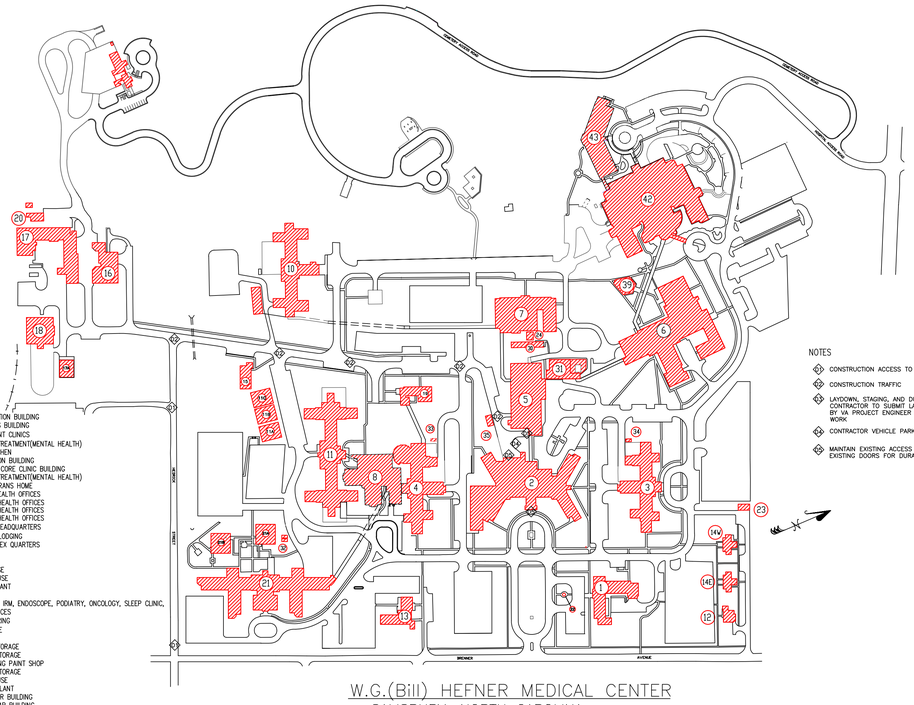
DEPARTMENT OF VETERANS AFFAIRS BUILDING 2 ENERGY RECLAIMING ROOF UNITS

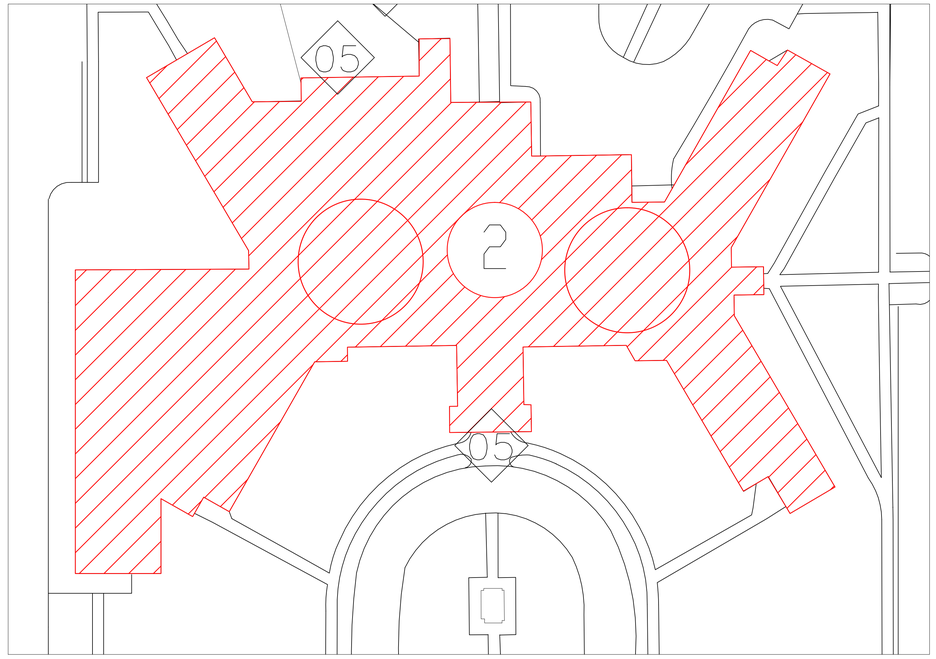


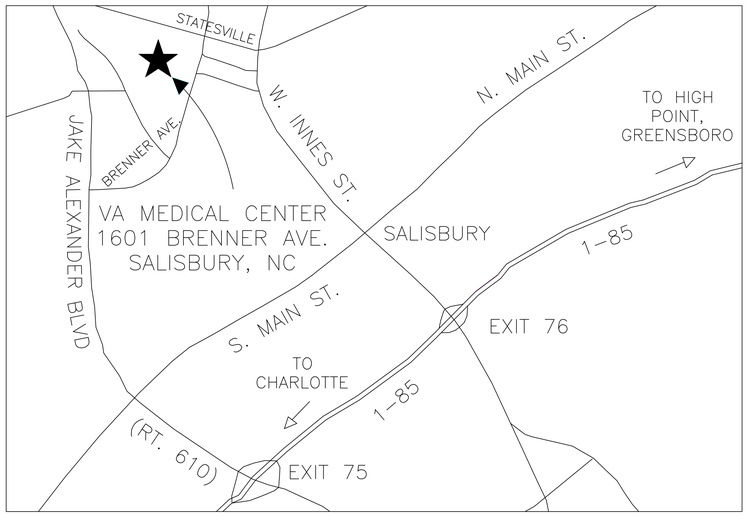
BUILDINGS
1. ADMINISTATION BUILDING
2. G. M. & S BUILDING
3. OUTPATIENT CLINICS
4. PATIENT TREATMENT(MENTAL HEALTH)
5. MAIN KITCHEN
6. RECREATION BUILDING
7. R.M.S & CORE CLINIC BUILDING
8. PATIENT TREATMENT(MENTAL HEALTH)
10. N.C. VETERANS HOME
11. MENTAL HEALTH OFFICES
11A. MENTAL HEALTH OFFICES
11B. MENTAL HEALTH OFFICES
11C. MENTAL HEALTH OFFICES
12. POLICE HEADQUARTERS
13. STUDENT LODGING
14. E&M DUPLEX QUARTERS
15. VISIN
16. LAUNDRY
17. WAREHOUSE
17A. WAREHOUSE
18. BOILER PLANT
19. CHAPEL
21. LOGISTICS, RM, ENDOSCOPE, PODIATRY, ONCOLOGY, SLEEP CLINIC,
21A. FEE BASICES
21B. ENGINEERING
22. FLAG POLE
23. GARAGES
24. R.M.&S. STORAGE
25. R.M.&S. STORAGE
28. ENGINEERING PAINT SHOP
29. R.M.&S. STORAGE
30. GREENHOUSE
31. CHILLER PLANT
32. GENERATOR BUILDING
33. SWITCHGEAR BUILDING
34. GENERATOR BUILDING
35. GENERATOR BUILDING
36. GENERATOR BUILDING
37. GENERATOR BUILDING
38. GENERATOR BUILDING
39. PICNIC SHELTER
40. GROUNDS STORAGE SHELTER
41. NCA SHELTER
42. GEROPSYCHIATRIC BUILDING
43. HOSPICES BUILDING

W.G.(Bill) HEFNER MEDICAL CENTER
SALISBURY, NORTH CAROLINA

NOTES

1. CONSTRUCTION ACCESS TO CAMPUS
2. CONSTRUCTION TRAFFIC
3. LAYDOWN, STAGING, AND DUMPSTER AREA – CONTRACTOR TO SUBMIT LAYDOWN PLAN FOR APPROVAL BY VA PROJECT ENGINEER PRIOR TO START OF ANY WORK
4. CONTRACTOR VEHICLE PARKING
5. MAINTAIN EXISTING ACCESS TO AND EGRESS FROM EXISTING DOORS FOR DURATION OF PROJECT.



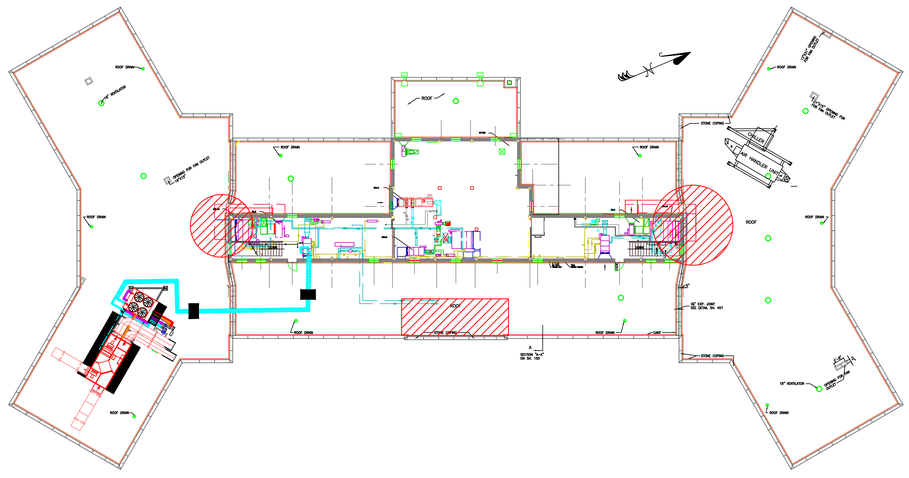


Contractor to remove existing energy reclaiming units, exhaust ducting, intake ducting and metal support structure from roof for exhaust fans #8 & #5 and Air handler # 12 & #14.

The contractor shall install new energy reclaiming unit with accessible filters, Insulated ducting, automatic louvers, temperature/pressure operated bypass louvers connected into the existing control systems, access hatches, structural supports access ladders with cat walks hand rails and grading per drawing. the unit shall be of the same manufacture and be rated for out door use. all electrical work shall be installed for out door use. Units shall be installed rated to the fans that they will be affecting.

The contractor shall insure sequence of operation through current control system.

The contractor shall install an access walk across the support structure of the OR chiller units for safe transit.



Revision	Date

RECOMMEND APPROVAL

REQUESTER	Date		
CHIEF OF SERVICE	Date	CHIEF OF STAFF	Date
ASSOC. DIR. PATIENT CARE SVC.	Date	ASSOC. DIR. for OPERATIONS	Date
APPROVAL BY: MEDICAL CENTER DIRECTOR			Date

Drawing Title: COVER SHEET

Approved: Safety Manager/M&O Supervisor

Approved:Chief of Facilities Management Svr.

Project Title: BUILDING 2 ENERGY RECLAIMING UNITS REPLACEMENT

Building Number: 2 | Checked: XXX | Drawn: NEJ

Location: W.G.(Bill) Hefner Medical Center, 1601 Brenner Ave., Salisbury NC 28144

Date: 11/15/2012

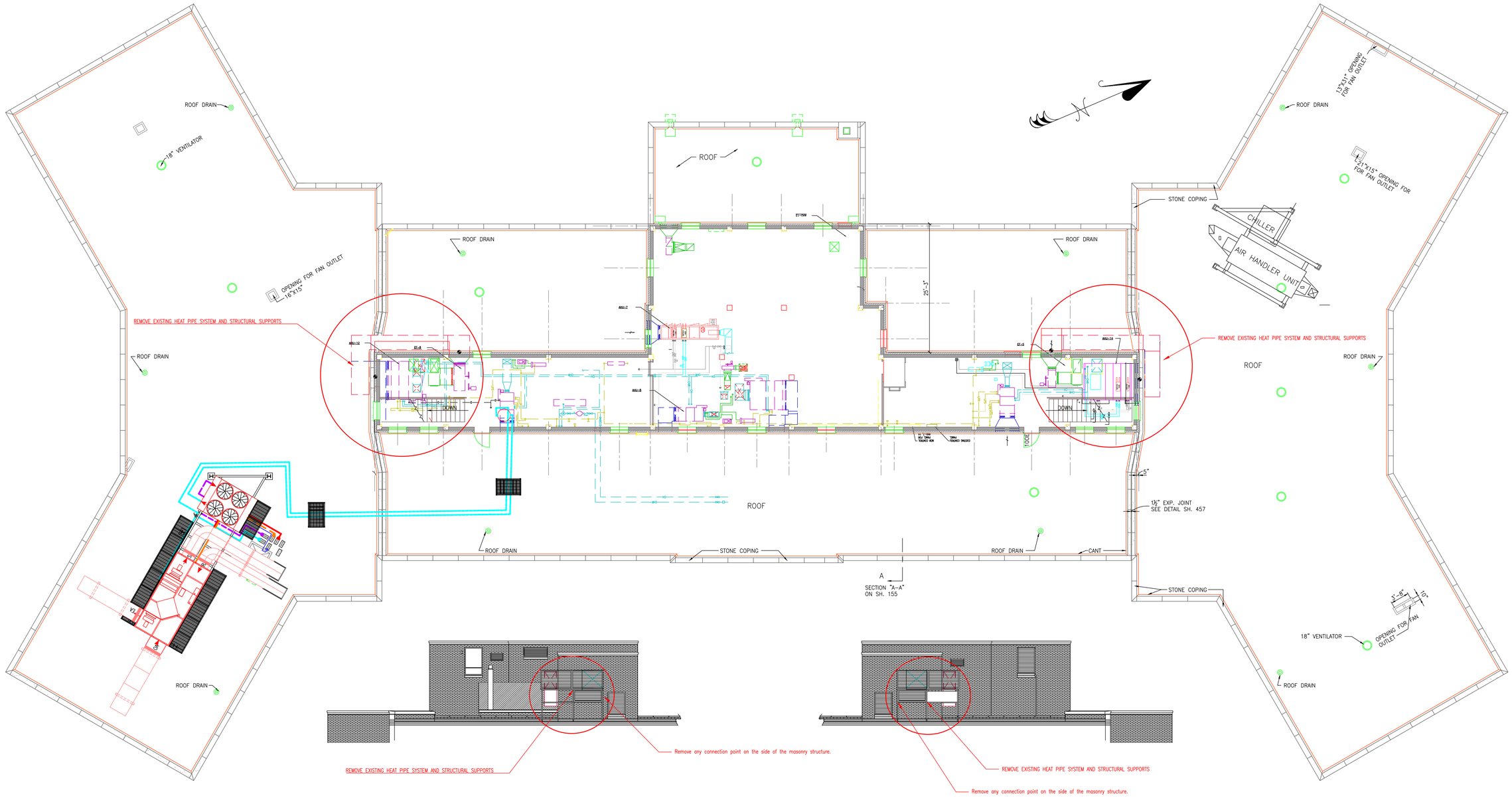
Project No. 659-13-202

DRAWING NO. G-000

DWG. 1 OF 7

Office of Facilities

Department of Veterans Affairs



Starting point

Remove existing heat re-clamers and associated support structure. remove unnecessary ducting to allow for clean and neat connection point for new ducting. clean exterior wall of any un used fastening point and fill with appropriate filler. seal around duct where duct penetrates wall and insure there is no water infiltration. Seal/ repair roofing where old structural supports are removed. Prepare roof for new Mechanical support curbing and duct support.

Drawings are to be used for reference only contractor responsible to check dimensions for proper installation.

Revision	Date

RECOMMEND APPROVAL

REQUESTER	Date		
CHIEF OF SERVICE	Date	CHIEF OF STAFF	Date
ASSOC. DIR. PATIENT CARE SVC.	Date	ASSOC. DIR. for OPERATIONS	Date
APPROVAL BY: MEDICAL CENTER DIRECTOR			Date

Drawing Title: DEMOLITION

Approved: Safety Manager/M&O Supervisor

Approved:Chief of Facilities Management Svr.

Project Title: BUILDING 2 ENERGY RECLAIMING UNITS REPLACEMENT

Building Number: 2 | Checked: XXX | Drawn: NEJ

Location: W.G.(Bill) Hefner Medical Center, 1601 Brenner Ave., Salisbury NC 28144

Date: 11/15/2012

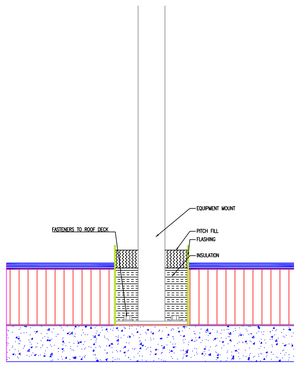
Project No. 659-13-202

DRAWING NO. D-100

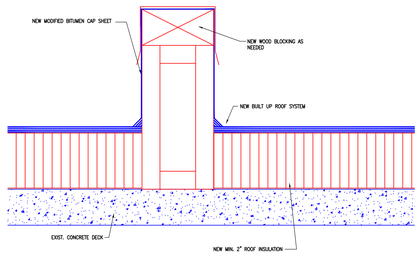
DWG. 2 OF 7

Office of Facilities

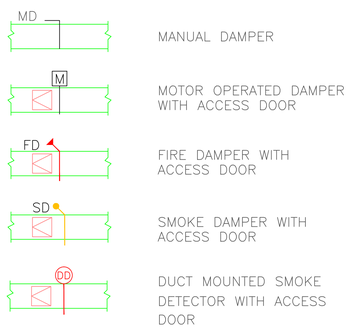
Department of Veterans Affairs



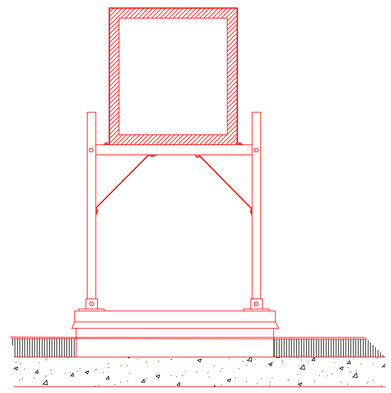
PITCH HOLE — NTS — 1



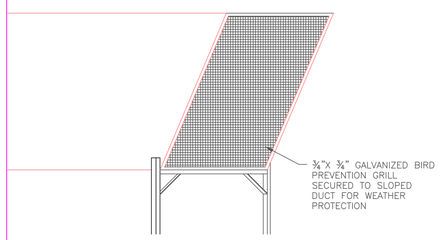
MECHANICAL ROOF CURB AND MOUNT — NTS — 2



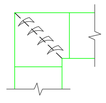
DUCTWORK — NTS — 3



ROOFTOP DUCT SUPPORT — NTS — 4



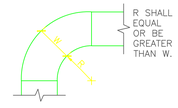
DUCT AIR ENTRANCE AND EXHAUST — NTS — 5



NOTE:

1. RECTANGULAR ELBOWS SHALL BE CONSTRUCTED AND INSTALLED AS DETAILED BY SMACNA.
2. RECTANGULAR ELBOWS SHALL BE CONSTRUCTED WITH MINIMUM 4" THROATS.
3. PROVIDE AIR FOIL DOUBLE WALL VANES. REFER TO SPECIFICATIONS.

DUCTWORK SQUARE VANED ELBOWS — NTS — 6

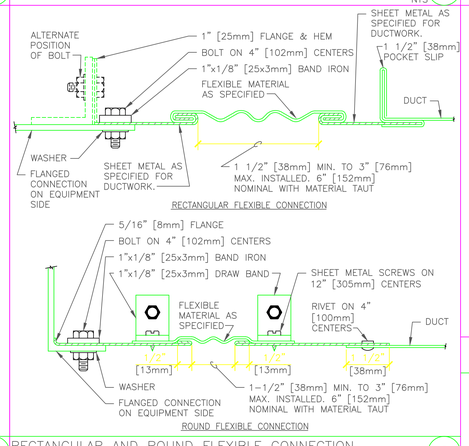


STANDARD RADIUS ELBOW

NOTE:

1. STANDARD RADIUS ELBOWS SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

DUCTWORK RADIUS ELBOWS — NTS — 7



RECTANGULAR AND ROUND FLEXIBLE CONNECTION DETAILS — NTS — 8

GENERAL NOTES

1. THE DRAWINGS SHALL NOT BE SCALED FOR CONSTRUCTION PURPOSES. THE SCALE, WHEN INDICATED IS INTENDED FOR GENERAL REFERENCE ONLY.
2. ALL SHUTDOWNS SHALL BE COORDINATED AND APPROVED THROUGH THE COTR AND WILL REQUIRE ADVANCE NOTICE OF 72 HOURS. THIS TIME LENGTH MAY BE LONGER OR SHORTER FOR SOME SHUTDOWNS AND SHALL BE AT THE COTR'S DISCRETION.
3. EXISTING PIPE OR DUCT INSULATION THAT IS DAMAGED DURING CONSTRUCTION SHALL BE REMOVED AND REPLACED WITH NEW INSULATION TO MATCH ADJACENT INSULATION AND COVERING.
4. INSTALL DUCTS THROUGH RATED PARTITIONS TO LEAVE A MINIMUM CLEARANCE OF 2 INCHES ABOVE THE DUCTS TO ALLOW THE GENERAL CONTRACTOR TO SEAL THE WALL ABOVE THE DUCTS. DO NOT INSTALL FLEXIBLE DUCT THROUGH RATED WALLS OR SMOKE PARTITIONS.
5. PROVIDE ACCESS DOORS AT ALL MOTOR OPERATED DAMPERS, FIRE DAMPERS, DUCT COILS, SMOKE DETECTORS, AND SIMILAR ITEMS REQUIRING MAINTENANCE INSPECTION OR ADJUSTMENT.
6. CONSTRUCTION DEBRIS SHALL BE REMOVED DAILY. EXCESS PIPING SHALL BE REMOVED FROM JOB SITE BY THE CONTRACTOR.

NTS

NOTES

1. ALL MATERIALS AND EQUIPMENT SHALL BE ON SITE BEFORE CONSTRUCTION MAY BEGIN.

Revision	Date

RECOMMEND APPROVAL

REQUESTER	Date		
CHIEF OF SERVICE	Date	CHIEF OF STAFF	Date
ASSOC. DIR. PATIENT CARE SVC.	Date	ASSOC. DIR. for OPERATIONS	Date
APPROVAL BY: MEDICAL CENTER DIRECTOR			Date

Drawing Title: CONSTRUCTION NOTES

Approved: Safety Manager/M&O Supervisor

Approved:Chief of Facilities Management Svr.

Project Title: BUILDING 2 ENERGY RECLAIMING UNITS REPLACEMENT

Building Number: 2 | Checked: XXX | Drawn: NEJ

Location: W.G.(Bill) Hefner Medical Center, 1601 Brenner Ave., Salisbury NC 28144

Date: 11/15/2012

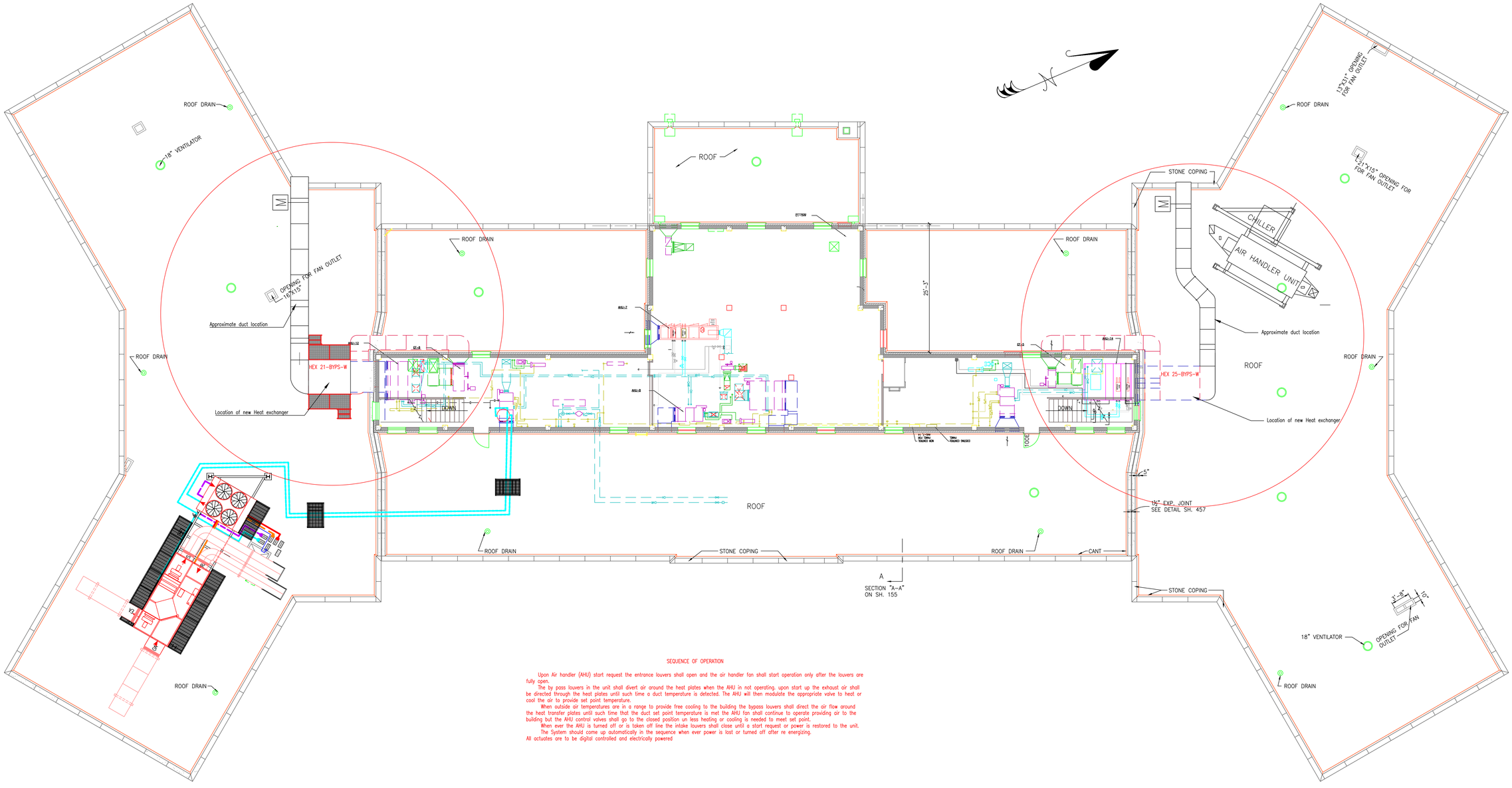
Project No. 659-13-202

DRAWING NO. M-100

DWG. 3 OF 7

Office of Facilities

Department of Veterans Affairs



SEQUENCE OF OPERATION

Upon Air handler (AHU) start request the entrance louvers shall open and the air handler fan shall start operation only after the louvers are fully open.

The by pass louvers in the unit shall divert air around the heat plates when the AHU in not operating. upon start up the exhaust air shall be directed through the heat plates until such time a duct temperature is detected. The AHU will then modulate the appropriate valve to heat or cool the air to provide set point temperature.

When outside air temperatures are in a range to provide free cooling to the building the bypass louvers shall direct the air flow around the heat transfer plates until such time that the duct set point temperature is met the AHU fan shall continue to operate providing air to the building but the AHU control valves shall go to the closed position un less heating or cooling is needed to meet set point.

When ever the AHU is turned off or is taken off line the intake louvers shall close until a start request or power is restored to the unit.

The System should come up automatically in the sequence when ever power is lost or turned off after re energizing.

All actuates are to be digital controlled and electrically powered

Drawings are to be used for reference only contractor responsible to check dimensions for proper installation.

Revision	Date

RECOMMEND APPROVAL

REQUESTER	Date		
CHIEF OF SERVICE	Date	CHIEF OF STAFF	Date
ASSOC. DIR. PATIENT CARE SVC.	Date	ASSOC. DIR. for OPERATIONS	Date
APPROVAL BY: MEDICAL CENTER DIRECTOR			Date

Drawing Title: ENERGY RECLAIMING UNIT ROOF TOP LAY OUT

Approved: Safety Manager/M&O Supervisor

Approved:Chief of Facilities Management Svr.

Project Title: BUILDING 2 ENERGY RECLAIMING UNITS REPLACEMENT

Building Number: 2 | Checked: XXX | Drawn: NEJ

Location: W.G.(Bill) Hefner Medical Center, 1601 Brenner Ave., Salisbury NC 28144

Date: 11/15/2012

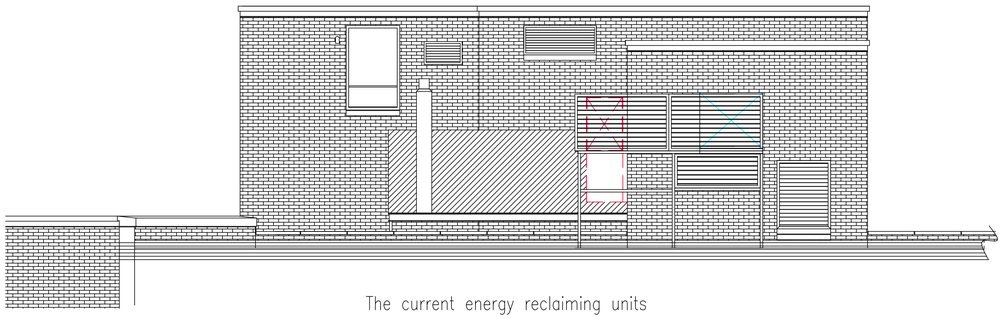
Project No. 659-13-202

DRAWING NO. M-101

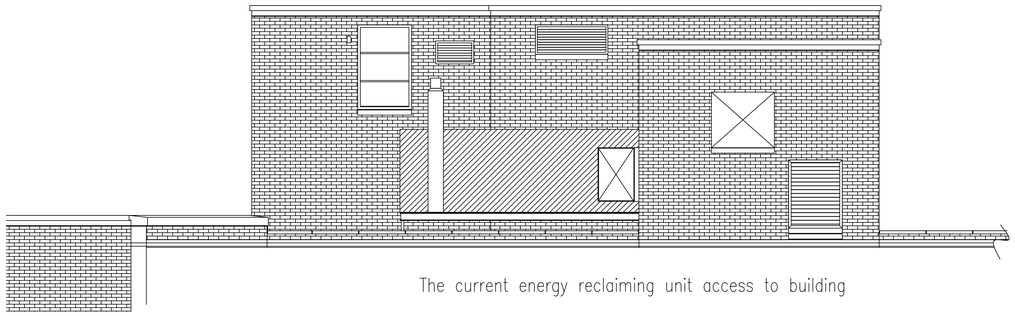
DWG. 4 OF 7

Office of Facilities

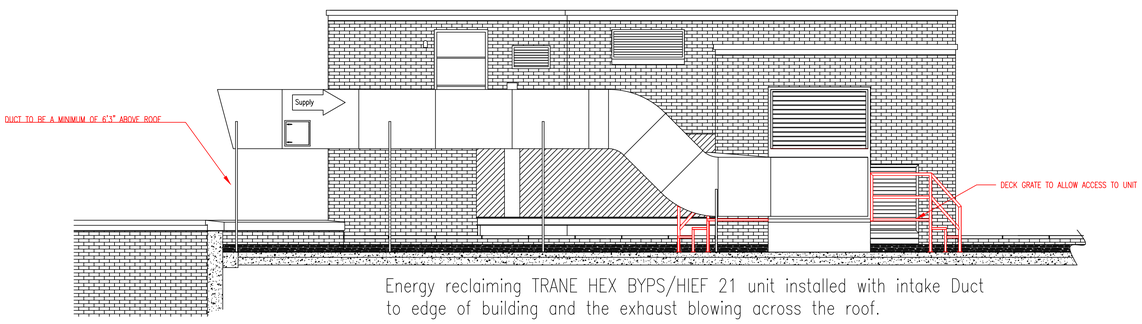
Department of Veterans Affairs



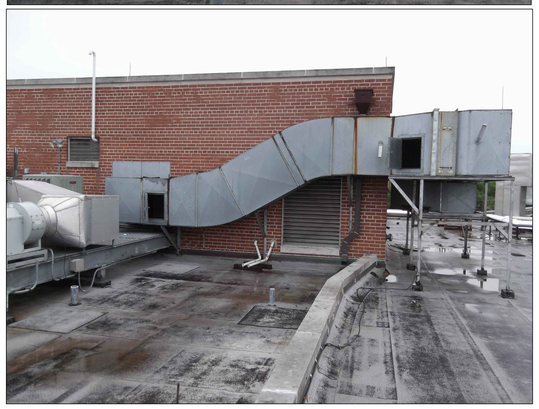
The current energy reclaiming units

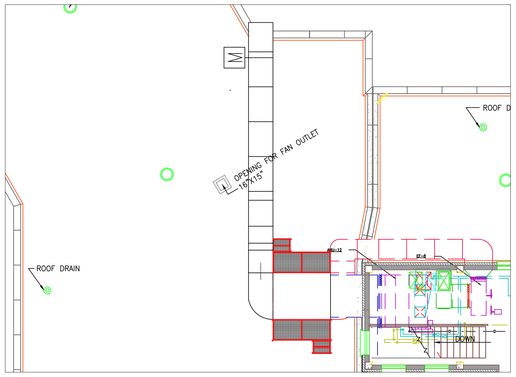


The current energy reclaiming unit access to building



Energy reclaiming TRANE HEX BYPS/HIEF 21 unit installed with intake Duct to edge of building and the exhaust blowing across the roof.





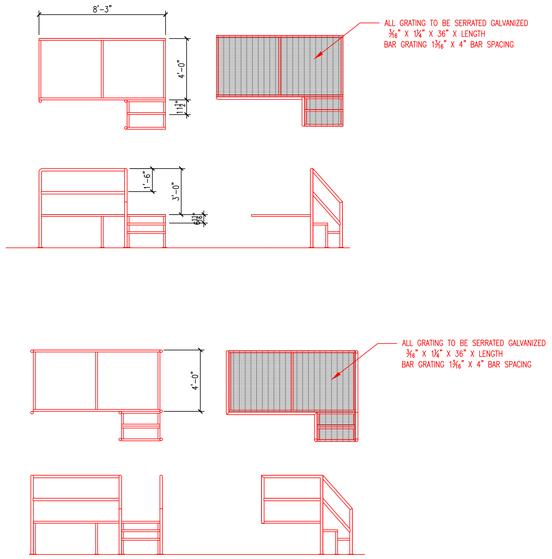
AHU-12 (Unit Size 21-BYPS-W)

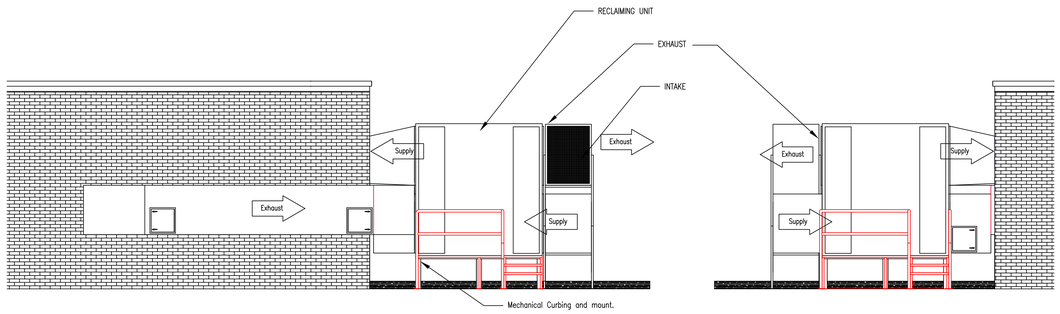
Airflow Point	Act. Airflow	Std. Airflow	Tdb	RH	Humidity
Outside Air	7,628 ACFM	7,200 SCFM	95.0 F	47.3 %	117.6 gr/lbm
LVG ATA Exchanger	7,434 ACFM	7,200 SCFM	80.9 F	73.8 %	117.6 gr/lbm
Exhaust Air	9,010 ACFM	8,865 SCFM	75.0 F	46.4 %	60.0 gr/lbm
LVG ATA Exchanger	9,204 ACFM	8,865 SCFM	86.5 F	31.9 %	60.0 gr/lbm

Total Effectiveness:	24.9%
Sensible Effectiveness @ Design:	70.0%
Exhaust Sensible Effectiveness:	70.9%
EATR:	1%
OACF:	1.00
Total Energy Recovered:	110,994 Btuh
Sensible Energy Recovered:	110,994 Btuh
Supply PD:	0.4" WG
Exhaust PD:	0.6" WG

This unit is based off of a TRANE HEX 21 BYPS-W or equivalent.
If equivalent is accepted contractor is responsible for installation infrastructure routing with change.

Access deck to be made of 1 1/2" sch40 mild steel welded with 1 1/2" piping for hand railing. all legs are to have 1/4" foot that is fasten into roof with pitch pockets installed.





Drawings are to be used for reference only contractor responsible to check dimensions for proper installation.

Revision	Date

RECOMMEND APPROVAL

REQUESTER	Date		
CHIEF OF SERVICE	Date	CHIEF OF STAFF	Date
ASSOC. DIR. PATIENT CARE SVC.	Date	ASSOC. DIR. for OPERATIONS	Date
APPROVAL BY: MEDICAL CENTER DIRECTOR			Date

Drawing Title: ENERGY RECLAIMING UNIT SOUTH SIDE PENTHOUSE

Approved: Safety Manager/M&O Supervisor

Approved:Chief of Facilities Management Svr.

Project Title: BUILDING 2 ENERGY RECLAIMING UNITS REPLACEMENT

Building Number: 2 | Checked: XXX | Drawn: NEJ

Location: W.G.(Bill) Hefner Medical Center, 1601 Brenner Ave., Salisbury NC 28144

Date: 11/15/2012

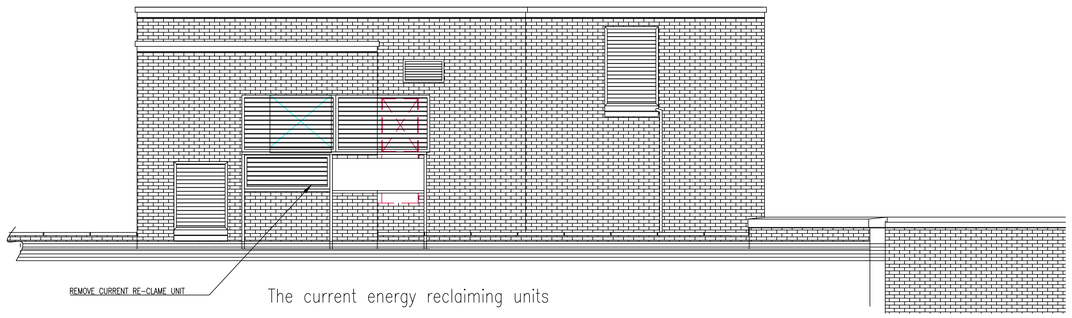
Project No. 659-13-202

DRAWING NO. M-102

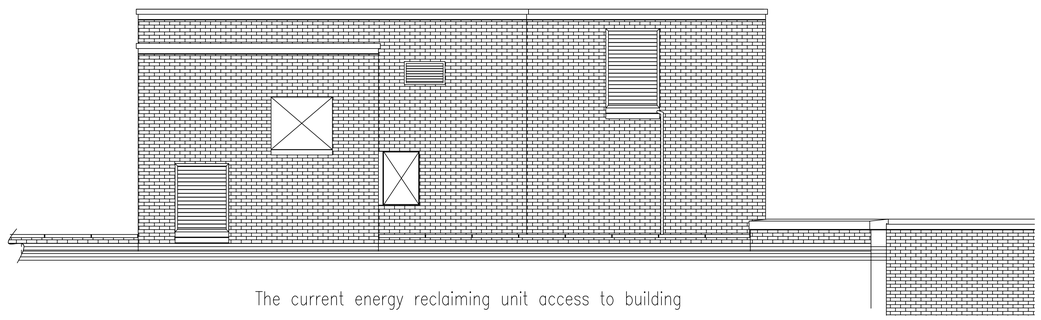
DWG. 5 OF 7

Office of Facilities

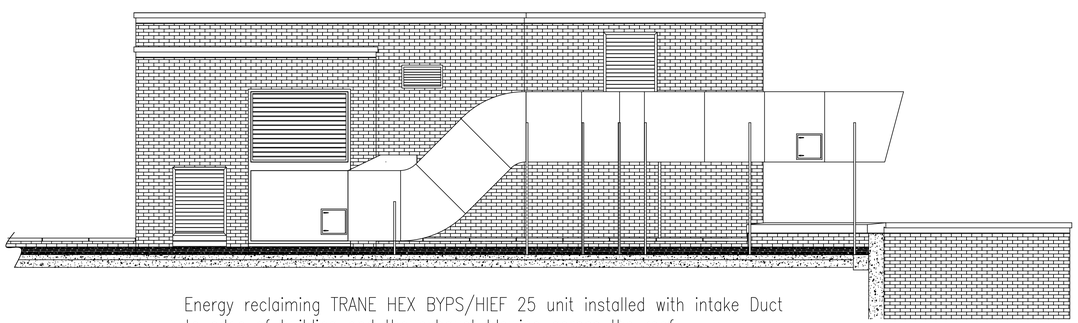
Department of Veterans Affairs



The current energy reclaiming units



The current energy reclaiming unit access to building



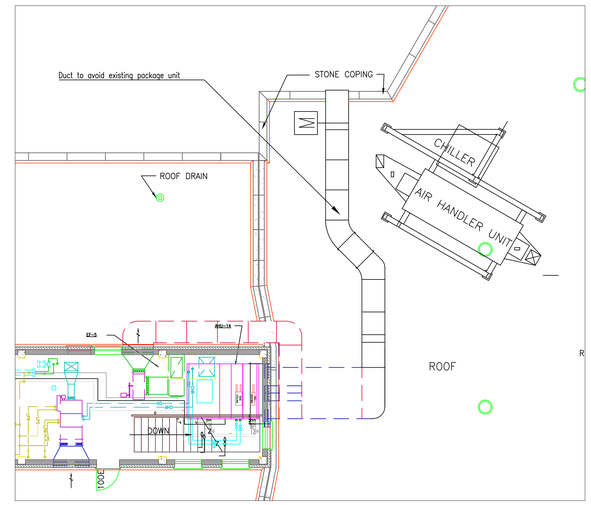
Energy reclaiming TRANE HEX BYPS/HIEF 25 unit installed with intake Duct to edge of building and the exhaust blowing across the roof.

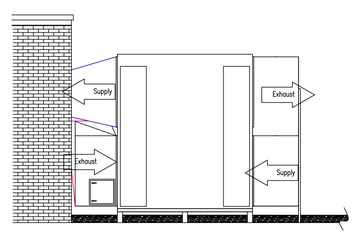
AHU-14 (Unit Size 25-BYPS-W)

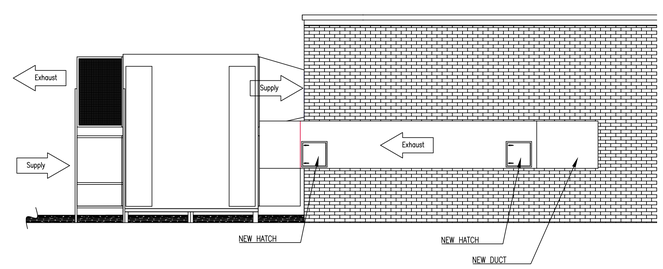
Airflow Point	Act. Airflow	Std. Airflow	Tdb	RH	Humidity
Outside Air	9,535 ACFM	9,000 SCFM	95.0 F	47.3 %	117.6 gr/lbm
LVG ATA Exchanger	9,317 ACFM	9,000 SCFM	82.3 F	70.5 %	117.6 gr/lbm
Exhaust Air	10,301 ACFM	10,135 SCFM	75.0 F	46.4 %	60.0 gr/lbm
LVG ATA Exchanger	10,519 ACFM	10,135 SCFM	86.3 F	32.0 %	60.0 gr/lbm

Total Effectiveness:	22.4%
Sensible Effectiveness @ Design:	63.7%
Exhaust Sensible Effectiveness:	63.7%
EATR:	1%
OACF:	.00
Total Energy Recovered:	124,806 Btuh
Sensible Energy Recovered:	124,806 Btuh
Supply PD:	0.5" WG
Exhaust PD:	0.5" WG

This unit is based off of a TRANE HEX 25 BYPS-W or equivalent.
If equivalent is accepted contractor is responsible for installation infrastructure routing with change.







Drawings are to be used for reference only contractor responsible to check dimensions for proper installation.

Revision	Date

RECOMMEND APPROVAL

REQUESTER	Date		
CHIEF OF SERVICE	Date	CHIEF OF STAFF	Date
ASSOC. DIR. PATIENT CARE SVC.	Date	ASSOC. DIR. for OPERATIONS	Date
APPROVAL BY: MEDICAL CENTER DIRECTOR			Date

Drawing Title: ENERGY RECLAIMING UNIT NORTH SIDE PENTHOUSE

Approved: Safety Manager/M&O Supervisor

Approved:Chief of Facilities Management Svr.

Project Title: BUILDING 2 ENERGY RECLAIMING UNITS REPLACEMENT

Building Number: 2 | Checked: XXX | Drawn: NEJ

Location: W.G.(Bill) Hefner Medical Center, 1601 Brenner Ave., Salisbury NC 28144

Date: 11/15/2012

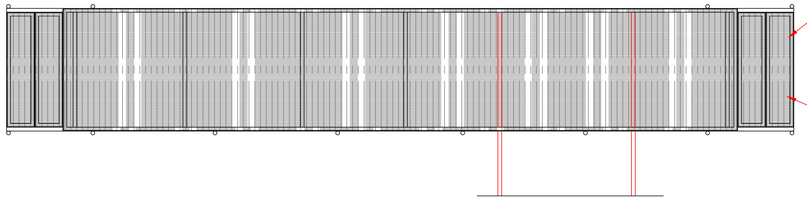
Project No. 659-13-202

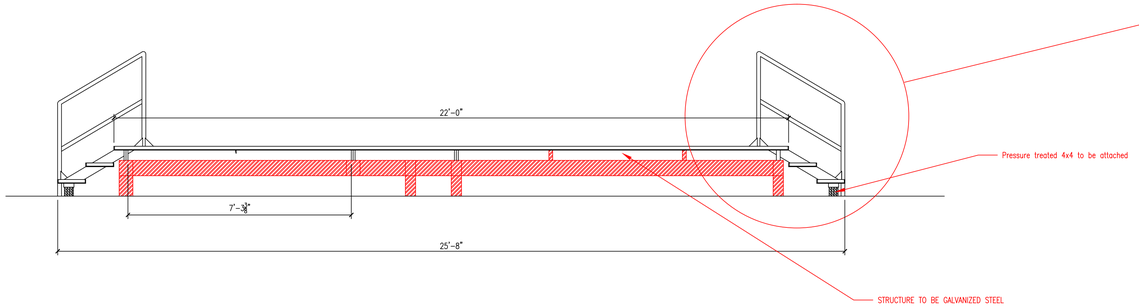
DRAWING NO. M-103

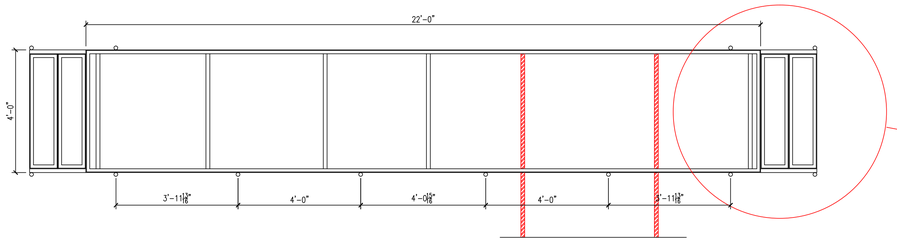
DWG. 6 OF 7

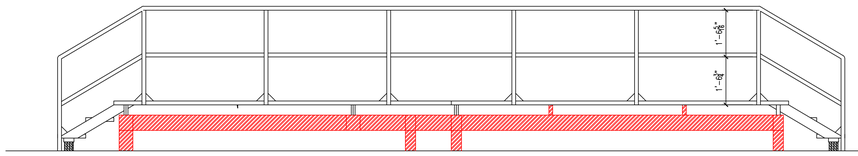
Office of Facilities

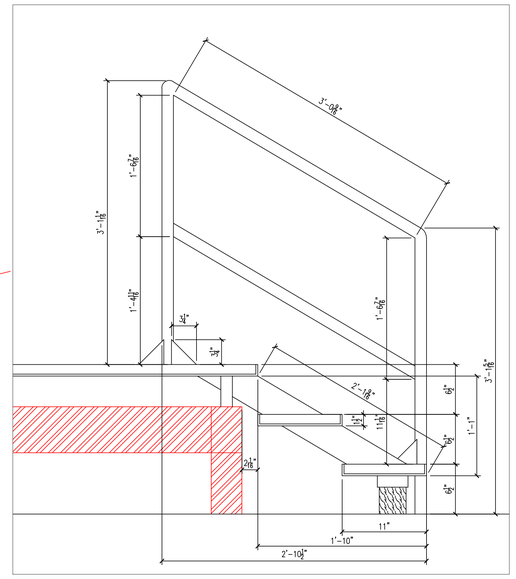
Department of Veterans Affairs

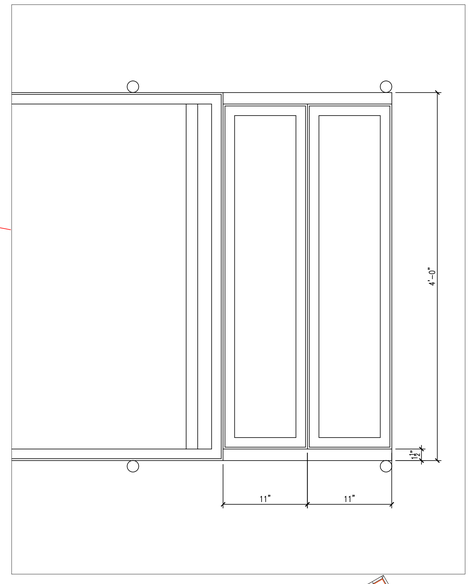


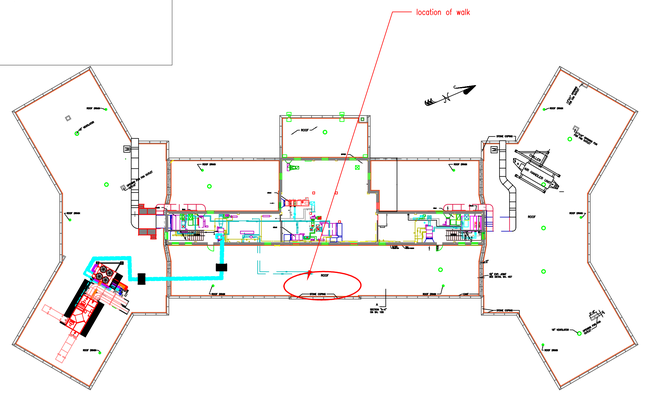












Drawings are to be used for reference only contractor responsible to check dimensions for proper installation.

Revision	Date

RECOMMEND APPROVAL

REQUESTER	Date		
CHIEF OF SERVICE	Date	CHIEF OF STAFF	Date
ASSOC. DIR. PATIENT CARE SVC.	Date	ASSOC. DIR. for OPERATIONS	Date
APPROVAL BY: MEDICAL CENTER DIRECTOR			Date

Drawing Title: WALK WAY TRANSIT ACROSS O. R. CHILLERS

Approved: Safety Manager/M&O Supervisor

Approved:Chief of Facilities Management Svr.

Project Title: BUILDING 2 ENERGY RECLAIMING UNITS REPLACEMENT

Building Number: 2 | Checked: XXX | Drawn: NEJ

Location: W.G.(Bill) Hefner Medical Center, 1601 Brenner Ave., Salisbury NC 28144

Date: 11/15/2012

Project No. 659-13-202

DRAWING NO. M-104

DWG. 7 OF 7

Office of Facilities

Department of Veterans Affairs