COMPLEX
CHC CORPS HEADQUARTERS COMPLEX
GHC GARRISON HEADQUARTERS COMPLEX
IBC INFANTRY BATTALION COMPLEX
CS COMPACT SUPPORT BATTALION COMPLEX
CSS COMBAT SERVICE SUPPORT BATTALION COMPLEX
DPW DEPARTMENT OF PUBLIC WORKS
COE CORP OF ENGINEERS
POL PETROLEUM, OIL AND LUBE

201	202	203	204
205	206	207	208
209	210	211	212
213	214	215	216
217	218	219	220

N

KEY PLAN

N

0 50 100 150

SCALE: 1:2500

DWG.NO.	DRAWING TITLE	REMARKS

REFERENCE DRAWINGS

REV	Date	DESCRIPTION
5	FEB 01, 2005	100% DESIGN SUBMITTAL
2	DEC. 23, 2004	99% FINAL REVIEW SUBMITTAL
1	NOV. 16, 2004	99% FINAL REVIEW SUBMITTAL
0	SEPT. 24, 2004	35%CONCEPT REVIEW SUBMITTAL

REVISIONS

CLIENT :
U.S. ARMY CORPS OF ENGINEERS
AFGHANISTAN ENGINEER DISTRICT
KABUL, AFGHANISTAN

Site Layout

PROJECT :
ANA BRIGADE FACILITIES
KANDAHAR
AFGHANISTAN

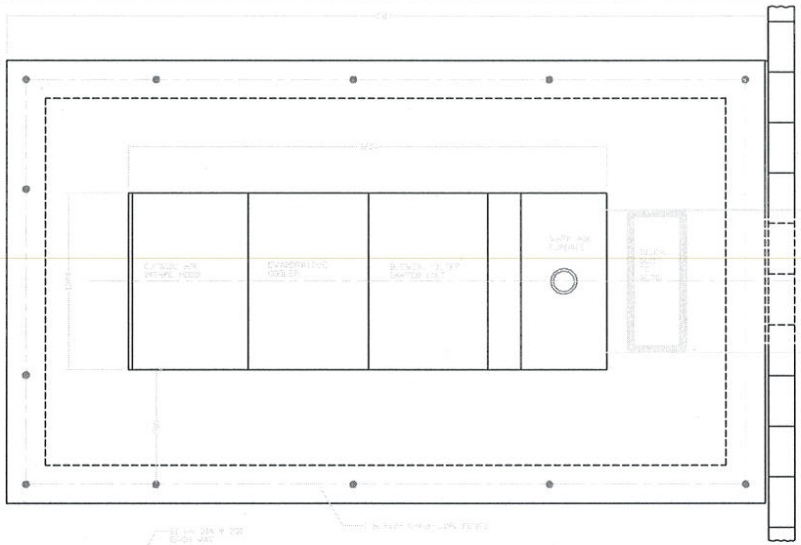
TITLE :
OVERALL SITE PLAN

DOCUMENT NO.: SW-C200

CAD FILE:

Scale 1 : 2500

CONTRACK ENGINEERING



********** SIZING CALCULATIONS **********

AIR HANDLING HEATER UNIT RATING (INPUT)
350,000 Btu/h / 3413 = 103 tkW x 0.80 eff = 82 tkW OUT
DIESEL HHV: 44.8 mJ/kg x 238.9 Kcal/mJ x 0.86 kg/lt /
860 Kcal/h/tkW = 10.7 tkW-h/lt fuel x 0.80 heater eff =
8.56 tkW-h(output)/lt fuel

MAX FUEL RATE = 82 tkW / 8.56 tkW-h/lt = 9.58 lt/h x
24 h/day = 230 lt/day = TANK, 600 lt / 230 = 2.6 days

REQUIRED AIR FLOW @ dt = 25 °C (RANGE dt 10 to 35 °C)
TYPICAL: SUPPLY AIR 45 °C, RETURN AIR 20 °C
AIR FLOW: Q(m3/s) = 82 tkW / 1.22 / 25 °C = 2.69 m3/s
(CFM = 2.118 x 2.69 m3/s = 5,700 CFM)
SUPPLY & RETURN AIR DUCTS: 1.024 m X 0.35 m = 0.358 m2
EQUIV. DIA. = 1.3 x (1.024 x 0.355)^0.625 / (1.024 + 0.35)^0.25
= (0.632 m dia)^2 x 0.785 = 0.314 m2 EQUAL FRICTION
ACTUAL AIR VEL. = 2.69 m3/s / 0.358 m2 = 7.51 m/s (1480
fpm) (TYPICAL) APART. = 1500 fpm; GEN OFFICE = 2200 fpm)
FRICTION VEL. = 2.69 m3/s / 0.314 m2 = 8.57 m/s
DUCT PRESS. LOSS: p(Pa/m) = 0.0112 x (8.57 m/s)^2.43 x 1 m
/ (2.69 m3/s)^0.61 = 1.13 Pa/m x 0.102 = 0.116 mmW.C. / lin
m OF EQUIVALENT LENGTH

82 tkW out / 815 tkW = 547 m2 Floor
2.69 m3/s air / 547 m2 = 0.00492 m3/s /m2
0.00492 x 3600 s/h = 18 m3/h / m2 floor
EVAPORATIVE COOLING AIR FLOW

TRANE (OR EQUAL) OUTDOOR GAS HEATING UNITS, MODIFIED FOR DIESEL FUEL

EVAPORATIVE COOLER MODULE: TRANE MODEL 30/35 (A = 1394 mm) OR EQUAL
12" (305mm) CELdek MEDIA
WATER DIST. PUMP & PIPE
FLOAT-VALVE
BLEED-OFF OVERFLOW
STAINLESS STEEL WATER TANK
¾"(6mm) WATER INLET
¾"(20mm) NPT DRAIN
INTAKE FILTERS
24-V CONTROL CIRCUITRY

BLOWER MODULE (STANDARD)
TRANE MODEL 30-35 (102 tkW)
WIDTH "A" = 1394mm
OR EQUAL
BLOWER & MOTOR INSTALL 5 HP
2-SPEED MOTOR (380 V, 50 HZ
3-PH, HETE)
BLOWER BELT DRIVE
TYPICAL 1140 RPM @ 3.4 HP
FILTER COMPARTMENT
SUPPLY AIR DAMPER (fr cooler)
RETURN AIR DAMPER (fr bldg)
DISCH. AIR OPEN. 483 x 884 mm
SUPPLY & RETURN DAMPER
CONTROL (electronechanical)
ELECTRICAL COMPARTMENT

HEATING FURNACE MODIFIED WITH A DIESEL FUEL BURNER (FUEL PUMP BLOWER ASSEMBLY)
TRANE MODEL 30-35 (102 tkW)
OR EQUAL
SS 321 HEAT EXCHANGER
2.69 m3/s @ dt = 25 °C (5700 cfm @ 45F)

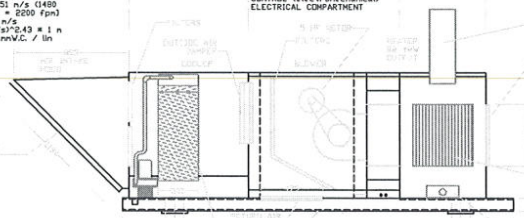
INTERNATIONAL MECHANICAL CODE, 2000

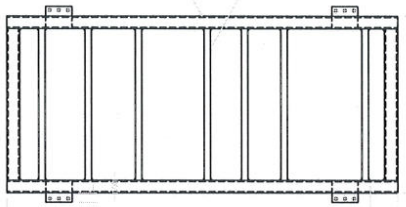
SECT. 918.2: MINIMUM AREA OUTSIDE & RETURN AIR DUCTS, WARM-AIR FURNACE, NOT LESS THAN 4402 mm2/tkW OUTPUT RATING.
UNIT: 350,000 Btu/h / 3413 x0.8 eff = 82 tkW

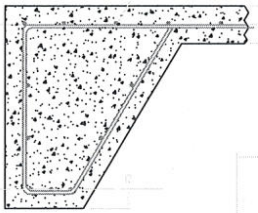
REQUIRED AREA = 4402 mm2/tkW x 82 tkW = 361,000 mm2

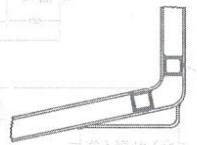
AVAIL. AREA = 1024mm x 355mm = 364,000 mm2

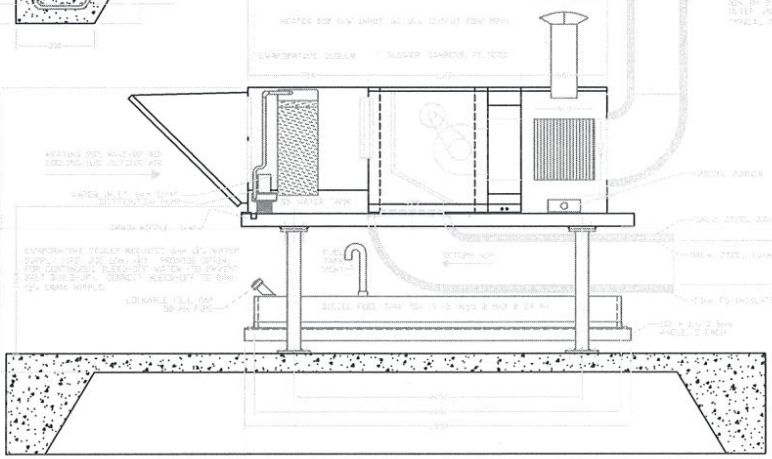
COOLING PREDICTED CAPACITY AT db = 35 °C & wb = 24 °C; EVAP. EFF. = 0.82; & 2.69 m3/s FLOW
q = 1.22 x 2.69 m3/s x (35 - 24)°C x 0.82 = 29.6 tkW x 0.284 ton/tkW = 8.4 ton COOLING

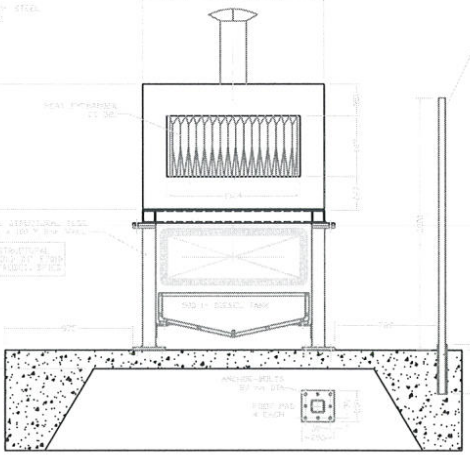


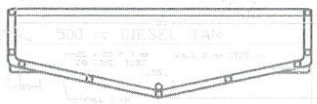












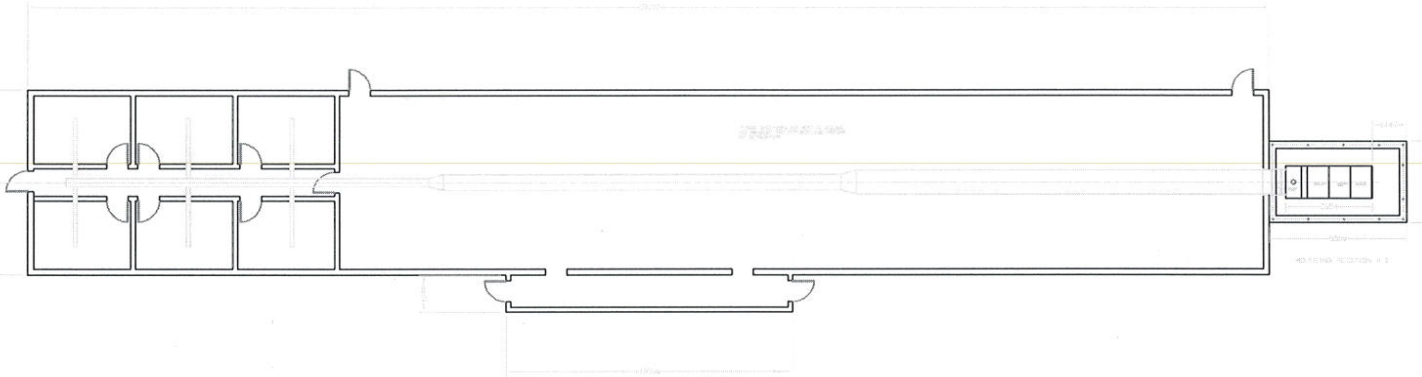
THIS IS A CONCEPT DRAWING TO SHOW REQUIREMENTS. ACTUAL FABRICATION WILL DEPEND ON THE SELECTED MANUFACTURER. ONCE SELECTED, ALL HEAT-COOL UNITS MUST BE IDENTICAL FOR MAINTENANCE AT ALL SITES.

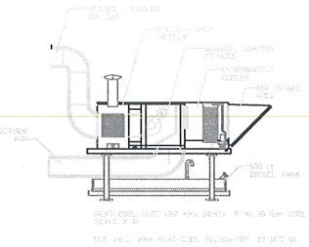
HEAT DESIGN FOR ANA MILITARY COMPOUNDS

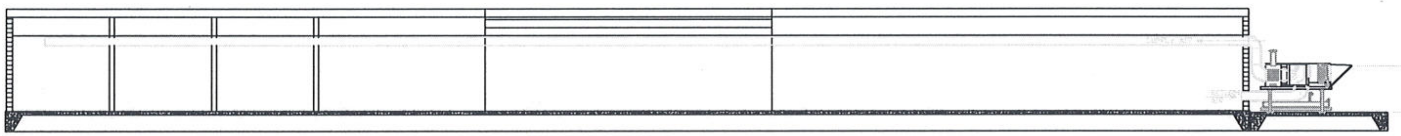
AED, KABUL, AFGHANISTAN

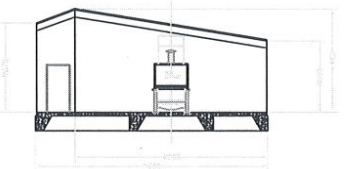
File: ANA HEAT-COOL DESIGN-02 :: 10 DEC 06

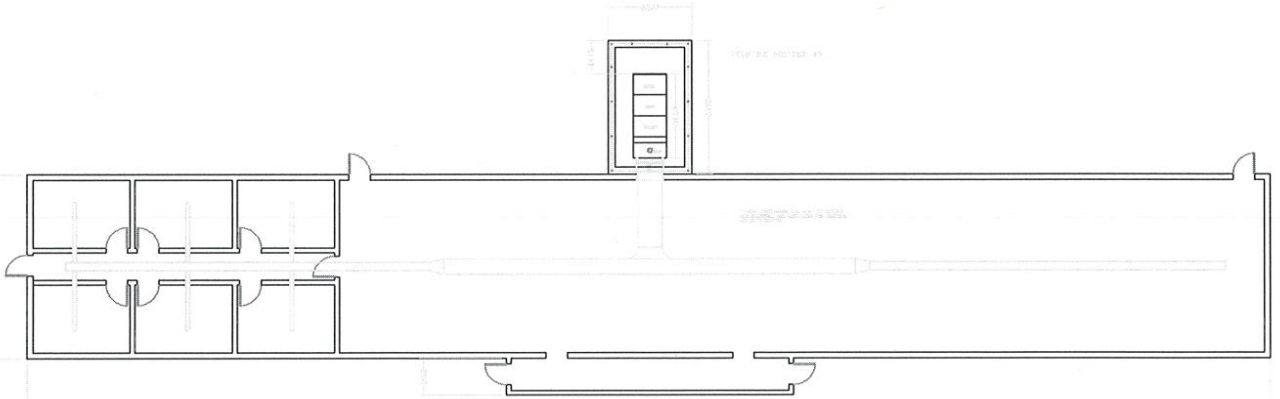
M. HORTON









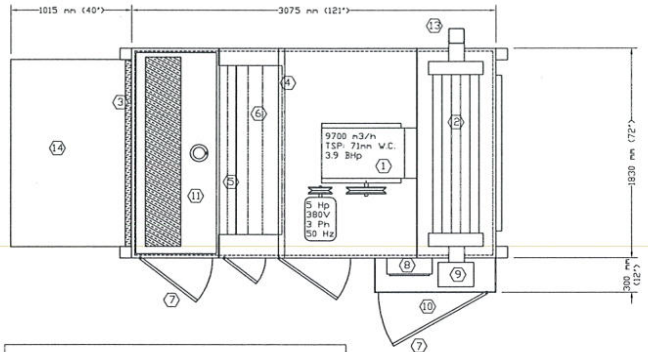


HEAT DESIGN FOR ANA MILITARY COMPOUNDS.

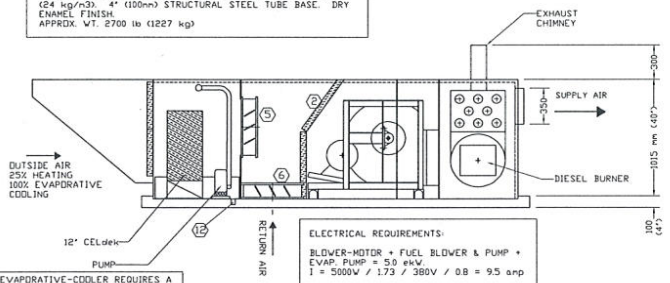
TYPICAL DUCT-WORK FOR BARRACKS.

File :: ANA HEAT-COOL DUCT-01 :: 16 DEC 06

M. HORTON



CONSTRUCTION: 18g (1.3mm) CASING. 22g (0.85mm) LINER IN HEAT EXCHANGER SECTION. INSULATION, 1" (25mm) @ 1.5 lb/ft3 (24 kg/m3). 4" (100mm) STRUCTURAL STEEL TUBE BASE. DRY ENAMEL FINISH.
APPROX. WT. 2700 lb (1227 kg)



THE EVAPORATIVE-COOLER REQUIRES A 20mm WATER SUPPLY PIPE, AND A 20mm BLEED-OFF DRIAN PIPE TO A DRAIN-PIT.

ELECTRICAL REQUIREMENTS:

BLOWER-MOTOR + FUEL BLOWER & PUMP + EVAP. PUMP = 5.0 ekW
I = 5000W / 1.73 / 380V / 0.8 = 9.5 amp

AAON MODEL: DT-30/SW/HV : 102 tkW INPUT
SCALE X 2

THE HEAT-COOL-UNIT MUST BE FACTORY BUILT FROM A SINGLE MANUFACTURER.

AAON MODEL No: DT-30/SW/HV, AAON INTERNATIONAL = OR EQUAL = E-mail ABILLDK@WORLDNET.ATT.NET = TEL: USA, 623-433-9880	
1	S/A FAN & MOTOR: 5700 cfm (9700 m3/h, 2.69 m3/s) @ ESP 0.5" (13mm) W.C. TSP 2.80" (71mm) W.C./ FAN SIZE 18/13 (460/330), DIDW, 3.9 BHp (2.91 BKw) MOTOR 5 Hp (3.73 Kw), 2 SPEED, 380v/3/50Hz, TEFC, MIN. 40°C AMBIENT
2	AAON INDIRECT-FIRED STAINLESS-STEEL HEAT EXCHANGER. INPUT 350 MBH (102 TKw), DIESEL FUEL/ AIR TEMP. RISE 48 °F (27 °C)
3	2" (50mm) 30% EFF WASHABLE PRE-FILTERS.
4	2" (50mm) 30% EFF. PLEATED FINAL-FILTERS.
5	OUTSIDE AIR DAMPER with ACTUATOR.
6	RETURN AIR DAMPER with ACTUATOR.
7	ACCESS DOORS (TYP), HINGED with CAMLOCK
8	ELECTRICAL PANEL
9	DIESEL FUEL BURNER - RIELLO 40 (No. 2 FUEL OIL); FIRING RATE 1.45 TO 2.95 gph (5.49 TO 11.17 lt/hr); CAPACITY 203 TO 413 MBH (60 TO 120 tkW) FUEL PRESSURE 100 TO 200 psig (690 TO 1380 KPa).
10	ELECTRICAL & PIPING VESTIBULE
11	EVAPORATIVE COOLING SECTION, EVAP. PADS: 12" CELdek MEDIA @ 85% EFF. Complete with WATER-PUMP, FLOAT-VALVE, DISTRIBUTORS & PIPE.
12	STAINLESS-STEEL SUMP TANK with 3/4" NPT DRAIN PIPE & BLEED-OFF OVERFLOW (to prevent mineral build-up in evap. water).
13	BURNER EXHAUST CHIMNEY 5" X 5 " (125 X 125 mm).
14	OUTDOOR AIR INTAKE HOOD with BIRDSCREEN.

AAON MODEL No. DT-30/SW/HV (DWG: PDM-3788), WT. 2700 lb (1230 Kg)
CONTACT: ANDREW J. BILLDK, AAON INTERNATIONAL; AJB ASSOCIATES, INC.
3120 WEST CAREFREE HIGHWAY, PHOENIX, AZ 85086; TEL: 623-433-9880
E-MAIL: ABILLDK@WORLDNET.ATT.NET
HEAT-COOL-UNITS MANUFACTURED BY AAON CANADA, LEAD TIME 16 TO 18 WEEKS FOR UP TO 100 UNITS ORDERED AT ONE TIME. FACTORY IS LOCATED IN BURLINGTON, ONTARIO, CANADA.

NOTE: SIZING CALC'S ARE GENERAL, AND NOT FOR ANY PARTICULAR HEAT-COOL-UNIT

********** SIZING CALCULATIONS **********

AIR HANDLING HEATER UNIT RATING (INPUT)
350,000 Btu/h / 3413 = 103 tkW = 0.80 eff = 82 tkW OUT
DIESEL HHV: 44.8 mj/kg = 238.9 Kcal/mj = 0.86 kg/lt / 860 Kcal/hr/tkW = 10.7 tkW-h/lt Fuel = 0.80 heater eff = 8.56 tkW-h/output)/lt Fuel

MAX FUEL RATE = 82 tkW / 8.56 tkW-h/lt = 9.58 lt/h = 24 hr/day = 230 lt/day = TANK, 600 lt / 230 = 2.6 days

REQUIRED AIR FLOW @ dt = 25 °C (RANGE dt 10 to 35 °C)
TYPICAL: SUPPLY AIR 45 °C, RETURN AIR 20 °C
AIR FLOW: Q=3/s) = 82 tkW / 1.22 / 25 °C = 2.69 m3/s (CFM = 2.18 * 2.69 m3/s = 5,700 CFM)
SUPPLY & RETURN AIR DUCTS: 1.024 m X 0.35 m = 0.358 m2 EQUIV. DIA = 1.3 * (1.024 * 0.35)^0.625 / (1.024 + 0.35)^0.25 = 10.632 m dia)^2 * 0.785 = 0.314 m2 EQUAL FRICTION
ACTUAL AIR VEL. = 2.69 m3/s / 0.358 m2 = 7.51 m/s (1480 fpm) (TYPICAL: APART. = 1500 fpm; GEN OFFICE = 2200 fpm)
FRICTION VEL = 2.69 m3/s / 0.314 m2 = 8.57 m/s
DUCT PRESS. LOSS: p(Pa/m) = 0.0112 * (8.57 m/s)^2.43 * 1 m / (2.69 m3/s)^0.61 * 113 Pa/m = 0.102 = 0.116 mmW.C. / 1m
m OF EQUIVALENT LENGTH

82 tkW out / 0.15 tkW = 547 m2 floor
2.69 m3/s air / 547 m2 = 0.00492 m3/s /m2
0.00492 * 3600 s/h = 18 m3/h / m2 floor
EVAPORATIVE COOLING AIR FLOW

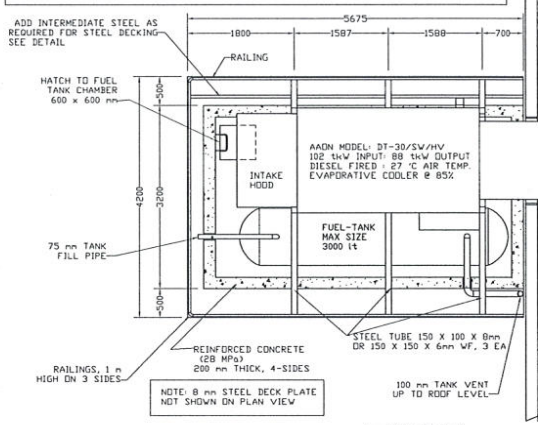
INTERNATIONAL MECHANICAL CODE, 2000

SECT 918.2: MINIMUM AREA OUTSIDE & RETURN AIR DUCTS, WARM-AIR FURNACE, NOT LESS THAN 4402 mm2/tkW OUTPUT RATING.
UNIT: 350,000 Btu/h / 3413 *0.8 eff = 82 tkW

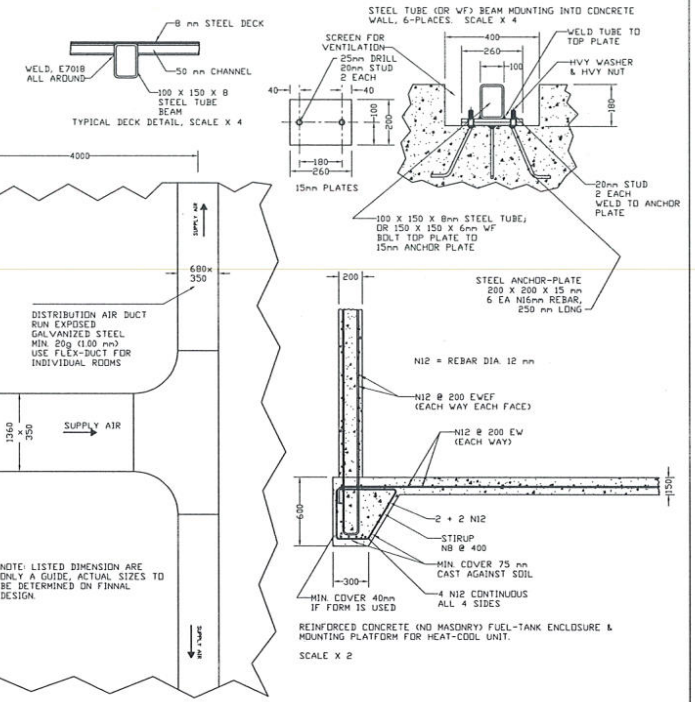
REQUIRED AREA = 4402 mm2/tkW * 82 tkW = 361,000 mm2

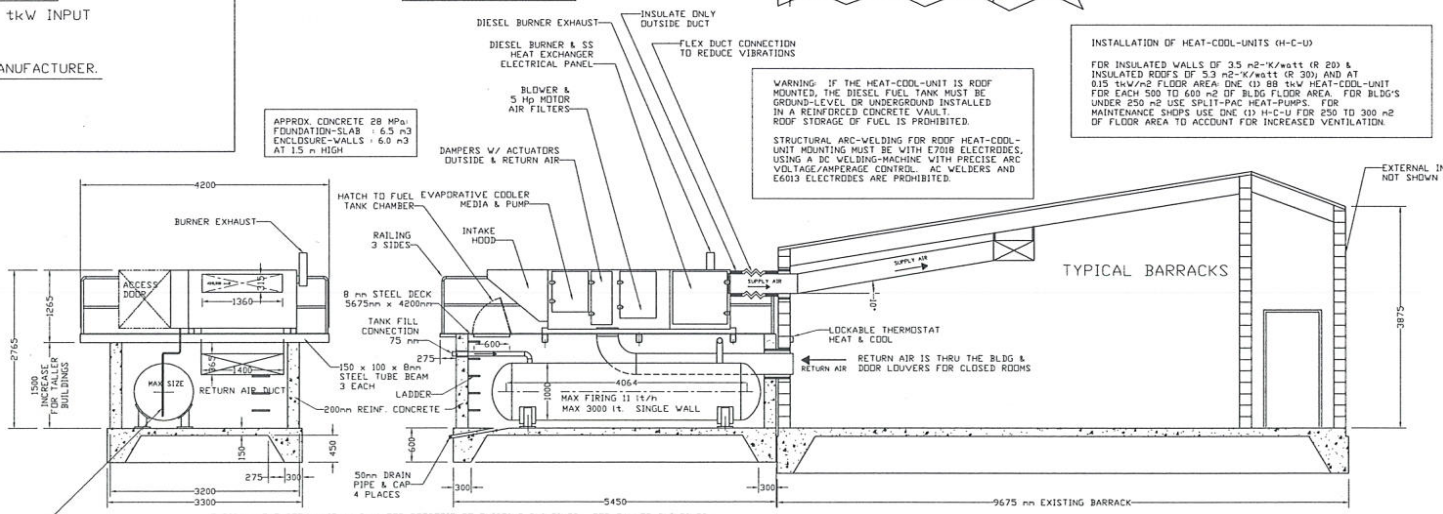
AVAIL. AREA = 1024mm * 355mm = 364,000 mm2

COOLING PREDICTED CAPACITY AT db = 35 °C & wb = 24 °c; EVAP. EFF. = 0.82; & 2.69 m3/s FLOW q = 1.22 * 2.69 m3/s * (35 - 24)°C * 0.82 = 29.6 tkW * 0.284 ton/tkW = 8.4 ton COOLING



NOTE: 8 mm STEEL DECK PLATE NOT SHOWN ON PLAN VIEW





TYPICAL HEAT-COOL-UNIT (H-C-U) FOR RETROFIT TO EXISTING BUILDINGS. FOR TALLER BUILDINGS, INCREASE THE HEIGHT OF THE CONCRETE ENCLOSURE, OR USE A "S" GOOSE-NECK SUPPLY DUCT. NEW CONSTRUCTION CAN USE THIS ON-GRADE METHOD, OR BUILD A ROOF STRUCTURE TO MOUNT THE H-C-U ON THE ROOF, WITH A GRADE OR UNDERGROUND FUEL-STORAGE TANK IN A CONCRETE VAULT (ENCLOSURE). NO FUEL-TANK SHALL BE MOUNTED ON THE ROOF. H-C-U ROOF STRUCTURE REQUIRES E7018, DC WELDING. THE CONCRETE ENCLOSURE MUST BE WATER-TIGHT. TO REPLACE THE FUEL-TANK REQUIRES TO REMOVE THE HEAT-COOL-UNIT AND THE STEEL DECK STRUCTURE. ACCESS TO THE FUEL-TANK IS THRU A DECK HATCH UNDER THE AIR INTAKE HOOD.

WARNING: IF THE HEAT-COOL-UNIT IS ROOF MOUNTED, THE DIESEL FUEL TANK MUST BE GROUND-LEVEL OR UNDERGROUND INSTALLED IN A REINFORCED CONCRETE VAULT. ROOF STORAGE OF FUEL IS PROHIBITED.

STRUCTURAL ARC-WELDING FOR ROOF HEAT-COOL-UNIT MOUNTING MUST BE WITH E7018 ELECTRODES, USING A DC WELDING-MACHINE WITH PRECISE ARC VOLTAGE/AMPERAGE CONTROL. AC WELDERS AND E6013 ELECTRODES ARE PROHIBITED.

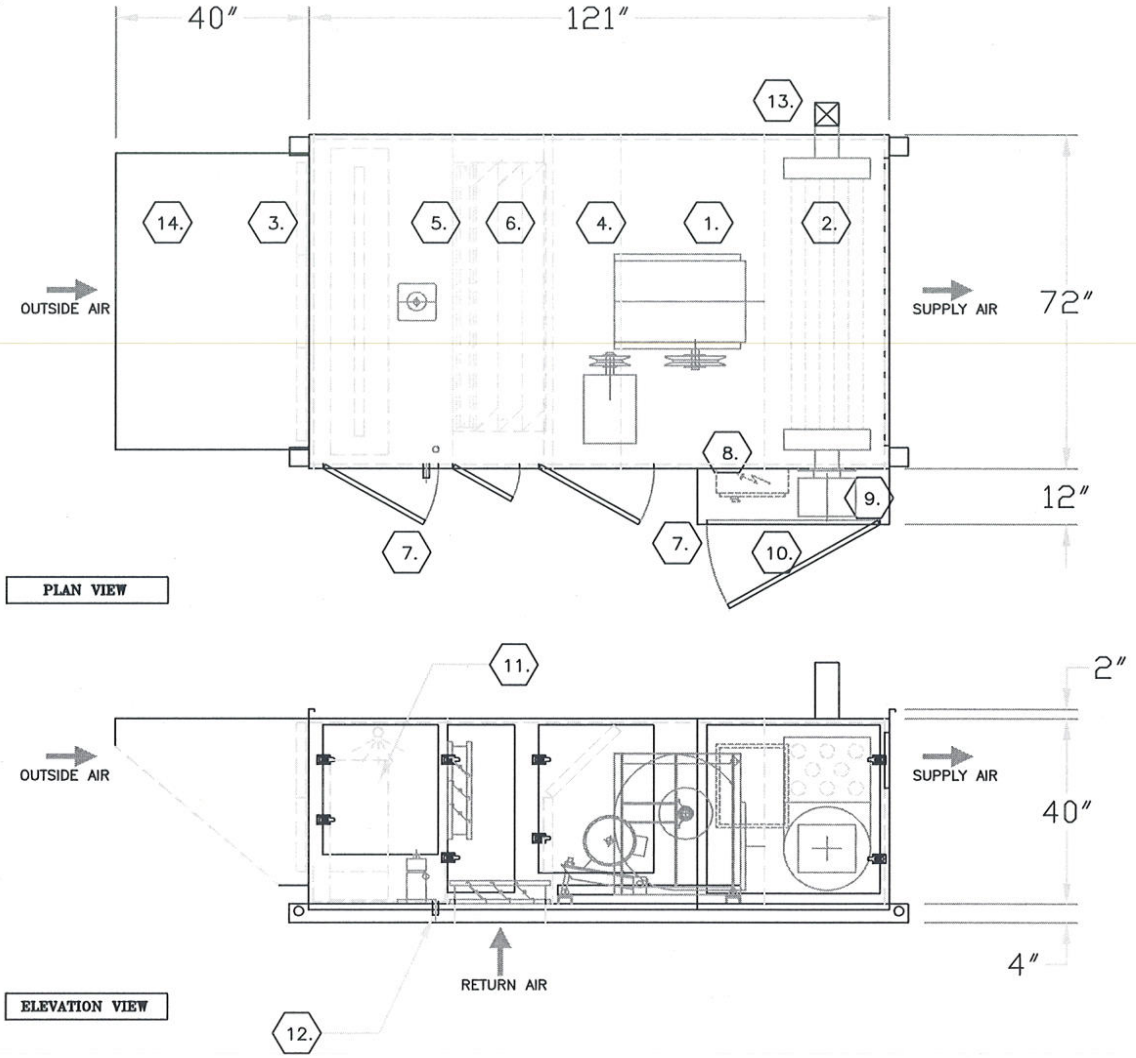
INSTALLATION OF HEAT-COOL-UNITS (H-C-U)

FOR INSULATED WALLS OF 3.5 m2-°K/watt (R 20) & INSULATED ROOFS OF 5.3 m2-°K/watt (R 30); AND AT 0.15 tkW/m2 FLOOR AREA: ONE (1) 88 tkW HEAT-COOL-UNIT FOR EACH 500 TO 600 m2 OF BLDG FLOOR AREA. FOR BLDG'S UNDER 250 m2 USE SPLIT-PAC HEAT-PUMPS. FOR MAINTENANCE SHOPS USE ONE (1) H-C-U FOR 250 TO 300 m2 OF FLOOR AREA TO ACCOUNT FOR INCREASED VENTILATION.

HEAT-COOL-UNIT CONCEPT DRAWING BASED ON AAON DT-30/SW/HV OR EQUAL EQUIPMENT. ACTUAL FIELD DIMENSIONS & DETAILS WILL VARY DEPENDING ON HEAT-COOL-UNIT AND TYPE & SIZE OF BLDG.

HEAT-COOL-UNIT (DIESEL-FIRED & EVAPORATIVE-COOLED)
File= ANA HEAT-COOL DESIGN-01 = 10 DEC 06
M. HORTON = (CLARIFICATIONS 29 MAR 07) = MRH

PROPOSAL DRAWING



1.	S/A FAN & MOTOR ASSEMBLY: SUPPLY AIR: 5,700 CFM ESP: 0.50" W.C. TSP: 2.80" W.C. FAN SIZE: 18/13 FC, DIDW BHP: 3.9 MOTOR: 5 hp, 2–SPEED, 380V/3/50HZ
2.	AAON INDIRECT–FIRED SS. HEAT EXCHANGER INPUT: 350 MBH OUTPUT: 300 MBH DIESEL FUEL TEMP. RISE: 48 F
3.	2", 30% EFF. WASHABLE PRE–FILTERS
4.	2", 30% EFF. PLEATED FINAL–FILTERS
5.	OUTSIDE AIR DAMPER c/w ACTUATOR
6.	RETURN AIR DAMPER c/w ACTUATOR
7.	ACCESS DOORS (TYP.) TYPE: HINGED c/w CAMLOCK
8.	ELECTRICAL PANEL
9.	DIESEL FUEL BURNER – RIELLO 40 (NO. 2 FUEL OIL BURNER) FIRING RATE: 1.45 – 2.95 GPH CAPACITY: 203 – 413 MBH PRESS. 100 – 200 PSIG
10.	ELECTRICAL & PIPING VESTIBULE
11.	EVAPORATIVE COOLING SECTION EVAP.PADS: 12" CELdek MEDIA % EFF.: 85% c/w WATER PUMP, FLOAT–VALVE, DISTRIBUTOR(S) and PIPE
12.	SS. SUMP TANK c/w 3/4" NPT DRAIN PIPE and BLEED–OFF OVERFLOW
13.	OUTDOOR CHIMNEY: 5" X 5"
14.	OUTDOOR AIR INTAKE HOOD c/w BIRDSCREEN

CONSTRUCTION:
18 GA. CASING
22 GA. LINER IN HEAT EXCHANGER SECTION
1", 1 1/2 lbs/cu.ft INSULATION
4", STRUCTURAL STEEL TUBE BASE
AIR DRY ENAMEL GREY FINISH

APPROX.WEIGHT: 2,700 LBS

AAON®

PROJECT NAME:
ANA

MODEL No: **DT–30/SW/HV.**

DATE:	DWG No: **PDM–3788**	TAG No: **MUA**
02/14/07	DRN BY: **G.L.**	REVISION No: **--**

NO.	BY:	DATE:	REVISION:

Appendix B

Data

KANDAHAR

Roof Metal Flat
Ext Wall CMU Wood Partition

Bldg#		Note	Area(M2)	Roof	Wall
100	Corps Headquarters		552	Metal	CMU
101	Brigade Headquarters		552	Metal	CMU
102	Garrison Headquarters		990	Metal	CMU
103	Communication Building		278	Metal	CMU
105	Guard shack (main gate)	@	8.7	Metal	CMU
106	Reception Center	@	88	Metal	CMU
200	Barracks		436	Metal	CMU
201	Toilet/Showers		470	Metal	CMU
202	Barracks		436	Metal	CMU
203	Barracks		436	Metal	CMU
204	Barracks		436	Metal	CMU
205	Barracks		436	Metal	CMU
206	Storage Building		800	Metal	CMU
208	Battalion Headquarters		341	Metal	CMU
209	Storage Building	@	800	Metal	CMU
211	Barracks		436	Metal	CMU
212	Toilet/Showers		470	Metal	CMU
213	Barracks		436	Metal	CMU
214	Barracks		436	Metal	CMU
215	Barracks		436	Metal	CMU
216	Barracks		436	Metal	CMU
217	Battalion Headquarters		341	Metal	CMU
218	Barracks		436	Metal	CMU
219	Central Motor Pool		13100	--	--
220	Central Maintenance Garage		1395	Metal	CMU
221	Water Booster Pump	@	82	Metal	CMU
222	Fire Station	@	129	Metal	CMU
223	Central Receiving		1520	Metal	CMU
300	Motor Pool		1000	--	--
301	CS Maintenance Garage		624	Metal	CMU
302	CSS Motor Pool		2000	--	--
303	CSS Maintenance Garage		1395	Metal	CMU
306	Storage Building	@	800	Metal	CMU
307	Barracks		436	Metal	CMU
308	Toilet/Showers		470	Metal	CMU
309	Barracks		436	Metal	CMU
310	Barracks		436	Metal	CMU
311	Barracks		436	Metal	CMU
312	Barracks		436	Metal	CMU
313	Barracks		436	Metal	CMU
314	Barracks		436	Metal	CMU
315	Barracks		436	Metal	CMU
316	Battalion HQ		341	Metal	CMU
317	Trash Point	#	117	--	Wood
318	Class VIII Warehouse	#	800	Metal	CMU
319	BOQ4		477	Metal	CMU
320	BOQ3		522	Metal	CMU

@=insulation only, no HVAC upgrade
#= No work on this facility
Contractor is responsible to verify all data and quantities before bid.

Bldg#		Note	Area(M2)	Roof	Wall
321	BOQ3		477	Metal	CMU
322	BOQ2		477	Metal	CMU
323	BOQ1		477	Metal	CMU
324	BOQ1		477	Metal	CMU
325	BOQ1		789	Metal	CMU
326	BOQ1		683	Metal	CMU
327	BOQ1		683	Metal	CMU
400	Training building		1202	Metal	CMU
402	Dining Facility (DFAC)		2088	Concrete	CMU
405	Battalion Storage Bldg.		800	Metal	CMU
406	Barracks		436	Metal	CMU
407	Toilet/Showers		470	Metal	CMU
408	Barracks		436	Metal	CMU
409	Barracks		436	Metal	CMU
410	Barracks		436	Metal	CMU
411	Barracks		436	Metal	CMU
412	Barracks		436	Metal	CMU
413	Barracks		436	Metal	CMU
414	Barracks		436	Metal	CMU
415	Battalion HQ		341	Metal	CMU
417	Battalion Storage Bldg.	@	800	Metal	CMU
418	Barracks		436	Metal	CMU
419	Toilet/Showers		470	Metal	CMU
420	Barracks		436	Metal	CMU
421	Barracks		436	Metal	CMU
422	Barracks		436	Metal	CMU
423	Barracks		436	Metal	CMU
424	Barracks		436	Metal	CMU
425	Barracks		436	Metal	CMU
426	Barracks		436	Metal	CMU
427	Battalion HQ		341	Metal	CMU
428	Senior NCO Barracks		436	Metal	CMU
429	Toilet/Showers		470	Metal	CMU
430	Barracks		436	Metal	CMU
431	Barracks		436	Metal	CMU
432	Barracks		436	Metal	CMU
433	Barracks		436	Metal	CMU
434	Barracks		436	Metal	CMU
435	Barracks		436	Metal	CMU
436	Barracks		436	Metal	CMU
437	Arms Room Building		350	Metal	CMU
438	Arms Supply Building		350	Metal	CMU
439	Trash Point	#	117	--	Wood
440	Motor Pool		15600	--	--
441	Corps Motor Pool		3100	--	--
442	Garrison Maintenance Garage		1395	Metal	CMU
443	Brigade Motor Pool		1500	Metal	CMU
444	Refueling Point	#	105	--	--
500	Helipad	#	900	--	--
700	Power Plant	#	711	Metal	CMU

@=insulation only, no HVAC upgrade
#= No work on this facility
Contractor is responsible to verify all data and quantities before bid.

Bldg#		Note	Area(M2)	Roof	Wall
800	Waste water treatment bldg	@	86	Metal	CMU
--	Perimeter Fence	#	2750 LM	--	--
--	Stone Wall	#	1650 LM	--	Stone
--	Well pump house	#	50 SM	Metal	CMU
--	(2) Water storage tanks	#	500,000 L	--	--
--	Paved Roads	#	43,176 SM	--	--
--	water pipeline	#	10 km	--	--
107-119	Guard Towers (12 ea)	@	8	Concrete	CMU
16 structures					
219A	Central POL Storage	@	25	Concrete	CMU
300A	POL Storage Bldg.	@	25	Concrete	CMU
302A	POL Storage Bldg.	@	25	Concrete	CMU
304A	POL Storage Bldg.	@	25	Concrete	CMU
402A	DFAC Trash Point	#	117	--	Wood
402B	Tea station	@	47	Metal	CMU
440A	POL Storage Bldg.	@	25	Concrete	CMU
441A	Corps POL Storage Bldg.	@	25	Concrete	CMU
443A	POL Storage Bldg.	@	25	Concrete	CMU
445A	POL Storage Bldg.	@	25	Metal	CMU
446A	POL Storage Bldg.	@	25	Metal	CMU
	Other Buildings				
	Regional Hospital	@	2450	Metal	CMU

DFAC, If kitchen already has HVAC ducted system, then only provide new ducted system for dining area.

@=insulation only, no HVAC upgrade
#= No work on this facility
Contractor is responsible to verify all data and quantities before bid.

QUESTIONS & ANSWERS (Q&A)
ANA Heating and Cooling Upgrades Laskar Gah and Kandahar, Afghanistan
(Questions & Answers provided for informational purposes only)
If any Government responses indicate a change to the technical proposal, it is not official until and amendment is issued)
27 June 2007

Q- Questions
A- Answers

Question:
Will there be a site visit.

Answer:
Yes.
Lashkar Gah site visit is Saturaday, June 30, 2007, 10am-12noon (POC is Ray Reed, Cell # is 0707414321).
Kandahar site visit is scheduled for Sunday, July 1, 2007, 10am-12noon (POC is Larry Bean, Cell # is 070 033 4625)

Question:
I would need some further clarification on the following

Code requirements for fuel lines will, regardless of which of the approaches described in the RFP, require welders rated in fuel line work. Will this be adhered to, or will companies be allowed to use regular local welders given the scarcity of documented welders in Afghanistan?

Answer:
Attached is the welder qualification section for fuel oil piping. The answer is "yes", the Contractor must obtain the services of a qualified welder.

Question:
1) Should window effects on R value of the wall be included in the overall calculation of the total wall R-factor?

Answer:
Yes.

Question:
2) The request notes that the contractor will be responsible for testing and balancing (TAB) of the duct system. Under SMACNA, which is the relevant spec in the solicitation, the contractor would be required to bring in and external TAB firm for the balancing to verify the system. Will the SMACNA requirement hold in this case or the scope as described?

Answer:
SMACNA requirements will govern.

Question:
3)Evaporation coolers will require constant feed of water. Have the facilities been checked to see if the current well pump set ups are sufficient for the increased load?

Answer:
No. The SOW states that the Contractor shall tap into the nearest water line that is large enough to support the evaporative cooler needs.

Question:
4)Several of the ANA facilities have high salt content in the water systems. This is generally handled by the constant flow of water through the system, however, the higher than 40deg C temperatures that will be designed for will require higher flows than most commercially available systems are designed to. Will this be taken into account in the technical review, as additional design may have to be done to modify systems to avoid maintenance problems with the system?

Answer:
Yes, we will evaluate as needed.

Question:
5)Will COE supply typical salt content of the water systems of the two facilities so that evaporator cooler suppliers may take this into account when asked for equipment quotes?

Answer:
No. We will ask the Contractor to provide the testing and to have the manufacturer provide recommendations based on the water test data.