KANSAS CITY, KANSAS ARMY RESERVE CENTER ENERGY/DESIGN CHARRETTE MEETING

Corps of Engineers for Louisville

Agenda

- **Tuesday, September 27, 2011:**

• Introductions and Opening Remarks	ARIMD/PM
• Pre-Design Focus	PM
• Roles and Responsibilities of the Project Design Team	PM/PEA
• Site	
– Real Estate	PM
– Review of items in the last 30 days	PM/A/E
• Design Method, Considerations and Trade Offs. Balancing NEEDS	A/E
– Energy Analysis	
– Site Layout	
– Design Concept Drawing	
– Site Drainage	

Agenda

- **Tuesday, September 27, 2011:**
- **Energy Charrette**
  - **Design Process and Assumptions** **A/E**
  - **Existing Energy Criteria for Reserve Centers** **A/E**
    - **EPAct05**
    - **EISA 2007**
    - **DOE G 413.3-6 – High Performance Sustainable Buildings**
    - **UFC 3-400-01 Energy Conservation with 2008 changes**
    - **Others?**
    - **Future Requirements (ASHRAE 189.1)**
  - **Energy Model A/E**
  - **Energy Consumption in Buildings** **A/E**
  - **Load component breakdown analysis**
  - **Overview of Energy Models** **A/E**
  - **Site Modeling with Building Rotations** **A/E**
  - **Effects of Building Insulation** **A/E**
  - **Effects of Indoor Temperature Settings on HVAC** **A/E**

Agenda

- **Tuesday, September 27, 2011:**
- **Energy Charrette**
  - **Current Used Energy Measures/Systems** **A/E**
    - **HVAC**
    - **Lighting**
    - **Envelope**
  - **Future Energy Measures/Systems** **A/E**
    - **HVAC**
    - **Lighting**
    - **Envelope**
- **Adjourn for the Day.**

Agenda

- **Wednesday, September 28, 2011**

- **Site Review A/E**
  - **Concept Site Plan**
    - **Concept A**
    - **Concept B**
    - **Concept C**
  - **Drainage**
  - **Utilities**
-
- **Design Charrette A/E**
  - **Review of Concepts**
    - **Concept A**
    - **Concept B**
    - **Concept C**
    - **OMS Concept**
    - **Unheated Storage Concepts**
      - **Doors to each Unit versus single door**

Agenda

- **Wednesday, September 28, 2011**
- **Roofs**
  - **Sloped**
  - **Low Sloped (Flat)**
- **Building Materials** **A/E**
  - **Exterior finishes Training Center/OMS/Unheated**
  - **Interior Finishes**
- **Interior Color Scheme** **PM/User**
- **LEED** **A/E**
  - **Review of Possible points.**
- **Adjournment for the Day**

Agenda

- **Thursday, September 29, 2011**

- **Review Revised Site Concepts**
- **Review Revised Building Concepts**
- **Review Energy Concepts**
- **Review Taskers**
- **Schedule**

1391
07 JUL 2010

1. COMPONENT	FY 2012 MILITARY CONSTRUCTION PROJECT DATA	2. DATE
AR		07 JUL 2010

3. INSTALLATION AND LOCATION	4. PROJECT TITLE
Kansas City, Kansas	Army Reserve Center/Land

5. PROGRAM ELEMENT	6. CATEGORY CODE	7. PROJECT NUMBER	8. PROJECT COST ($000)
0532292A	171	CAR 12-67681	Auth 13,600 Approp 13,600

9. COST ESTIMATES

ITEM	UM (M/E)	QUANTITY	UNIT COST	COST ($000)
PRIMARY FACILITY				9,729
Land Purchase	ha (AC)	6.07 (15)	135,914	(825)
Army Reserve Training Building	m2 (SF)	3,388 (36,468)	1,839	(6,230)
Vehicle Maintenance Shop	m2 (SF)	856.57 (9,220)	2,482	(2,126)
Unheated Storage Building	m2 (SF)	155.33 (1,672)	1,058	(164)
SDD and EPAct05	LS	--	--	(174)
Total from Continuation page				(210)
SUPPORTING FACILITIES				2,072
Electric Service	LS	--	--	(241)
Water, Sewer, Gas	LS	--	--	(322)
Paving, Walks, Curbs & Gutters	LS	--	--	(377)
Storm Drainage	LS	--	--	(80)
Site Imp(965) Demo( )	LS	--	--	(965)
Information Systems	LS	--	--	(64)
Antiterrorism Measures	LS	--	--	(23)
ESTIMATED CONTRACT COST				11,801
CONTINGENCY (5.00%)				590
SUBTOTAL				12,391
SUPV, INSP & OVERHEAD (5.70%)				706
DESIGN/BUILD - DESIGN COST				496
TOTAL REQUEST				13,593
TOTAL REQUEST (ROUNDED)				13,593
INSTALLED EQT-OTHER APPROP				(1,182)

10. Description of Proposed Construction Construct a 200-member Army Reserve Center (ARC). Primary facilities include land acquisition and construction of an ARC training building, Organizational Maintenance Shop (OMS), and unheated storage

Site Plan Aerial

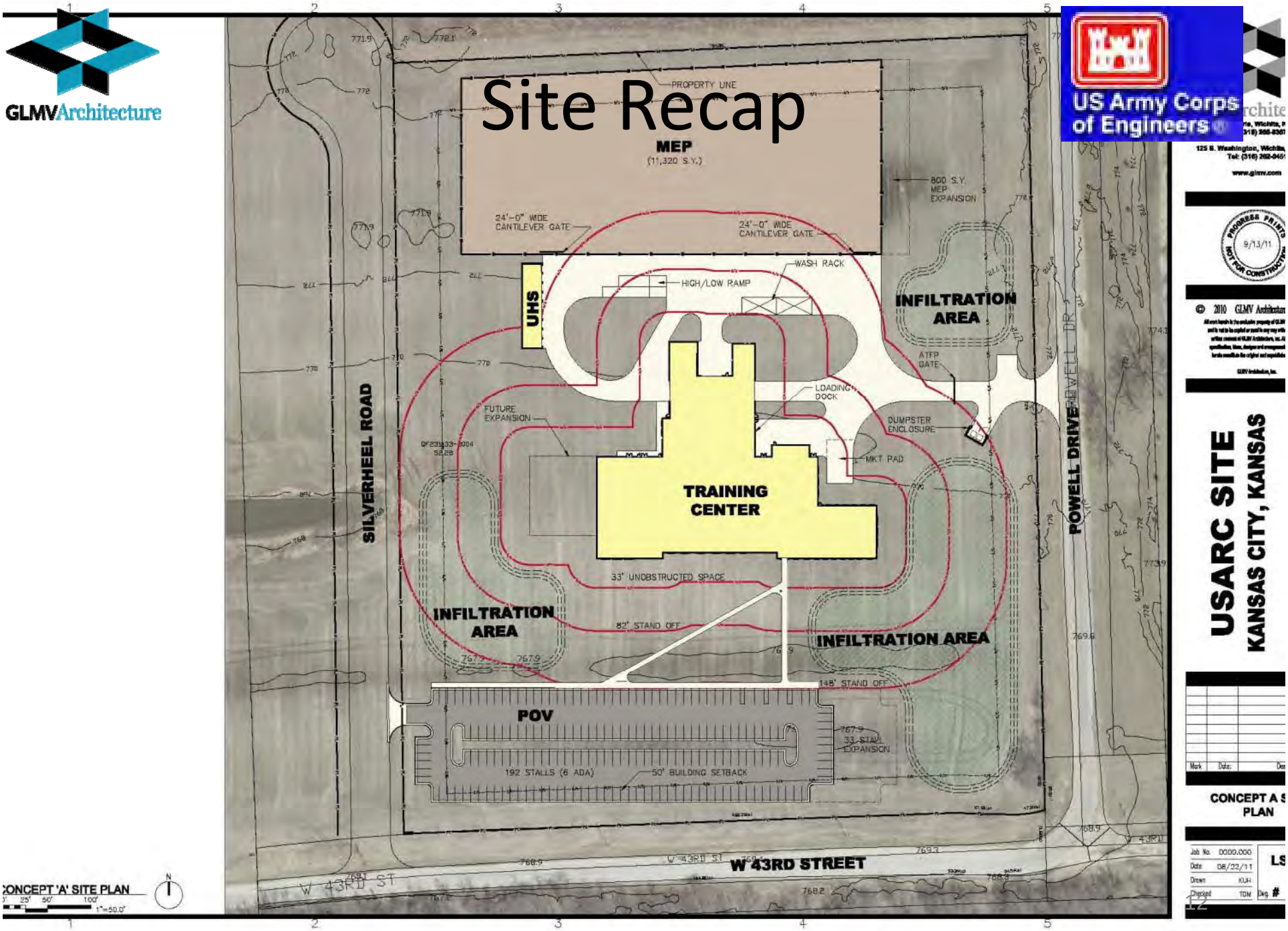
Site Recap

- **Kick Off Meeting**
  - Two Options
    - Retain all water on site
    - Pay fee and drain off site
- **September 2, 2011**
  - Received email from David Reed and from Darren Jones per conversation with City.
    - Could not drain any water off site.
- **September 6, 2011** Conference Call with City.
  - Only one person available
- **September 12, 2011** Conference Call with City
  - Clarified that we needed to retain water on site for a 25 year storm
  - Could drain water from a 100 year storm across 43rd Street
  - Result
    - Need pond of approximately 3 acres a couple of feet deep.
    - Can not drain to the North
    - No storm sewer will be installed by City per agreement with Developer
    - Building Shapes on The Site
    - A/E Verified if this would work on the site.

Site Recap
Monday Meeting w/City

- **Floor Plain**
- **Drainage**
- **Sewer**
- **Water**
- **Powell Drive Agreement**

Site Recap


GLMVArchitecture
US Army Corps of Engineers
PROPERTY LINE
MEP
(11,320 S.Y.)
800 S.Y. MEP EXPANSION
24'-0" WIDE CANTILEVER GATE
24'-0" WIDE CANTILEVER GATE
WASH RACK
HIGH/LOW RAMP
UHS
INFILTRATION AREA
ATFP GATE
LOADING DOCK
FUTURE EXPANSION
DUMPSTER ENCLOSURE
MKT PAD
TRAINING CENTER
SILVERHEEL ROAD
POWELL DRIVE
33' UNOBSTRUCTED SPACE
INFILTRATION AREA
82' STAND OFF
INFILTRATION AREA
148' STAND OFF
POV
33 STALL EXPANSION
192 STALLS (6 ADA)
50' BUILDING SETBACK
W 43RD STREET
W 43RD ST
CONCEPT 'A' SITE PLAN
1"=50.0'
USARC SITE
KANSAS CITY, KANSAS
CONCEPT A S
PLAN
Job No. 0000.000
Date 08/22/11
Drawn KUH
Checked TDM
Dwg. #
9/13/11
© 2010 GLMV Architecture

Balancing Requirements

Site Layout

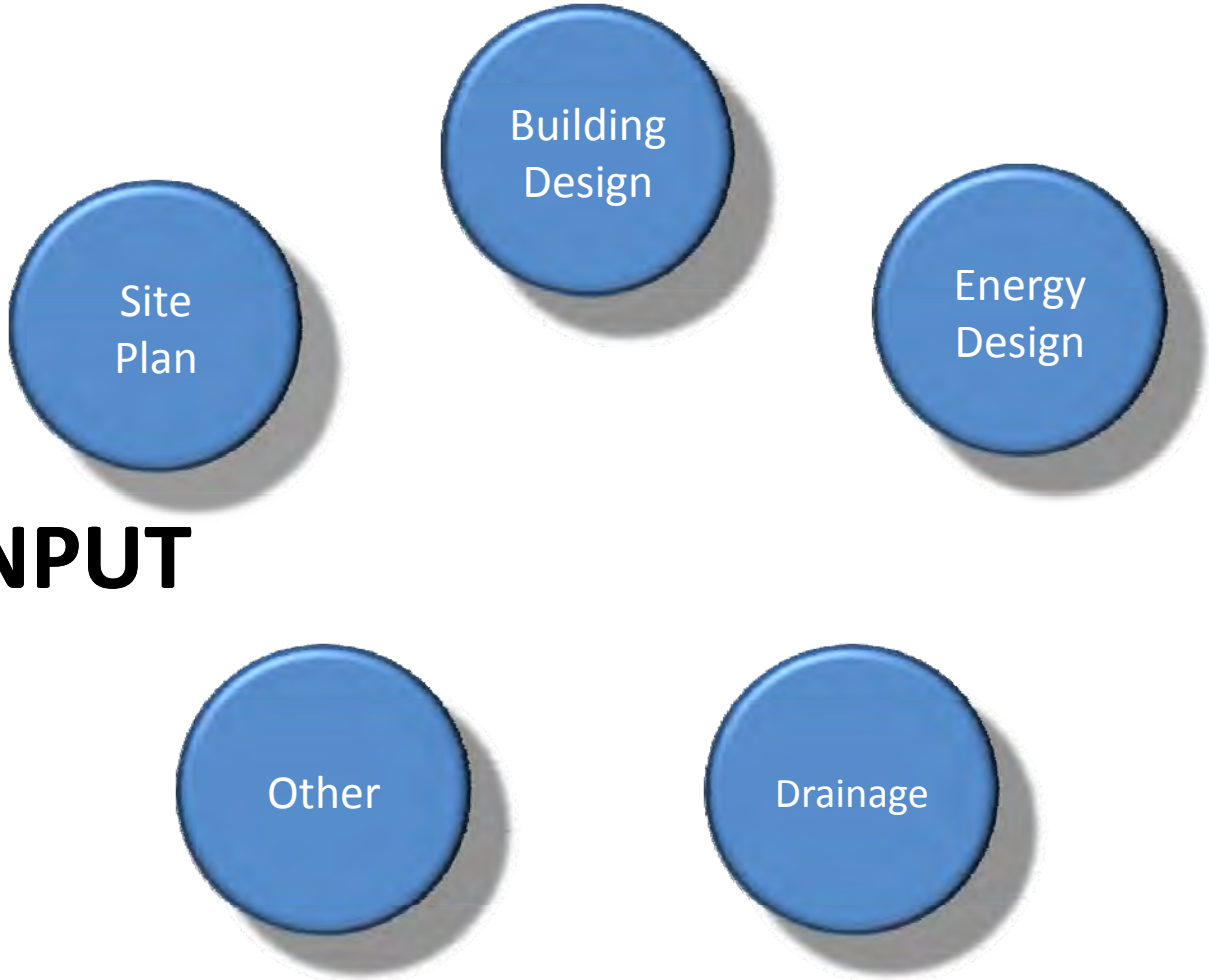
Building Design

Energy Study

Site Drainage

OTHER
VE Study
LEED

Balancing Requirements

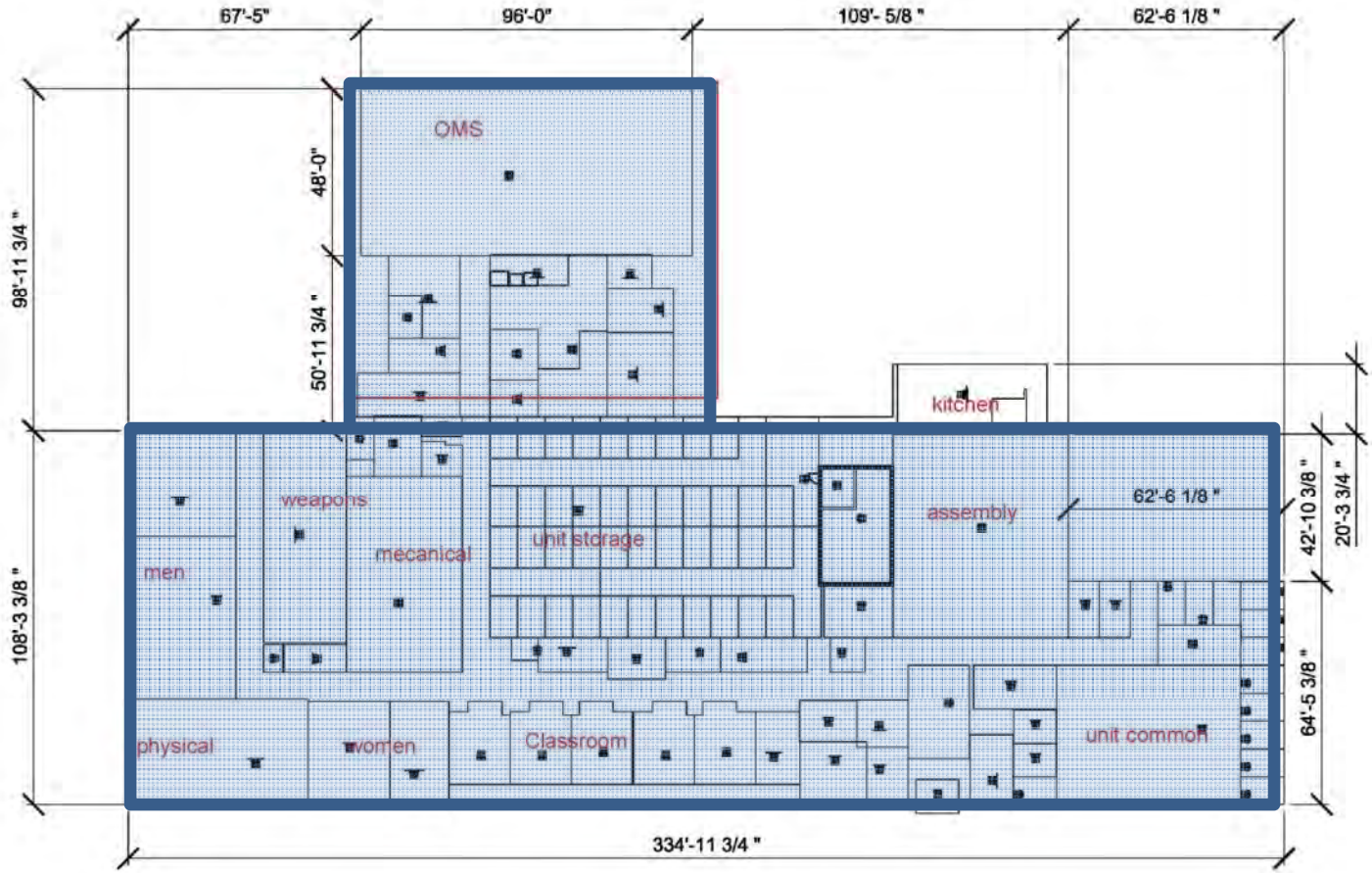


USER INPUT

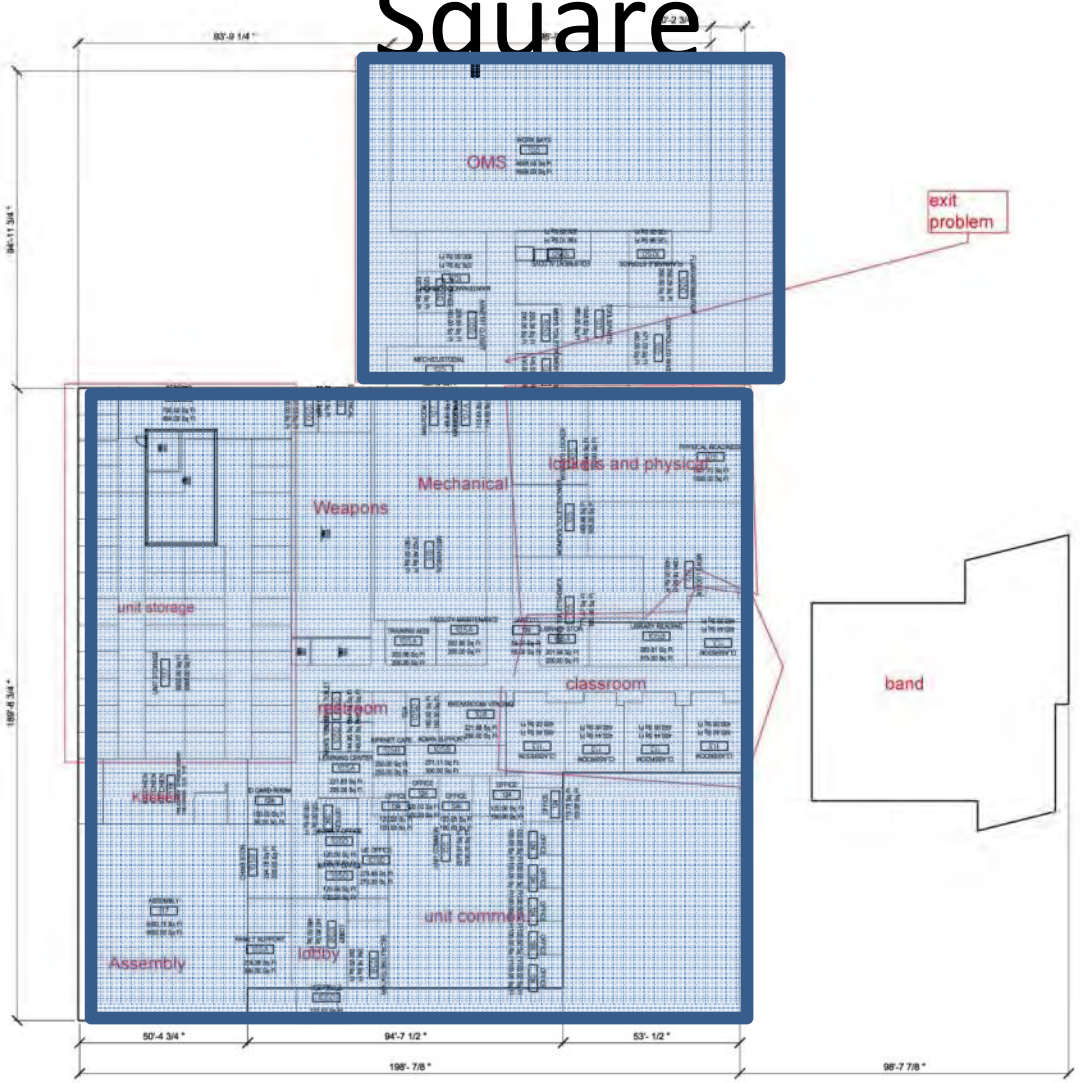
Design Process and Assumptions

- Building Shapes on The Site
  - Rectangle
  - Square
  - Free Form

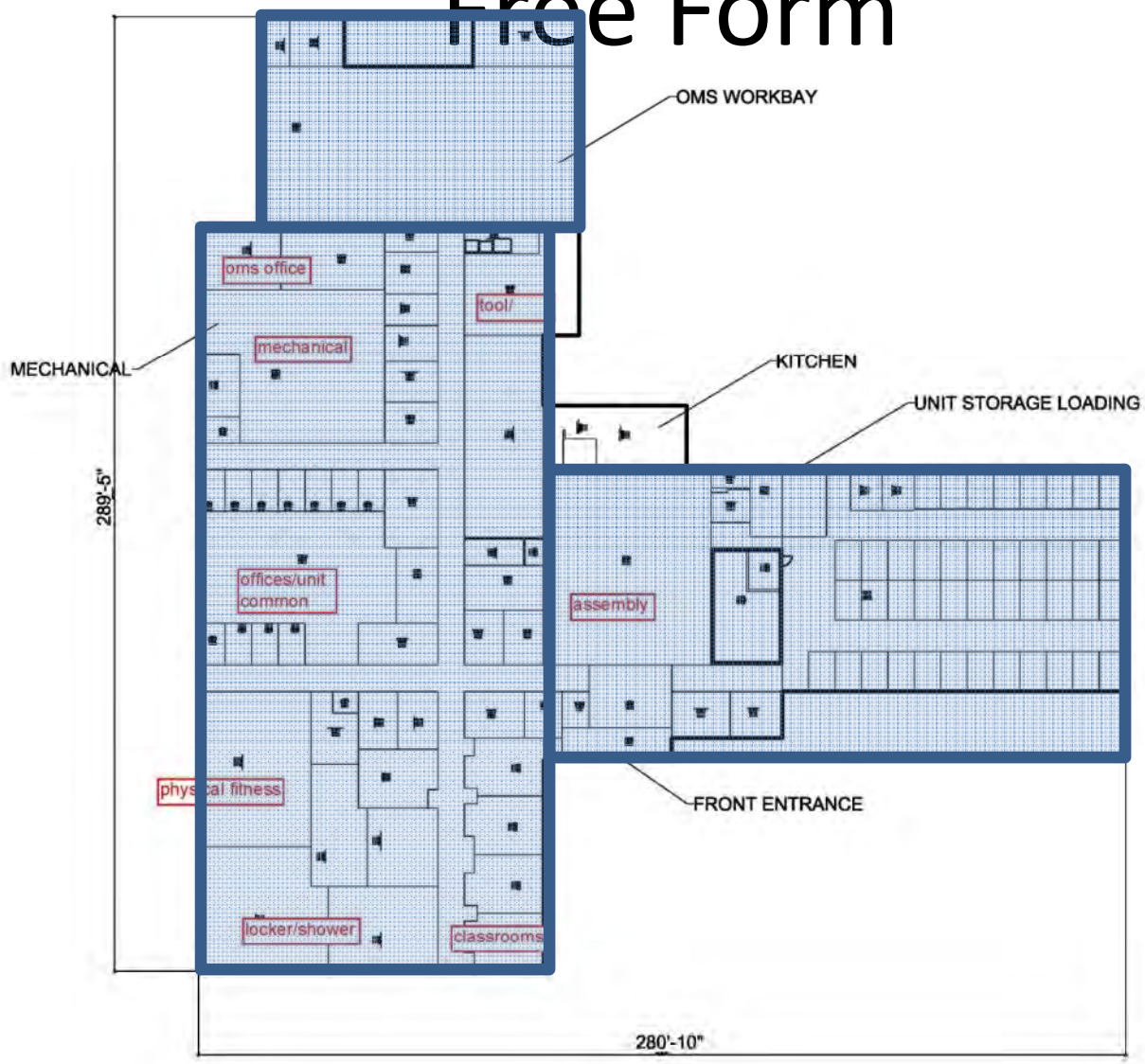
Building Shapes
Rectangle



Building Shapes
Square

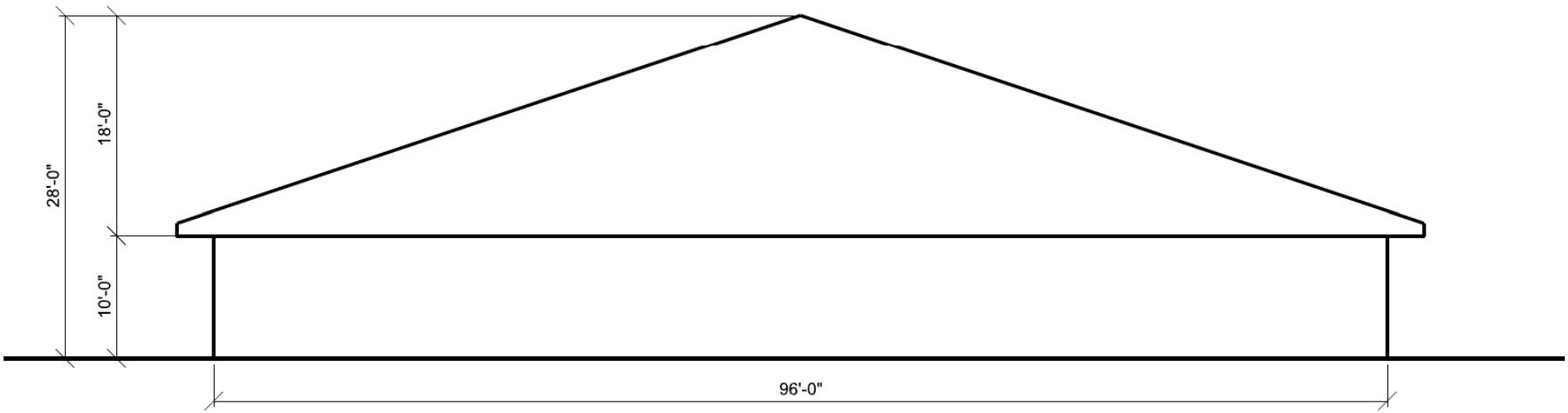


Building Shapes
Free Form



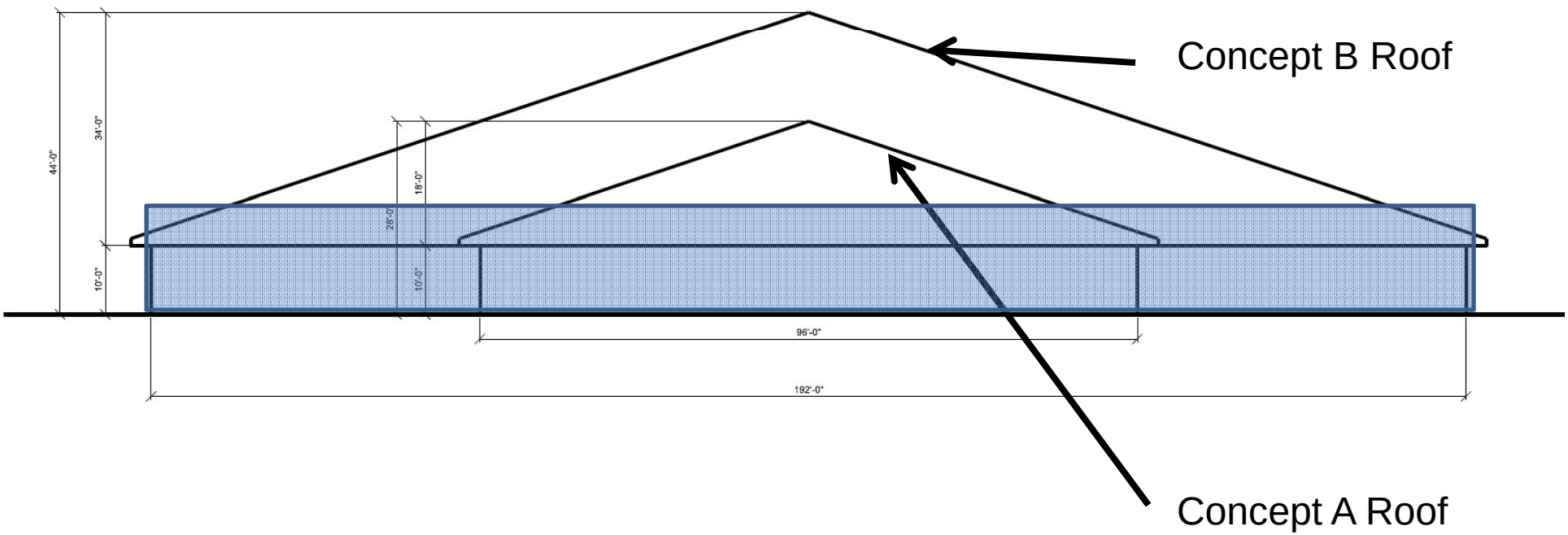
Roof Considerations

- Concept A Roof



Roof Considerations

- Concept B Roof versus Concept A Roof
- Concept B needs to be a flat roof



Energy Charrette

- **Existing Energy Criteria for Reserve Centers**
- **Energy Model**
- **Energy Consumption in Buildings**
- **Load Component Breakdown Analysis**
- **Overview of Energy Models**
- **Site Modeling with Building Insulation**
- **Effects of Indoor Temperature Settings on HVAC**
- **Current Used Energy Measures/Systems**

Effects of Building Rotation

Effects of Building Rotation

Std 2007/ 2010

A Envelope Only

Rotati	Btu/yr 10
0 Rotation	551
90 Rotation	588
180 Rotation	612
270 Rotation	605

Std 2007 / 2010

A with Internal

Rotati	Btu/yr 10
0 Rotation	1472
90 Rotation	1458
180 Rotation	1450
270 Rotation	1471

Wall R30 - Roof R38

A with Internal

Rotati	Btu/yr 10
0 Rotation	1314
90 Rotation	1307
180 Rotation	1299
270 Rotation	1312

Std 2007/ 2010

C Envelope Only

Rotati	Btu/yr 10
0 Rotation	535
90 Rotation	530
180 Rotation	537
270 Rotation	545

Std 2007 / 2010

C with Internal

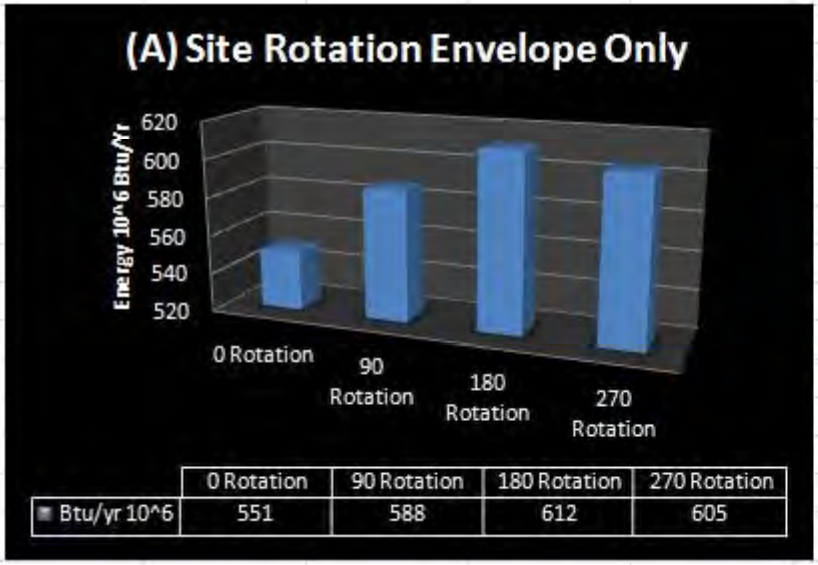
Rotati	Btu/yr 10
0 Rotation	1389
90 Rotation	1370
180 Rotation	1365
270 Rotation	1377

Wall R30 - Roof R38

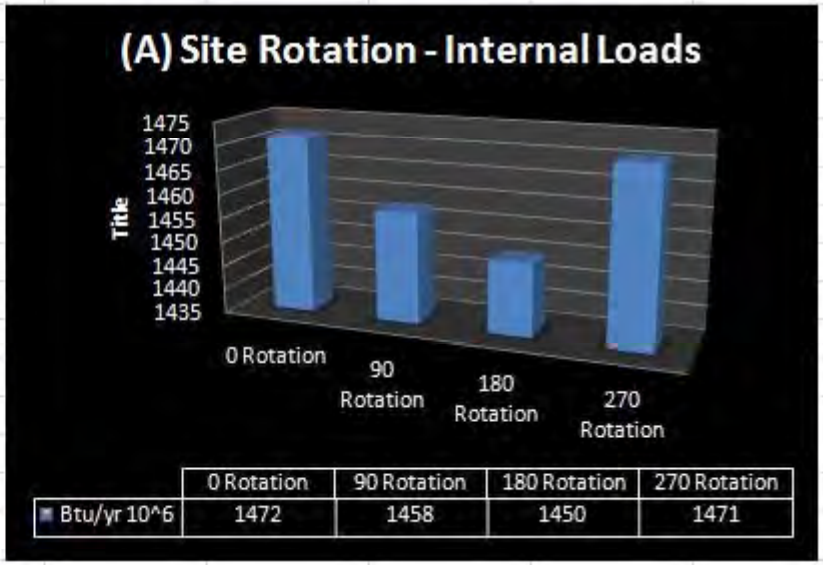
C with Internal

Rotati	Btu/yr 10
0 Rotation	1240
90 Rotation	1234
180 Rotation	1229
270 Rotation	1234

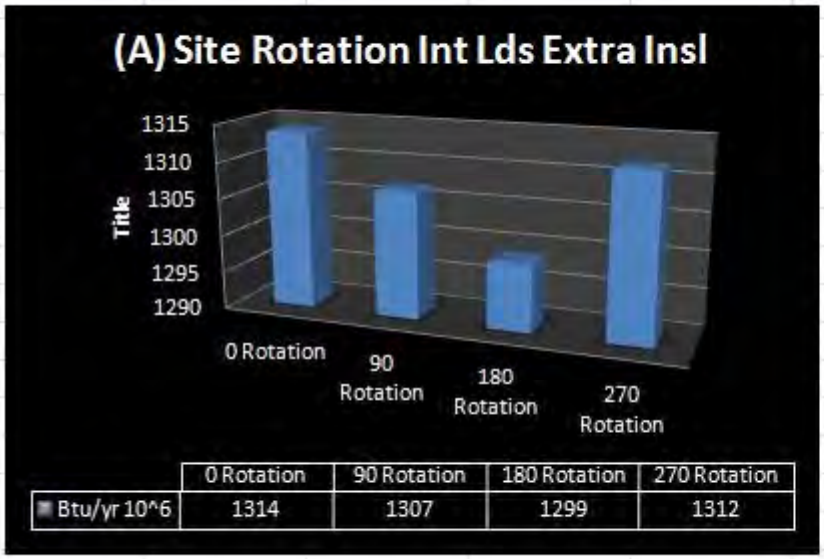
Site Rotation



	0 Rotation	90 Rotation	180 Rotation	270 Rotation
Btu/yr 10^6	551	588	612	605

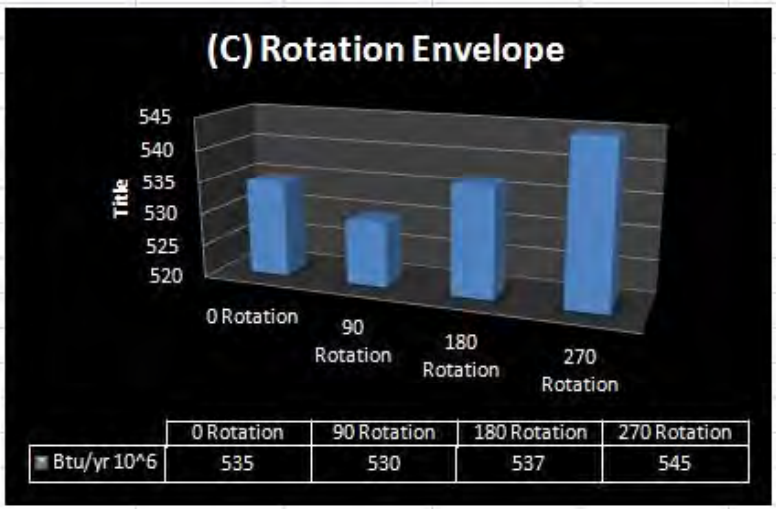


	0 Rotation	90 Rotation	180 Rotation	270 Rotation
Btu/yr 10^6	1472	1458	1450	1471

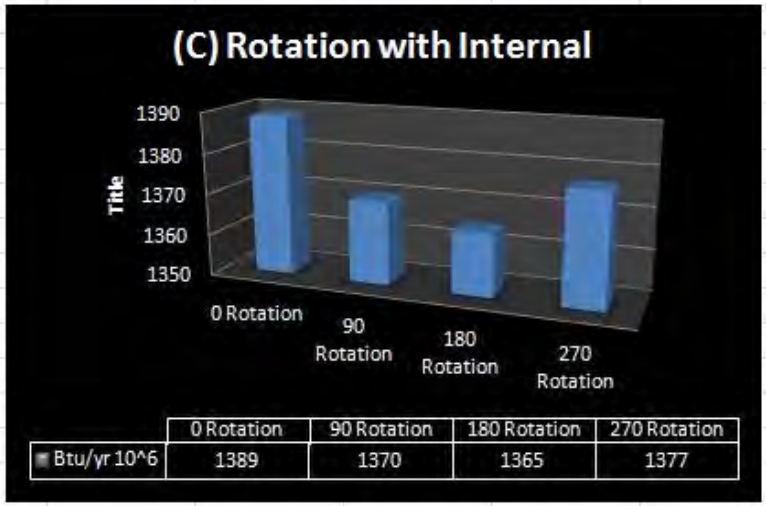


	0 Rotation	90 Rotation	180 Rotation	270 Rotation
Btu/yr 10^6	1314	1307	1299	1312

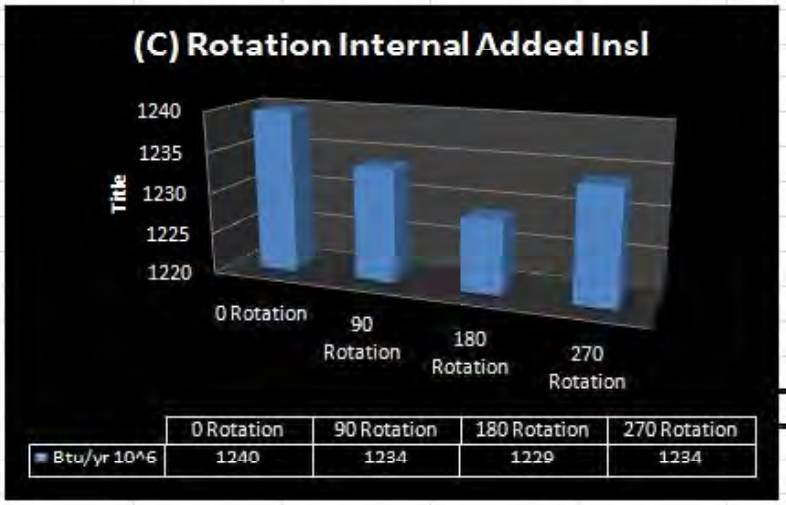
Site Rotation



	0 Rotation	90 Rotation	180 Rotation	270 Rotation
Btu/yr 10^6	535	530	537	545



	0 Rotation	90 Rotation	180 Rotation	270 Rotation
Btu/yr 10^6	1389	1370	1365	1377



	0 Rotation	90 Rotation	180 Rotation	270 Rotation
Btu/yr 10^6	1240	1234	1229	1234

Insulation

Effects of Increased Insulation Values

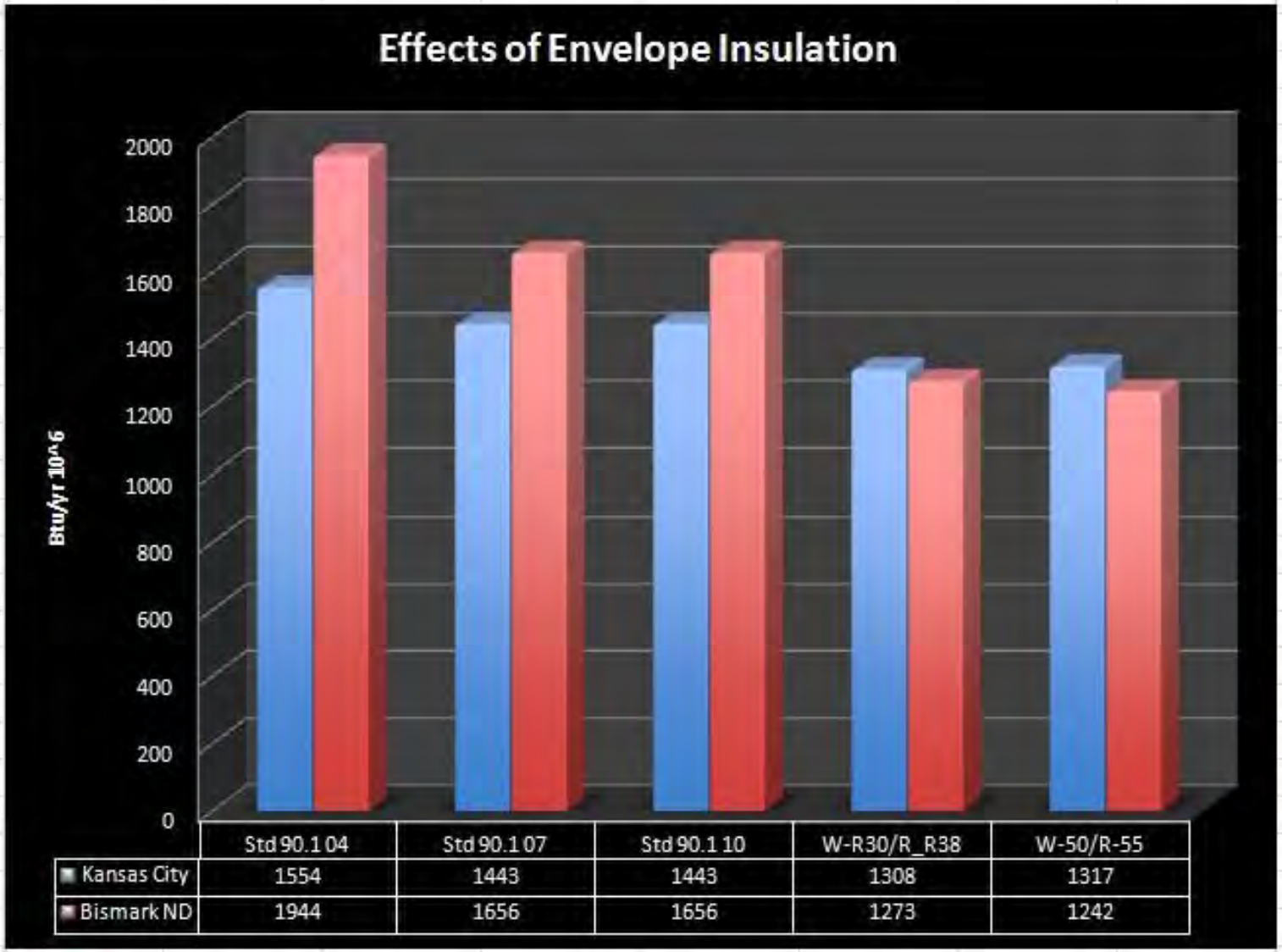
Concept A

Insulation	Kansas City	Bismark ND
Std 90.1 04	1554	1944
Std 90.1 07	1443	1656
Std 90.1 10	1443	1656
W-R30/R_R38	1308	1273
W-50/R-55	1317	1242

In moderate climates the effects of extreme insulation actually increase energy consumption due to inability of building to conduct internal heat gains through the envelope, which leads to increased fan energy and increased mechanical cooling.

In very cold climates there is some minor benefit to extreme insulation due to the higher heating loads in those climates. The charts display data for Concept A in Kansas City and again in Bismark, North Dakota.

Insulation



	Std 90.1 04	Std 90.1 07	Std 90.1 10	W-R30/R_R38	W-50/R-55
Kansas City	1554	1443	1443	1308	1317
Bismark ND	1944	1656	1656	1273	1242

Cooling Component

Cooling Component Analysis at 75 degrees - Wall R30 - Roof R38 / 90.1 2004

Concept A

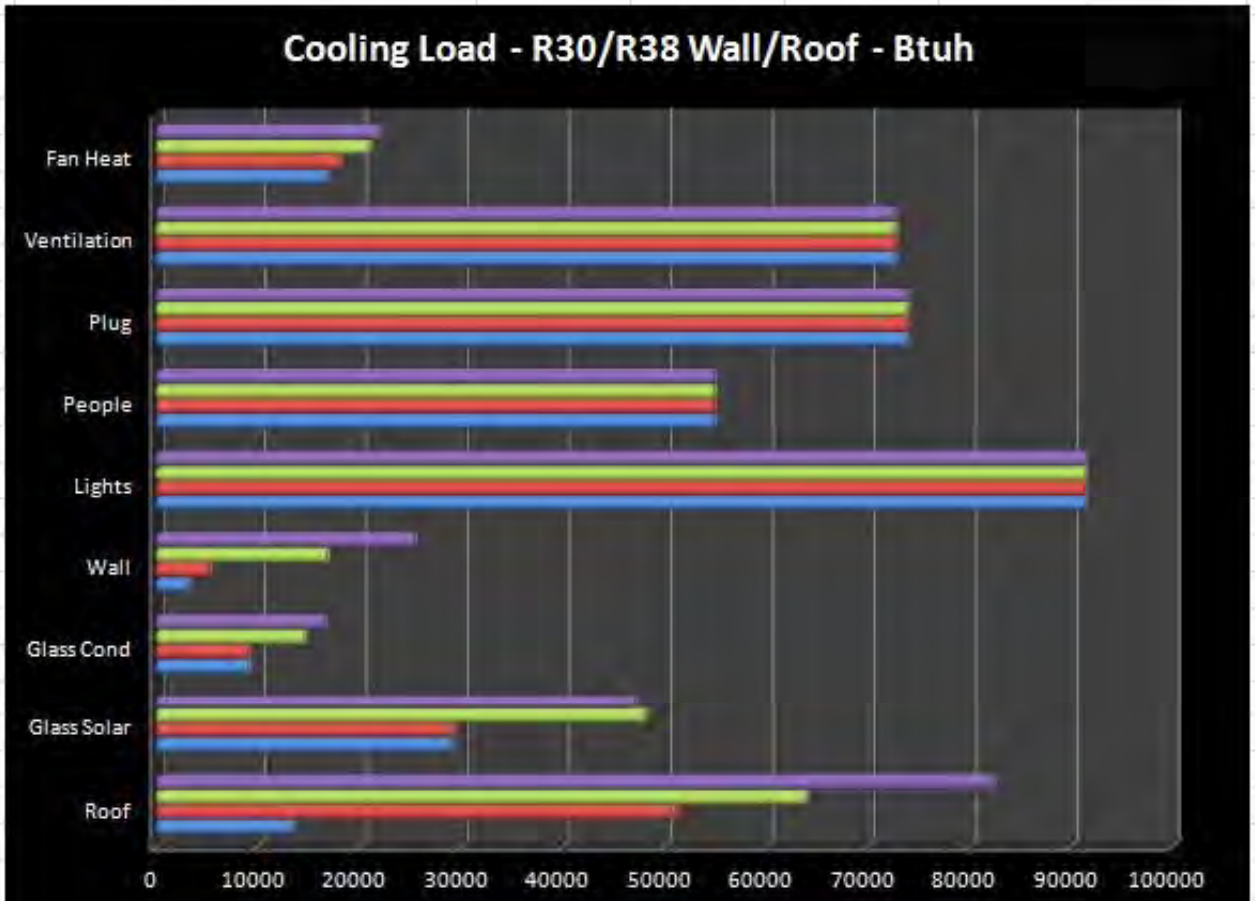
Component	50/55	30/38	2007	2004
Roof	13543	51126	63943	82384
Glass Solar	29105	29204	48069	47124
Glass Cond	9085	9087	14579	16583
Wall	3216	5224	16803	25421
Lights	91419	91419	91419	91419
People	54925	54925	54925	54925
Plug	73902	73902	73902	73902
Ventilation	72710	72710	72710	72710
Fan Heat	16882	18054	20935	21921

This Chart shows the cooling load break out for the various heat contributing components on Concept A. The (4) largest components contributing to the cooling loads are Lights, Plug Loads, Ventilation, and People. Largest exterior loads are from the roof and glass solar. Comparison with 90.1 2004 requirements show largest improvement is with the roof insulation.

Component	50/55	30/38	2007	2004
envelope	54949	94641	160197	171512
internal	237128	238300	241181	242167
ventilation	72710	72710	72710	72710

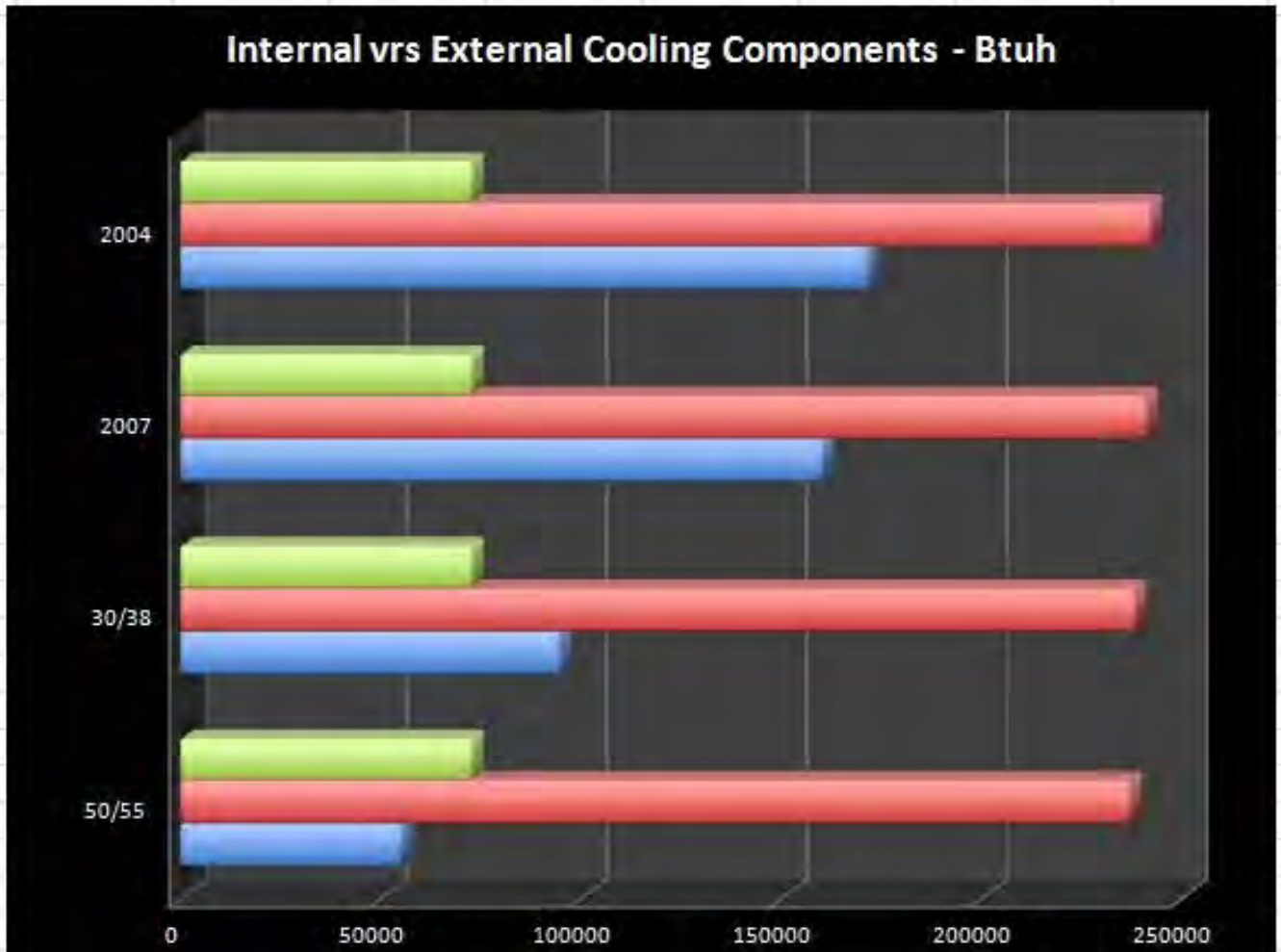
This chart shows the envelope components compared to the internal load components for cooling.

Cooling Component



	Roof	Glass Solar	Glass Cond	Wall	Lights	People	Plug	Ventilation	Fan Heat
2004	82384	47124	16583	25421	91419	54925	73902	72710	21921
2007	63943	48069	14579	16803	91419	54925	73902	72710	20935
30/38	51126	29204	9087	5224	91419	54925	73902	72710	18054
50/55	13543	29105	9085	3216	91419	54925	73902	72710	16882

Cooling Component



	50/55	30/38	2007	2004
ventilation	72710	72710	72710	72710
internal	237128	238300	241181	242167
envelope	54949	94641	160197	171512

Heating Component

Heating Component Analysis at 75 degrees - Wall R30 - Roof R38 / 90.1 2004

Concept A

Component	55/50	30/38	2007	2004
Roof	26766	49493	67395	85350
Glass	30504	30504	49865	56974
Wall	9157	15096	46707	67221
Ventilation	84656	84656	84656	84656

This Chart shows the heating load break out for the various heat loss components on Concept A.
The R30/R38 combination shows significant improvements over Std 90.1 2004 and 2007.

Indoor Temperature

Effects of Indoor Temperature Setpoints

Concept A

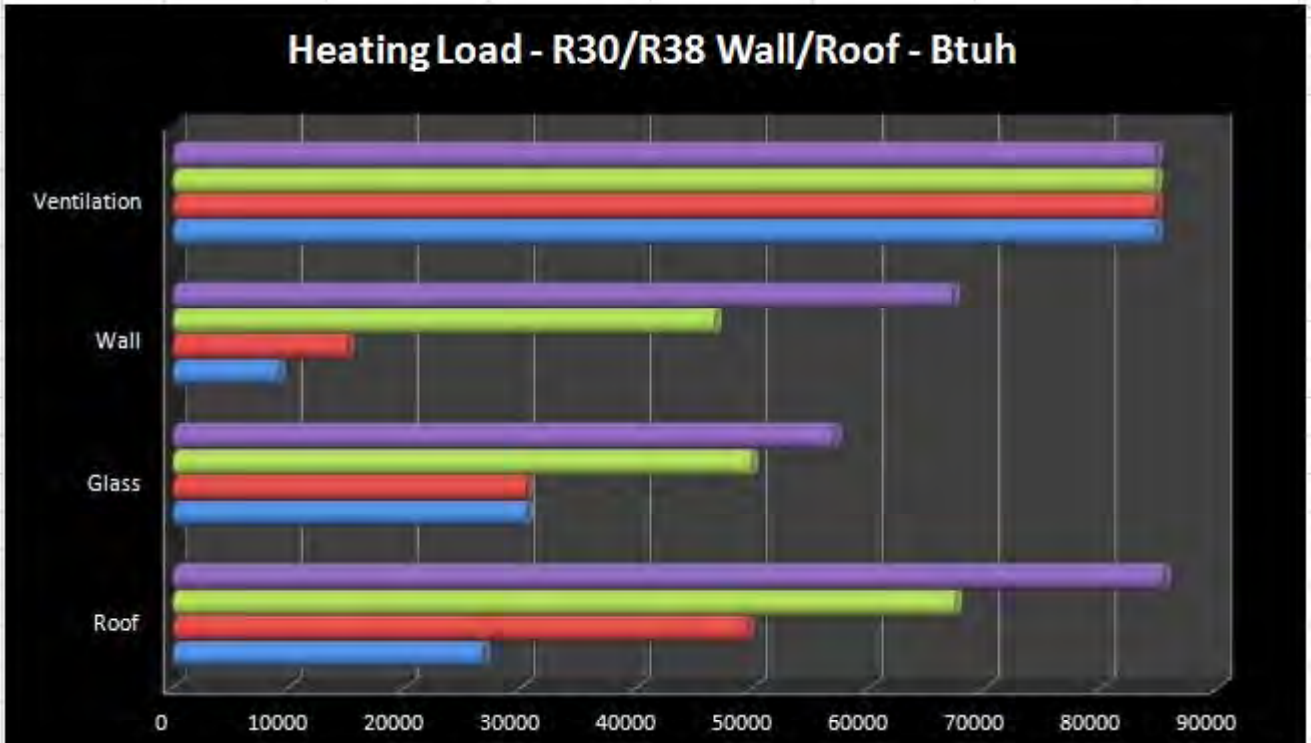
Indoor Ter	Btu/yr 10
70°F	1449
75°F	1330
78°F	1288
80°F	1262
82°F	1238

Indoor setpoint can have a dramatic effect on energy consumption. Federal regulations require indoor cooling of 78-degrees cooling and 68-degrees heating. Most installations however are run at much lower cooling setpoints and somewhat higher heating. This chart shows the effects on energy consumption at 70°, 75°,78°, 80° and 82° settings.

Use of ceiling fans which would increase the air speed in the room would allow compliance with ASHRAE Std 55 at temperatures up to 82°F. Raising temperatures will require education and cooperation of users. Dressing with lighter clothing in the summer months helps greatly with occupant comfort. Control of humidity in the spaces also increases comfort at raised indoor temperatures. Dedicated outdoor air systems (DOA) should be considered with this.

Indoor conditions are considered acceptable when 80% of the occupants are satisfied, however lower temperatures are often used due to a small number of individuals.

Indoor Temperature



	Roof	Glass	Wall	Ventilation
2004	85350	56974	67221	84656
2007	67395	49865	46707	84656
30/38	49493	30504	15096	84656
55/50	26766	30504	9157	84656

Insulation VS Cooling

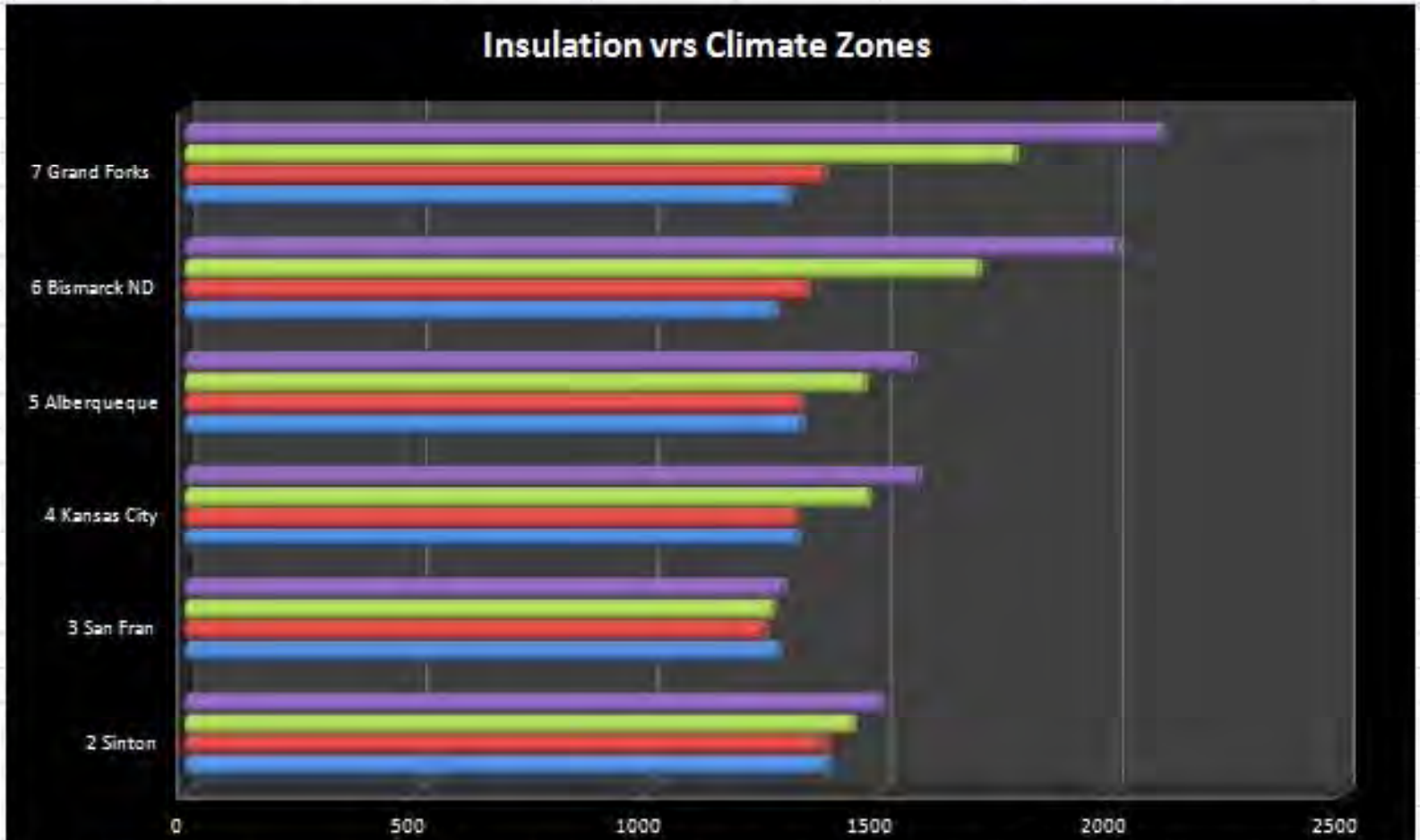
Cooling Component Analysis at 75 degrees - Wall R30 - Roof R38 / 90.1 2004

Concept A

Climate Zon	50/55	30/38	9.5/20	5.7/15
2 Sinton	1384	1380	1439	1500
3 San Fran	1276	1249	1265	1289
4 Kansas City	1318	1314	1472	1580
5 Alberqueque	1329	1324	1464	1570
6 Bismarck ND	1271	1340	1710	2010
7 Grand Forks	1301	1376	1789	2105

This Chart shows effects of increased insulation for different climate zone. It indicates that increase in insulation above R30 wall and R38 roof in temperate to wamer climates does not increase energy efficiency and gains in colder climates is generally small. Internal gains in the building that may radiate to the exterior, but are trapped with the increased insulation and require additional cooling are likely the reason.

Insulation VS Cooling



	2 Sinton	3 San Fran	4 Kansas City	5 Alberqueque	6 Bismarck ND	7 Grand Forks
5.7/15	1500	1289	1580	1570	2010	2105
9.5/20	1439	1265	1472	1464	1710	1789
30/38	1380	1249	1314	1324	1340	1376
50/55	1384	1276	1318	1329	1271	1301

Click to add footer

Design Charrette

- Wednesday, September 28, 2011

Cost Estimate

- 1391 is $13,000,000
- Site Cost is $1,474,593 or $1,200,000

Cost Estimate

Options	SF	Brick & CMU	Total	PA Combined	Overage
A	45,481	$192.68	**$8,763,279.08**	**$8,356,000.00**	-$407,279.08
B	44,171	$192.64	**$8,509,101.44**	**$8,356,000.00**	-$153,101.44
C	43,335	$182.78	**$7,920,771.30**	**$8,356,000.00**	$435,228.70

Options	SF	Brick 6"	Total	PA Combined	Overage
A	45,481	$185.05	**$8,416,259.05**	**$8,356,000.00**	-$60,259.05
B	44,171	$185.01	**$8,172,076.71**	**$8,356,000.00**	$183,923.29
C	43,335	$177.13	**$7,675,928.55**	**$8,356,000.00**	$680,071.45

Options	SF	Tiltup	Total	PA Combined	Overage
A	45,481	$187.36	**$8,521,320.16**	**$8,356,000.00**	-$165,320.16
B	44,171	$187.41	**$8,278,087.11**	**$8,356,000.00**	$77,912.89
C	43,335	$180.67	**$7,829,334.45**	**$8,356,000.00**	$526,665.55

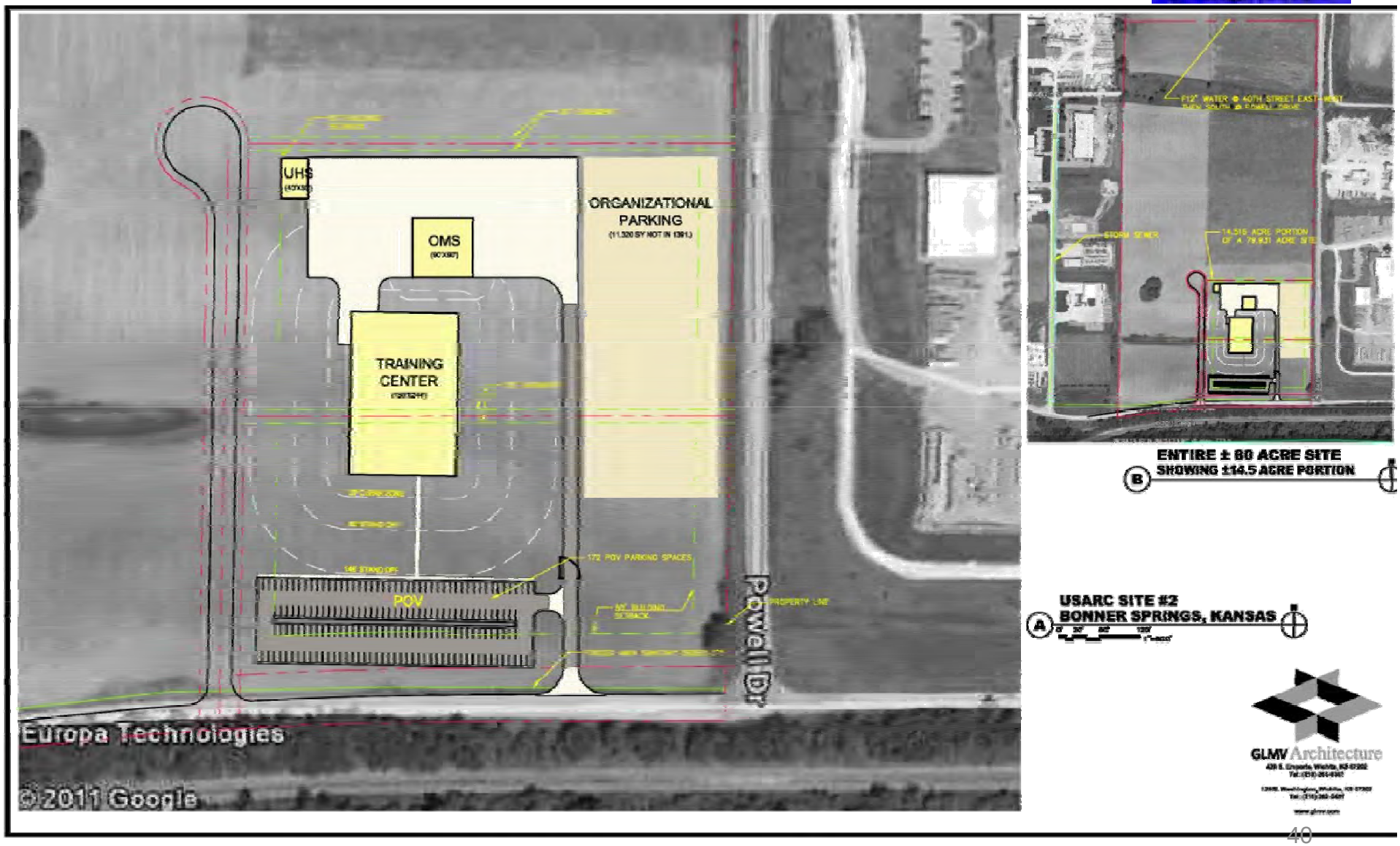
Options	SF	ICF	Total	PA Combined	Overage
A	45,481	$185.13	**$8,419,897.53**	**$8,356,000.00**	-$63,897.53
B	44,171	$185.07	**$8,174,726.97**	**$8,356,000.00**	$181,273.03
C	43,335	$179.21	**$7,766,065.35**	**$8,356,000.00**	$589,934.65

Design Charrette

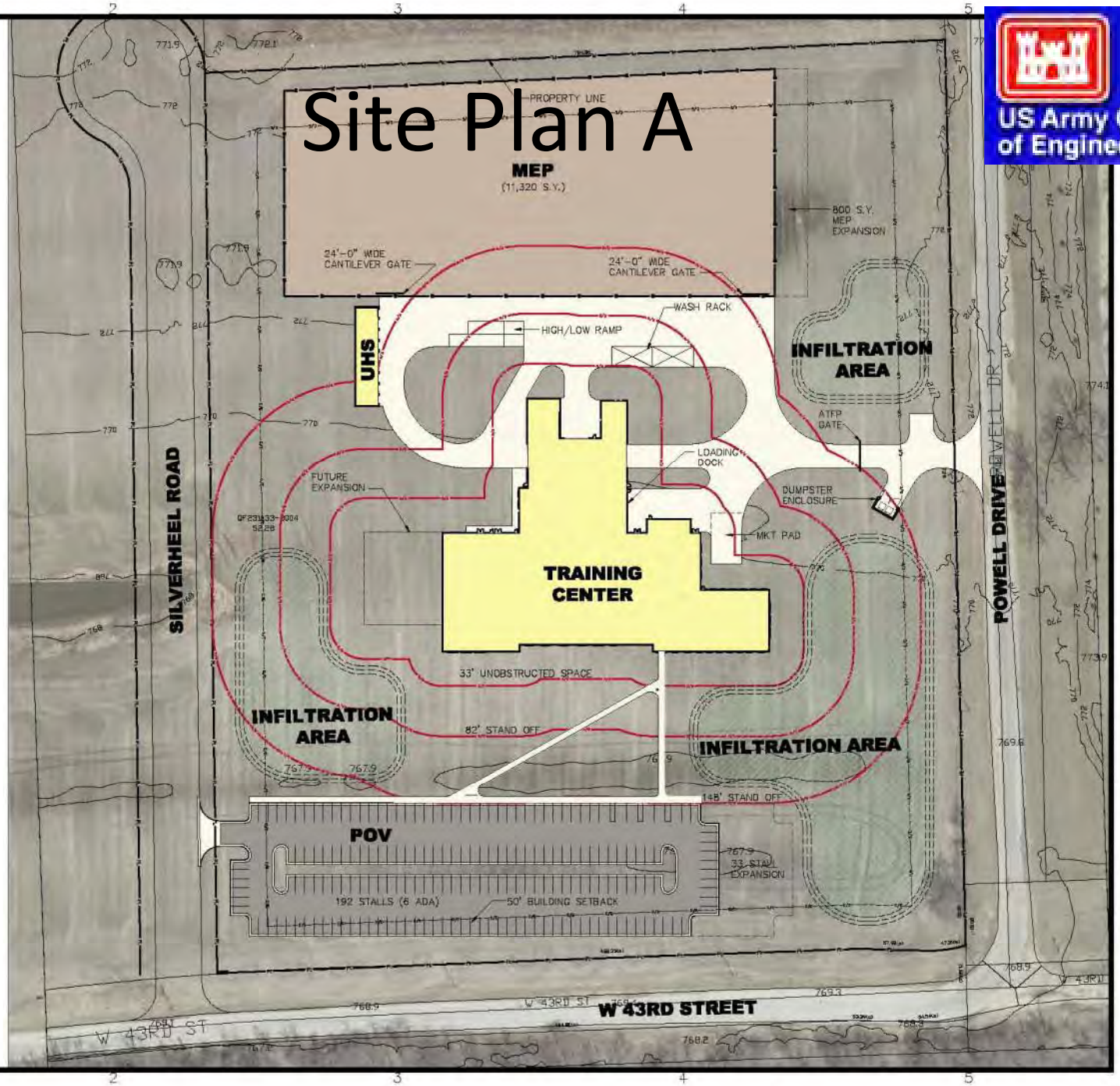
- Site Review
  - Concept Site Plans
    - Concept A
    - Concept B
    - Concept C

Water and Sewer

Site Plan At Kick Off



Site Plan A



GLMVArchitecture

US Army Corps of Engineers

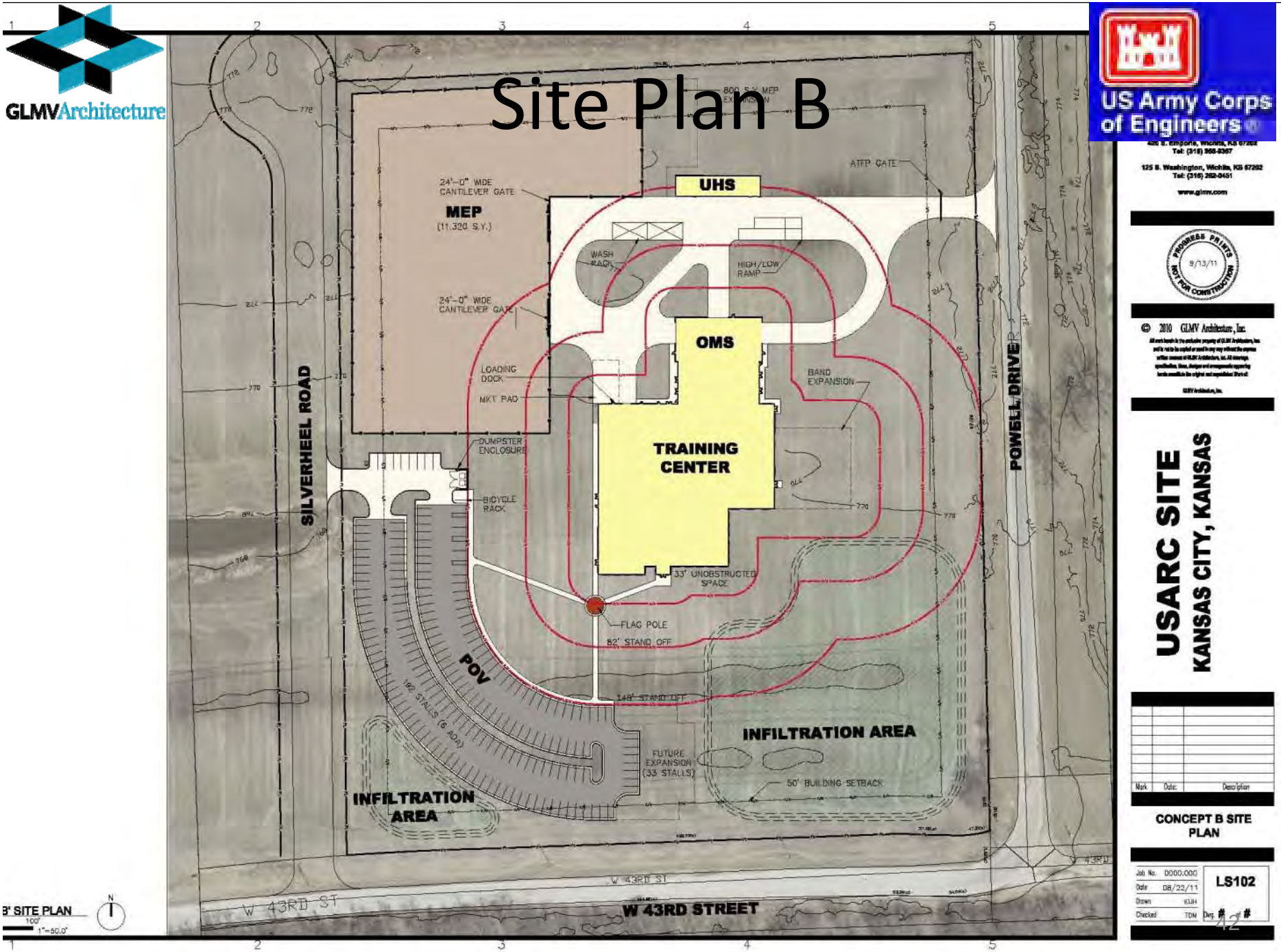
CONCEPT 'A' SITE PLAN

USARC SITE
KANSAS CITY, KANSAS

CONCEPT A S
PLAN

Job No. 0000.000
Date 08/22/11
Drawn KJH
Checked TDM

Site Plan B



GLMVArchitecture
US Army Corps of Engineers
MEP
(11,320 S.Y.)
24'-0" WIDE CANTILEVER GATE
UHS
OMS
TRAINING CENTER
WASH RACK
HIGH/LOW RAMP
LOADING DOCK
MKT PAD
DUMPSTER ENCLOSURE
BICYCLE RACK
BAND EXPANSION
33' UNOBSTRUCTED SPACE
FLAG POLE
82' STAND OFF
148' STAND OFF
ATFP GATE
SILVERHEEL ROAD
POWELL DRIVE
POV
192 STALLS (6 ADA)
FUTURE EXPANSION (33 STALLS)
INFILTRATION AREA
50' BUILDING SETBACK
W 43RD ST
W 43RD STREET
B' SITE PLAN
1"=50.0'
125 S. Washington, Wichita, KS 67202
Tel: (316) 262-0451
www.glmv.com
PROGRESS PRINTS NOT FOR CONSTRUCTION
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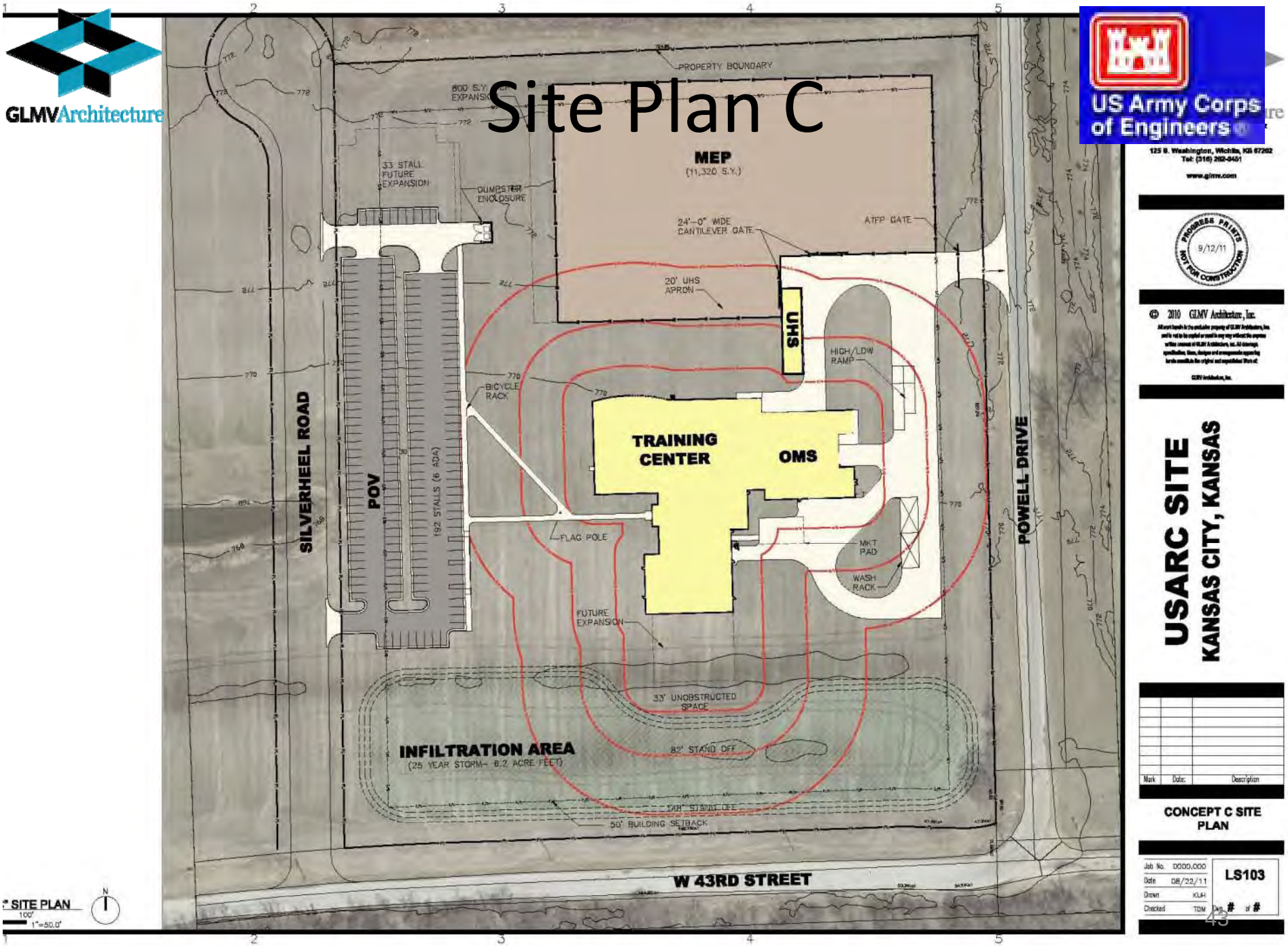
USARC SITE
KANSAS CITY, KANSAS
Mark
Date
Description
CONCEPT B SITE PLAN
Job No. 0000.000
Date 08/22/11
Drawn KLH
Checked TDM
LS102

Site Plan C


PROPERTY BOUNDARY
800 S.Y. EXPANSION
33 STALL FUTURE EXPANSION
DUMPSTER ENCLOSURE
MEP
(11,320 S.Y.)
24'-0" WIDE CANTILEVER GATE
ATFP GATE
20' UHS APRON
UHS
HIGH/LOW RAMP
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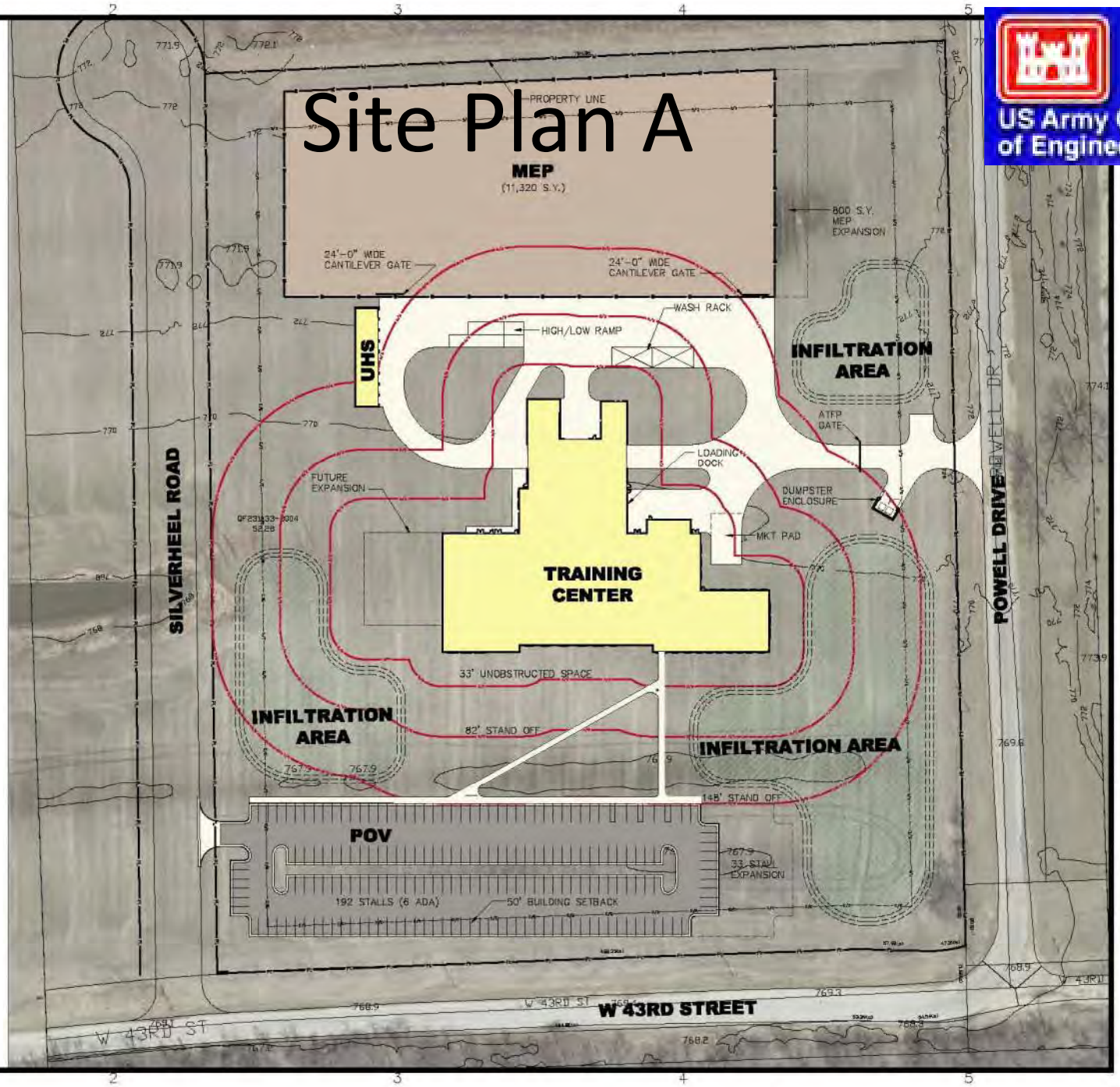
Date:
Description
CONCEPT C SITE PLAN
Job No. 0000.000
Date 08/22/11
Drawn KLH
Checked TDM
LS103
Dwg. # of #

Design Charrette

- Design Concepts Review
  - Concept Site Plans
    - Concept A
    - Concept B
    - Concept C
    - OMS Concept - Added to Training Center
    - Unheated Storage Concepts
      - One door into building
      - Doors into each unit.

Site Plan A



CONCEPT 'A' SITE PLAN

1"=50.0'

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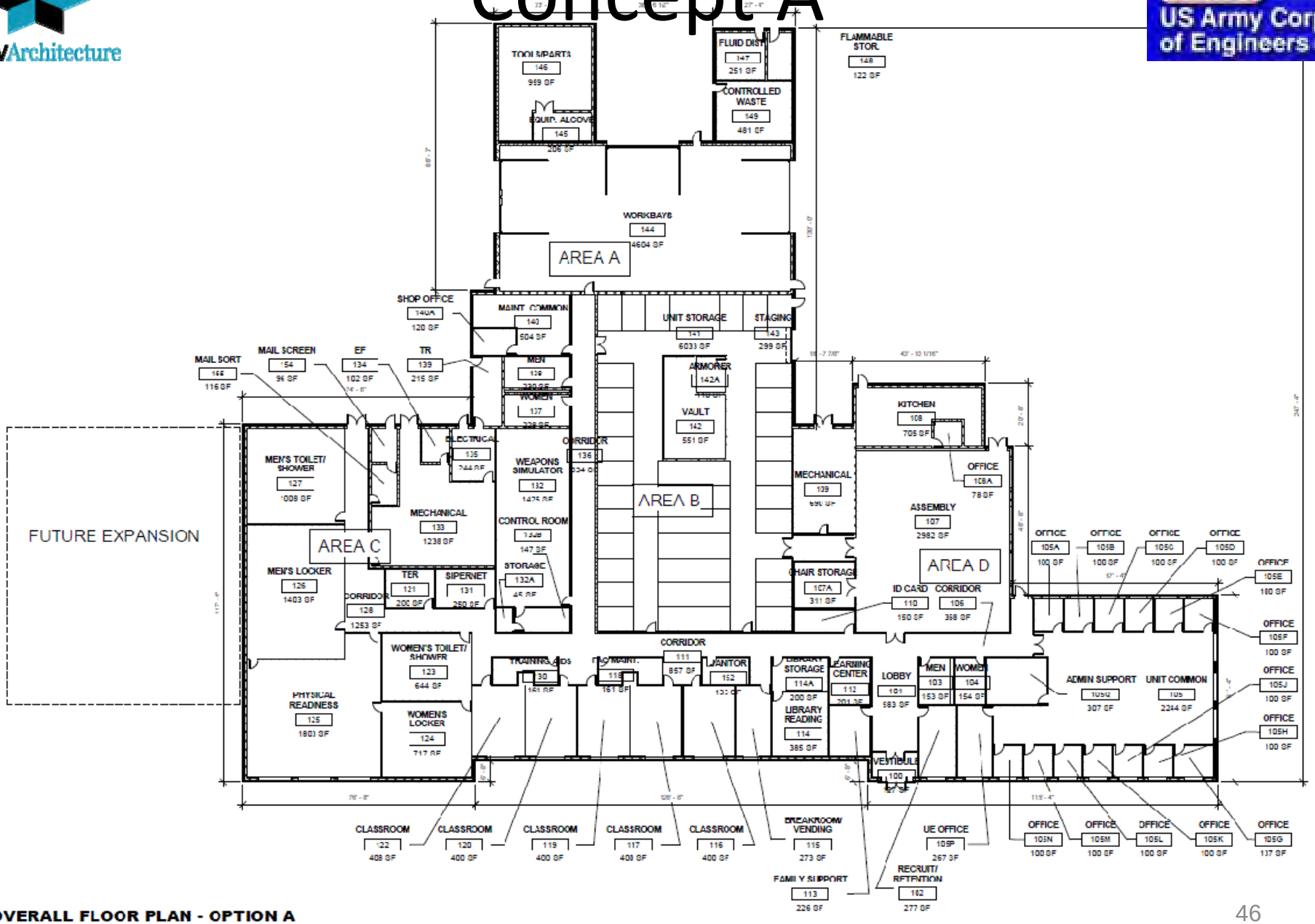
KANSAS CITY, KANSAS

CONCEPT A S
PLAN

Job No. 0000.000
Date 08/22/11
Drawn KJH
Checked TDM

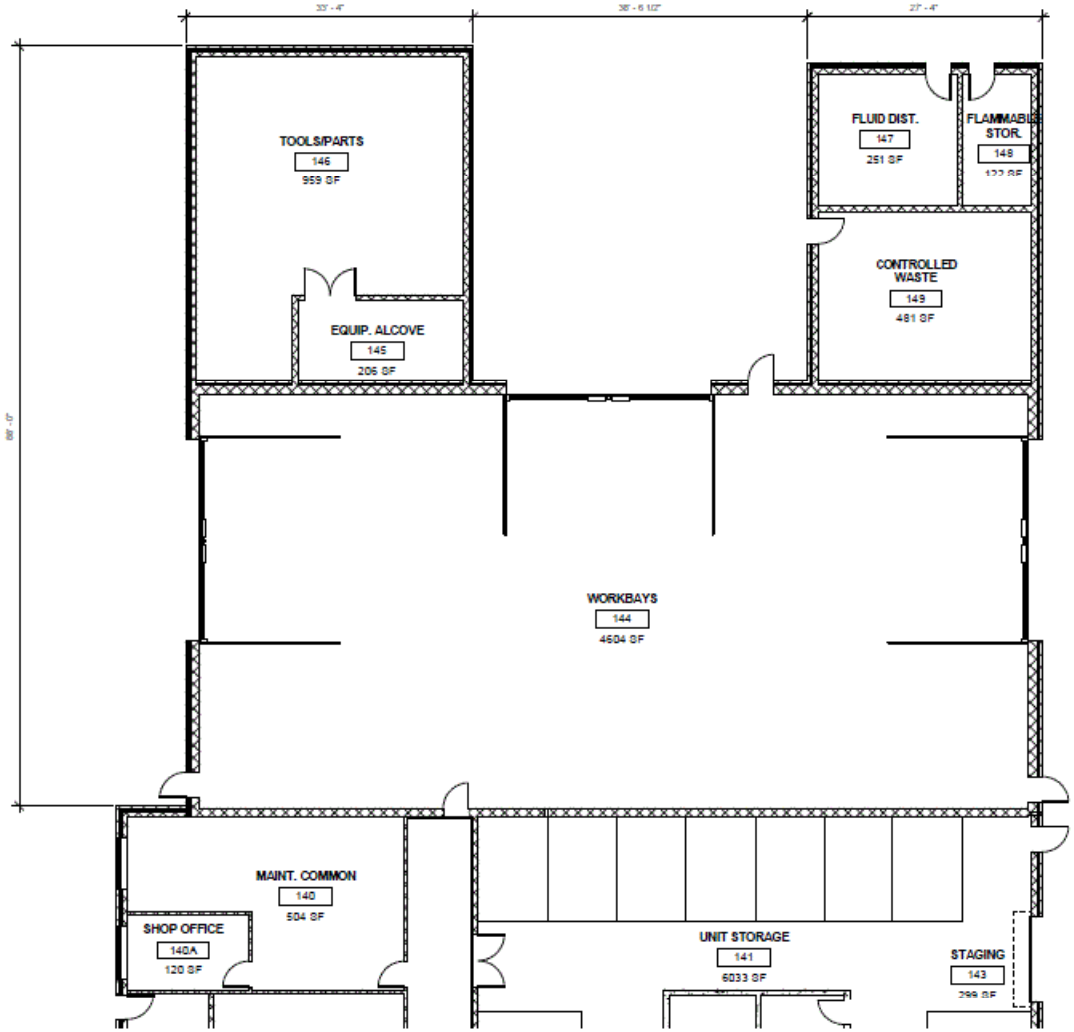
Concept A



1 **OVERALL FLOOR PLAN - OPTION A**

0' 4' 8' 16' 24' 1/16" = 1'-0"

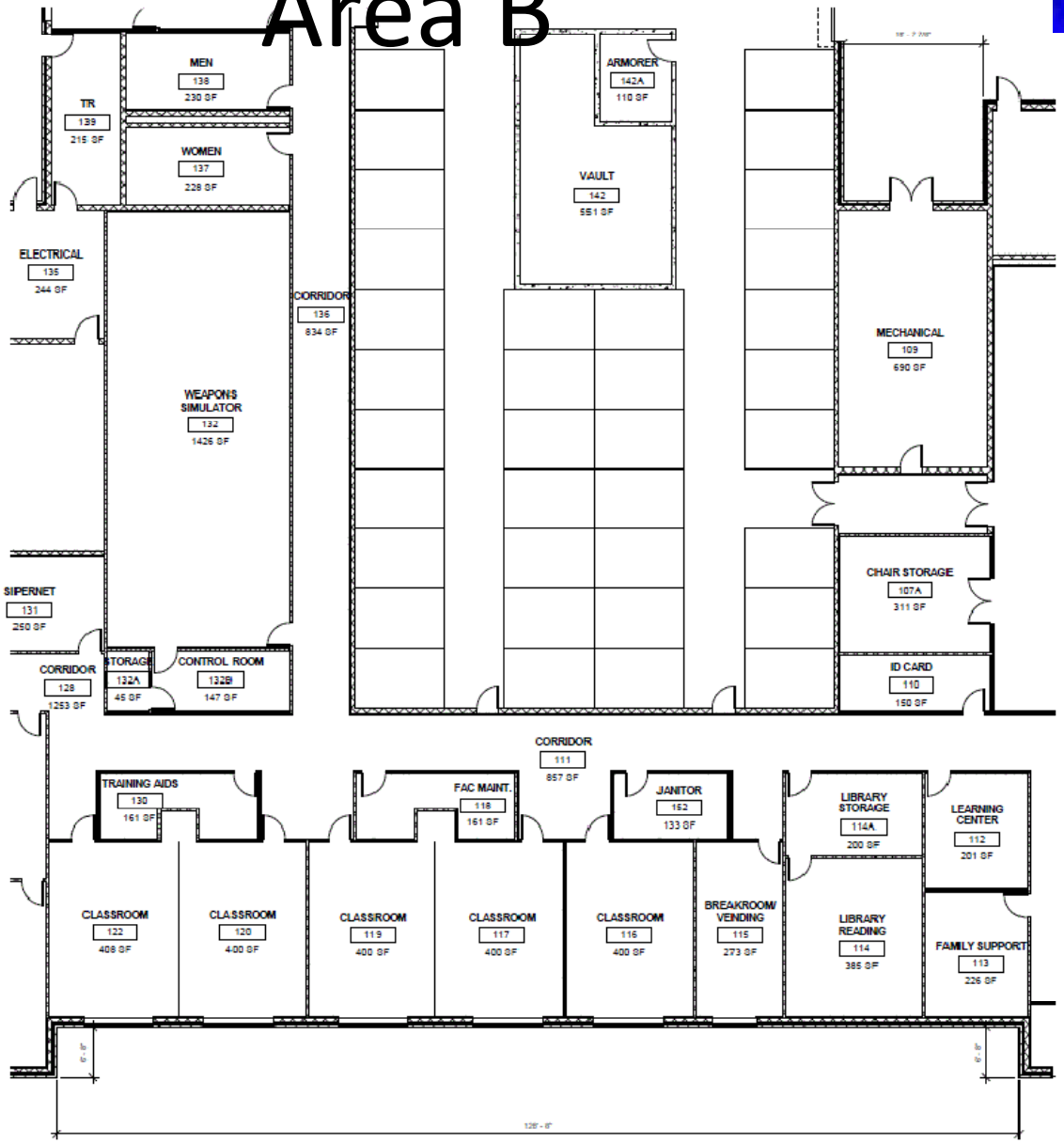
Concept A
Area A



1 FLOOR PLAN - OPTION A - AREA A

1/8" = 1'-0"

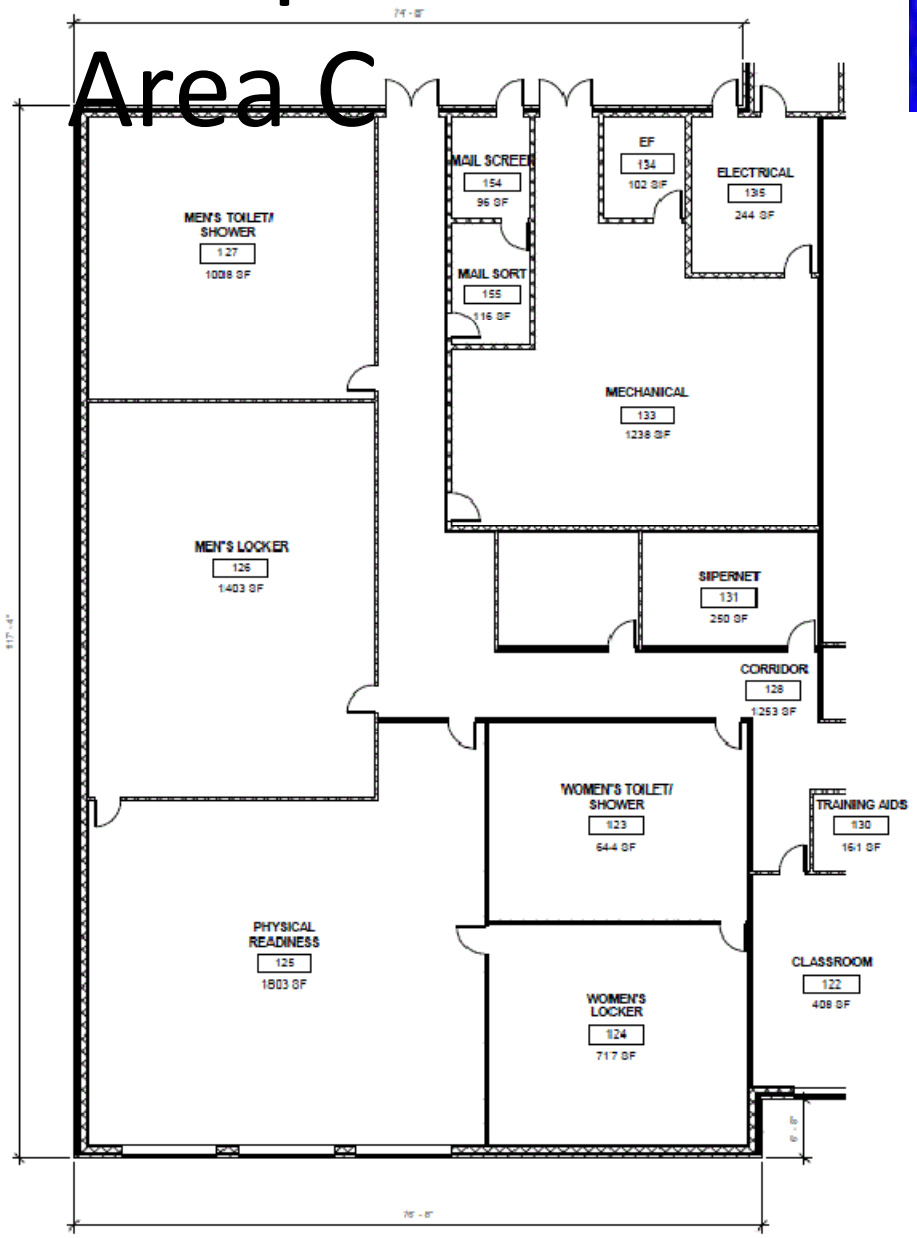
Concept A
Area B



1 **FLOOR PLAN - OPTION A - AREA B**

1/8" = 1'-0"

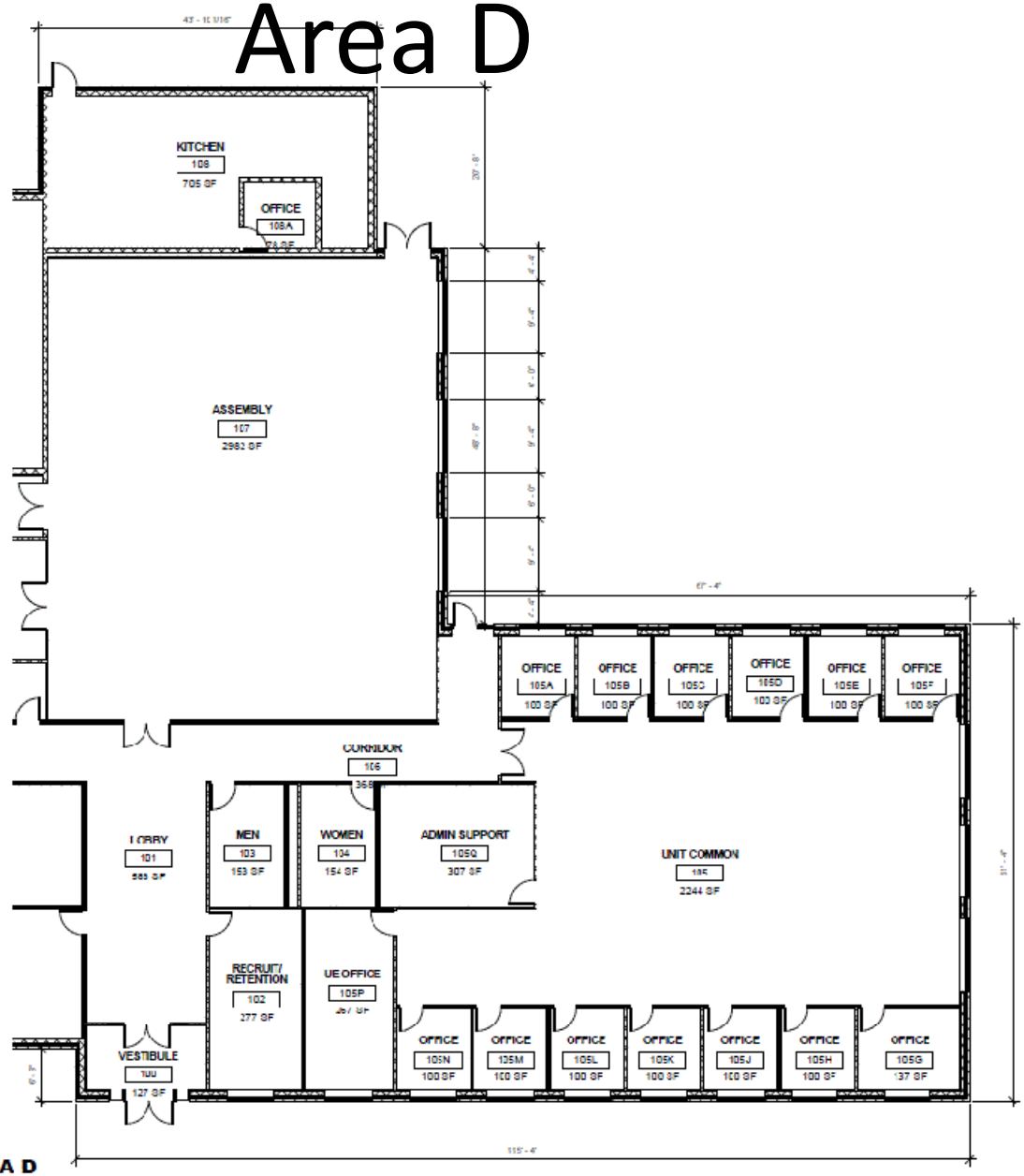
Concept A Area C



1 FLOOR PLAN - OPTION A - AREA C

1/8" = 1'-0"

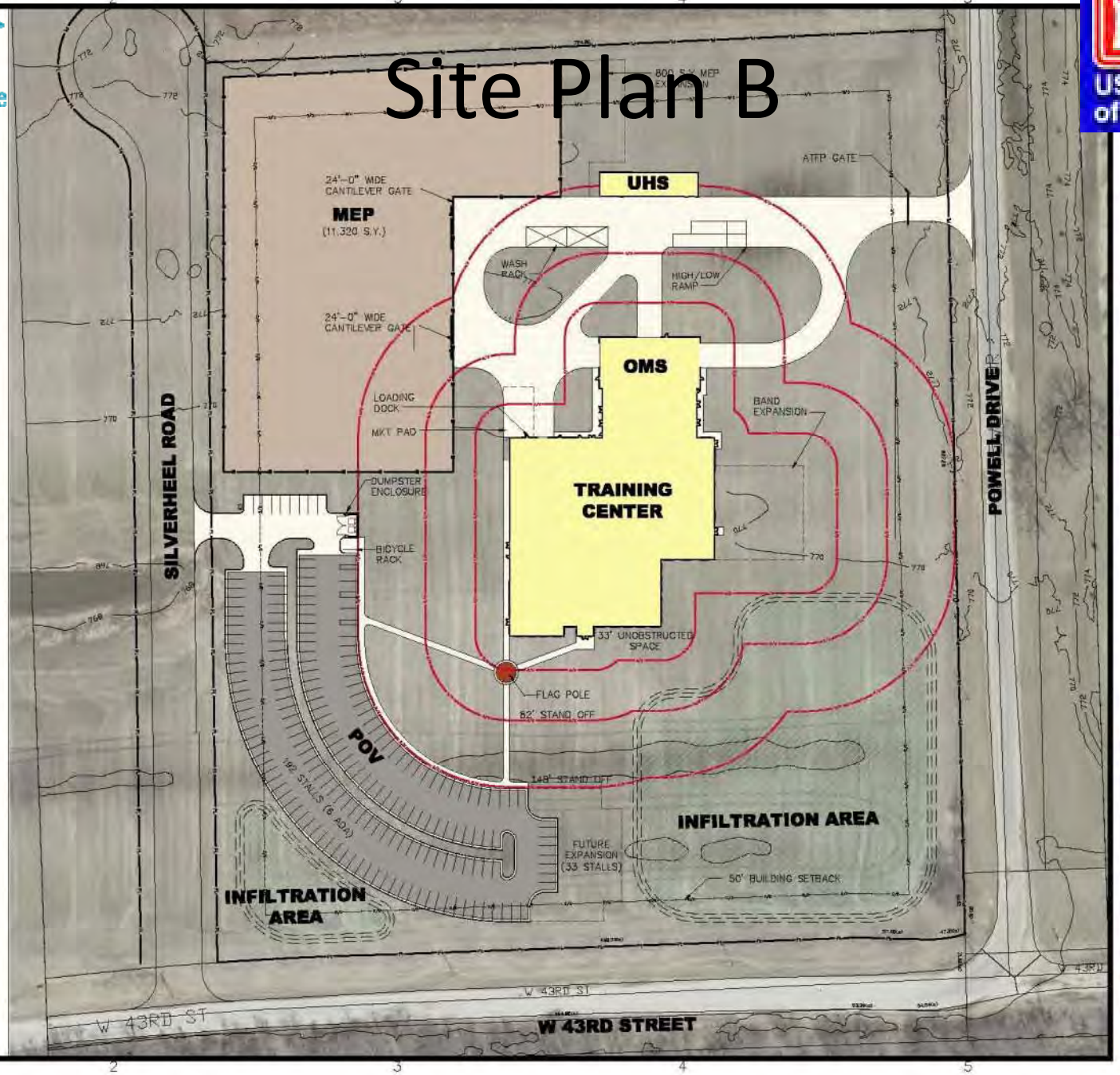
Concept A
Area D



1 FLOOR PLAN - OPTION A - AREA D

1/8" = 1'-0"

Site Plan B



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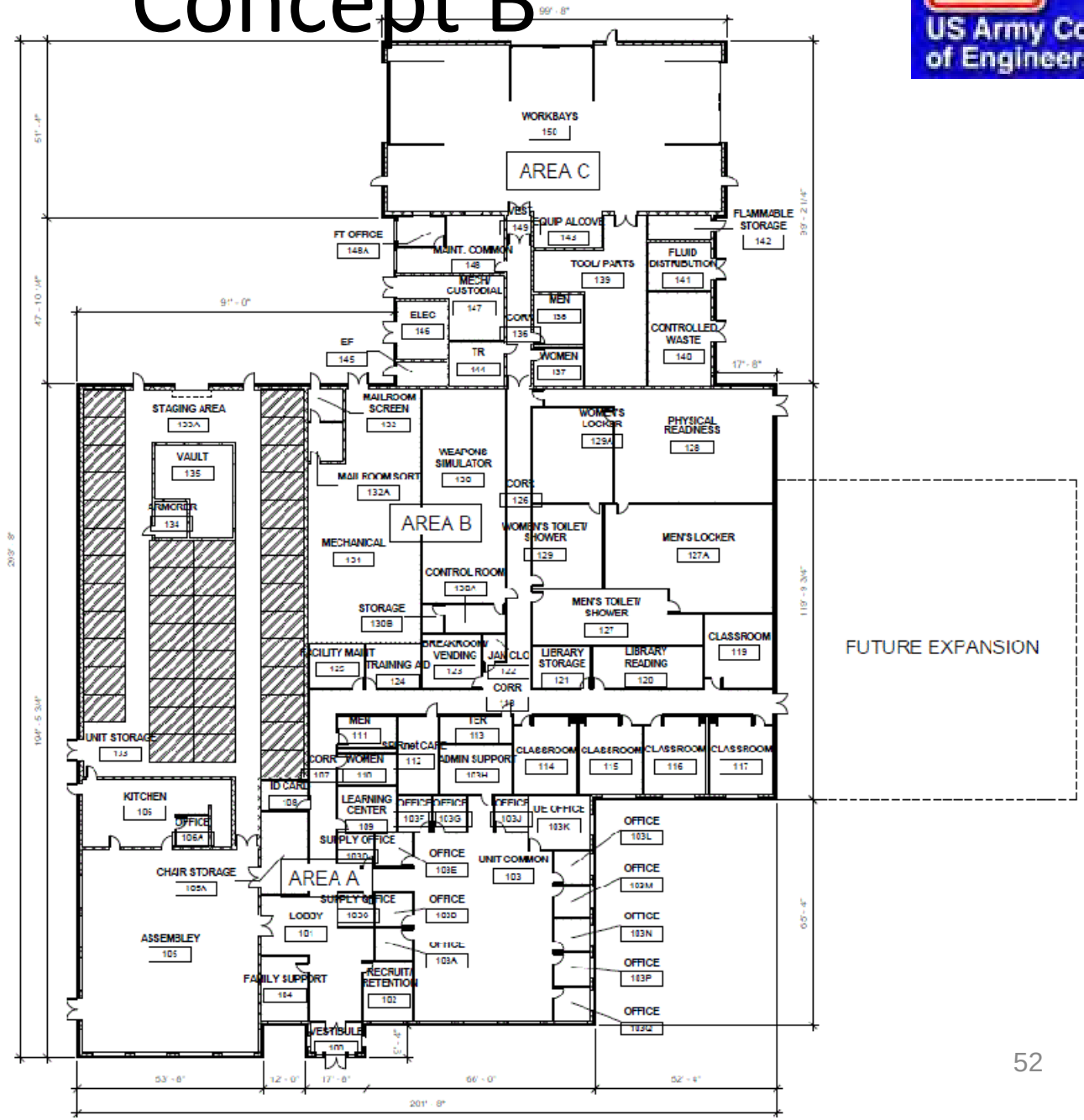
Mark	Date:	Description

CONCEPT B SITE PLAN

Job No. 0000.000	LS102
Date 08/22/11	
Drawn KLH	
Checked TDM	Dwg # of #

B' SITE PLAN
1"=50.0'

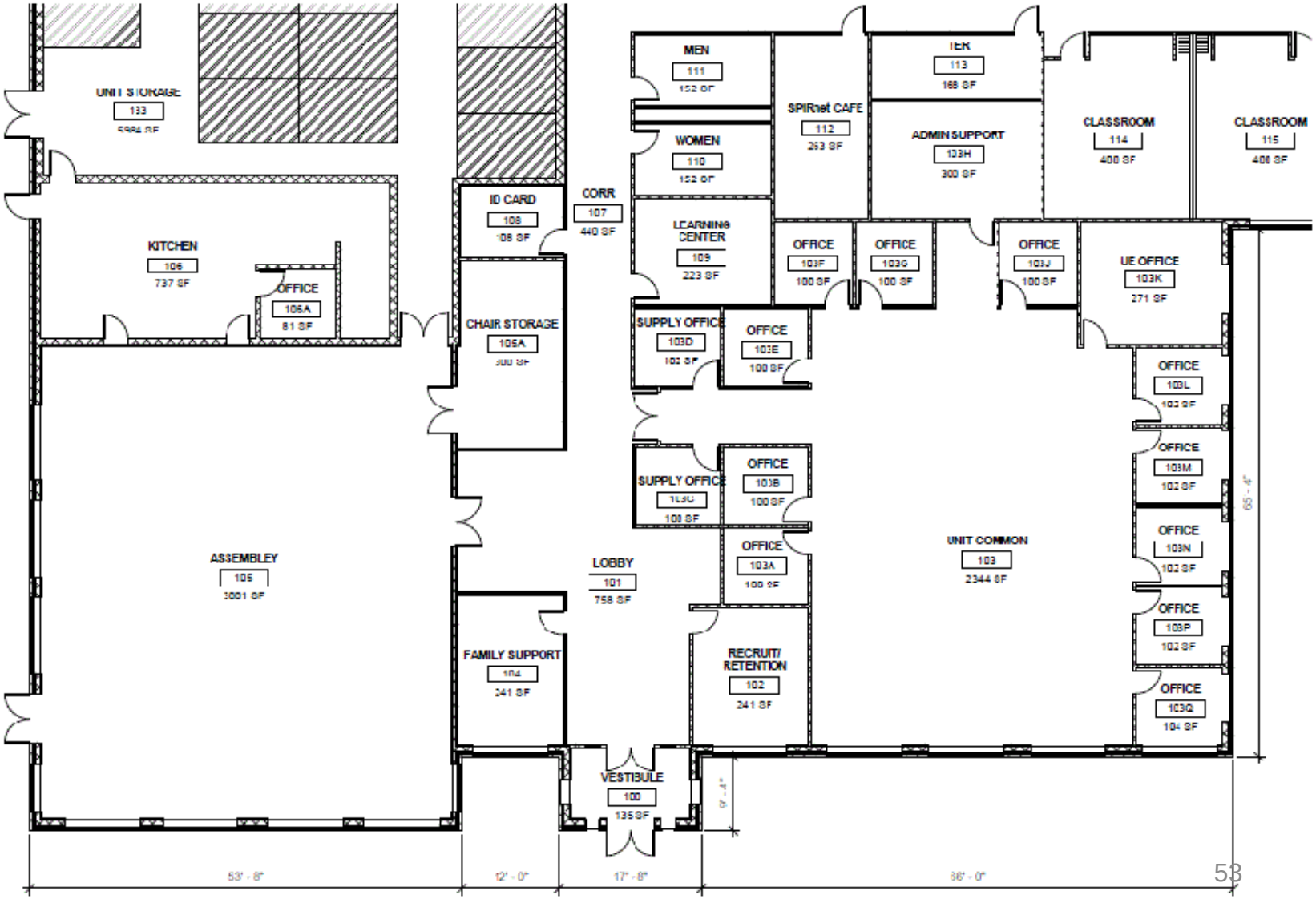
Concept B



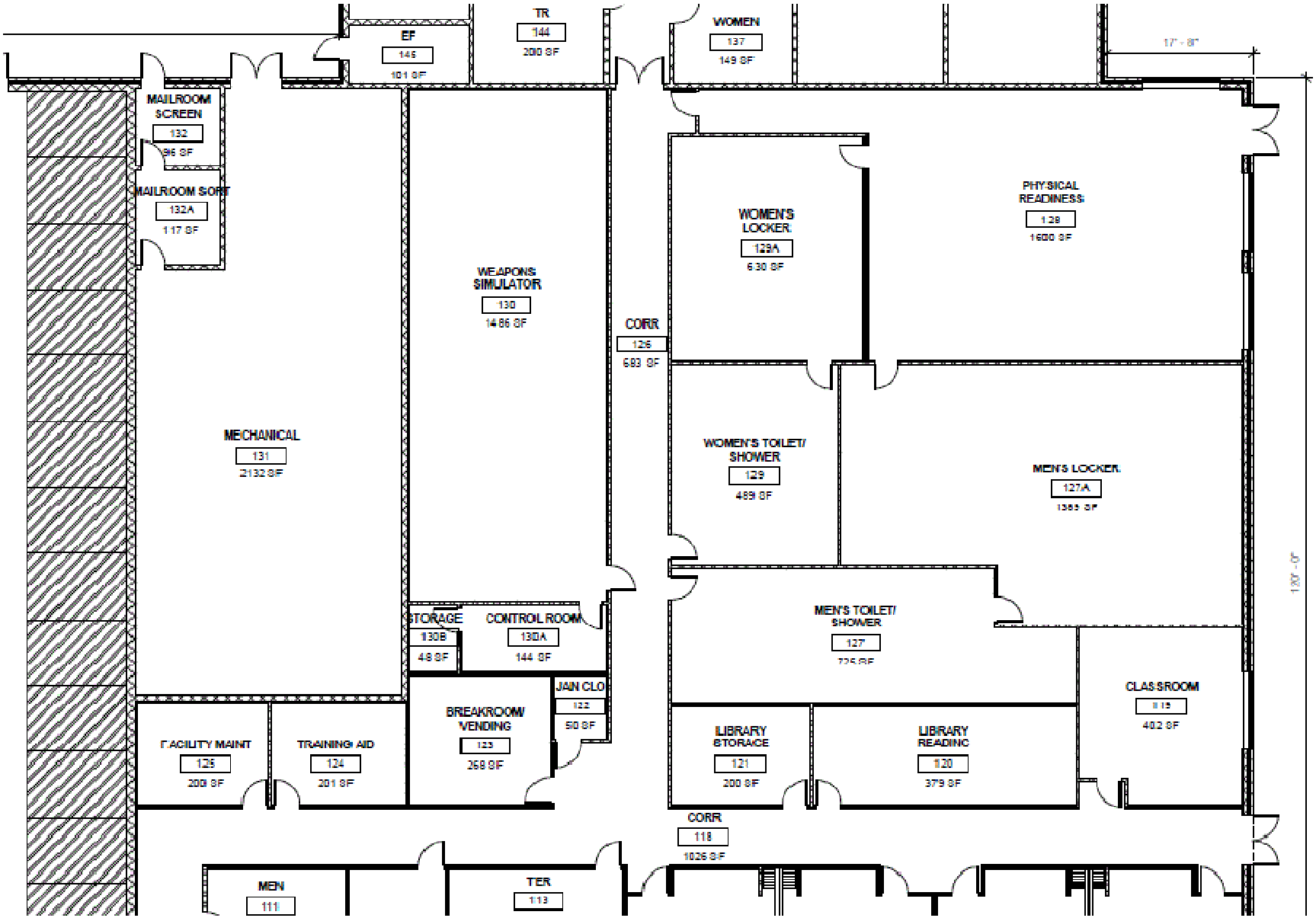
1 **OVERALL FLOOR PLAN - OPTION B**

0' 4' 8' 16' 24' 1/16" = 1'-0"

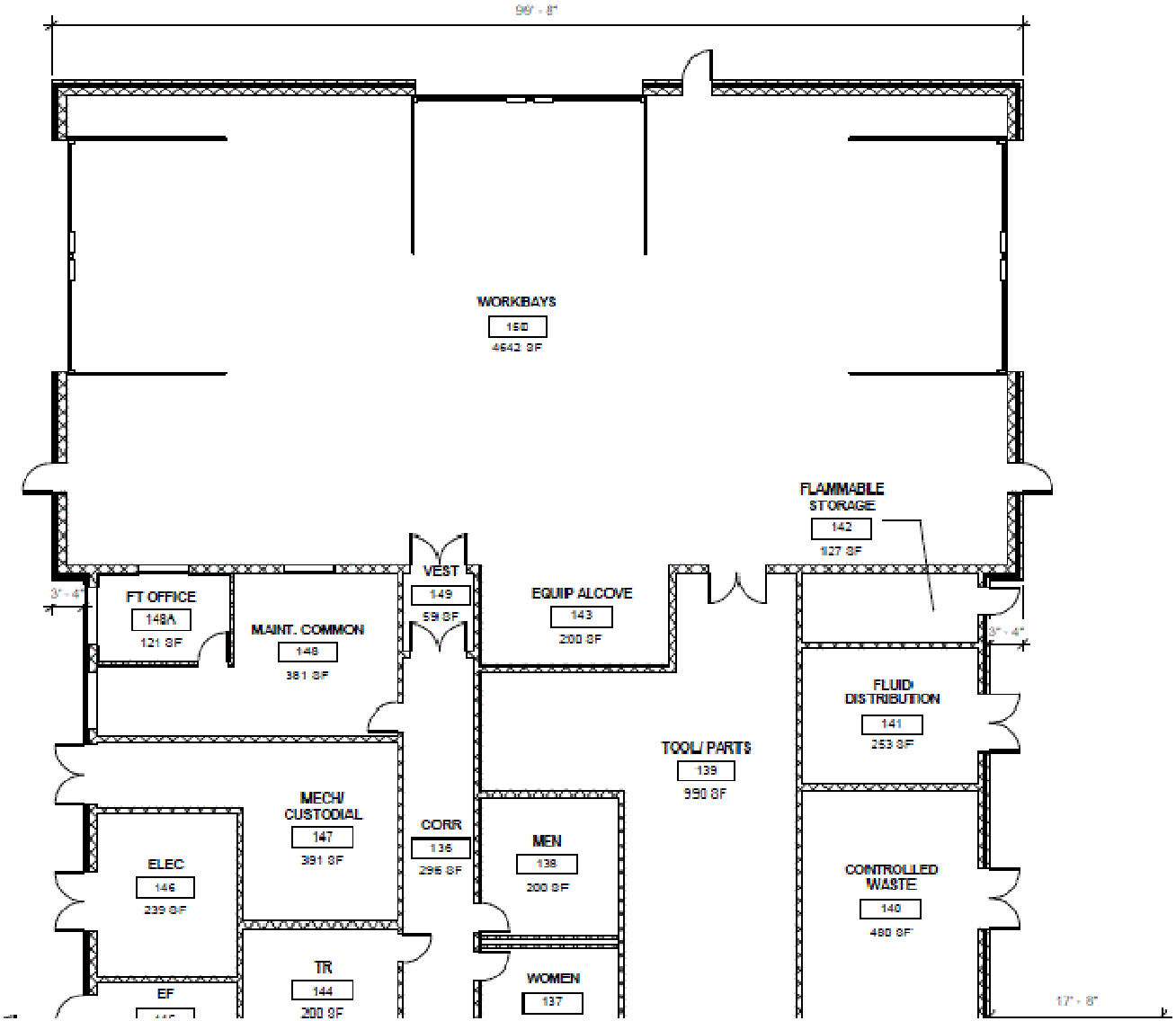
Concept B
Area A



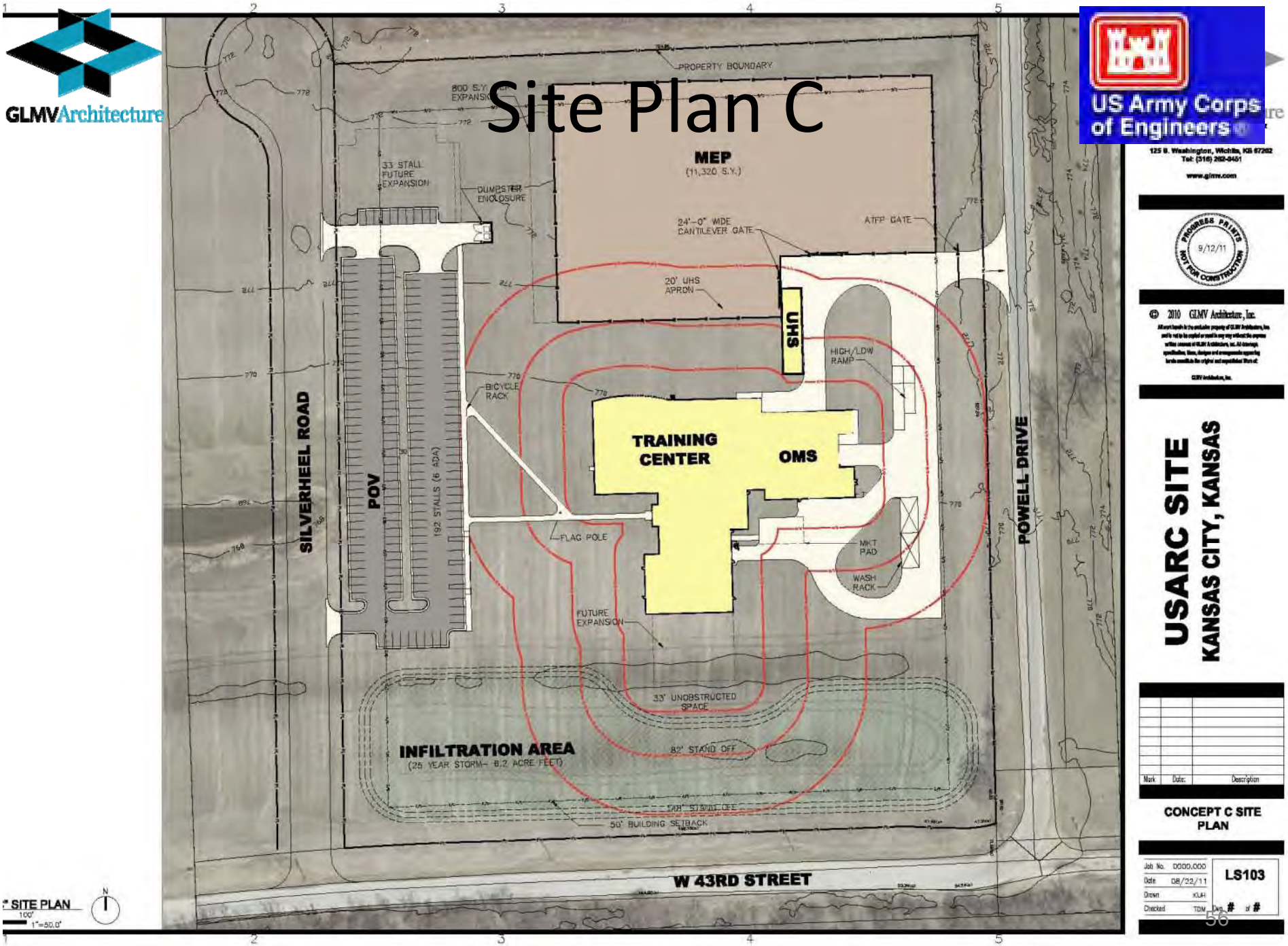
Concept B
Area B



Concept B
Area C



Site Plan C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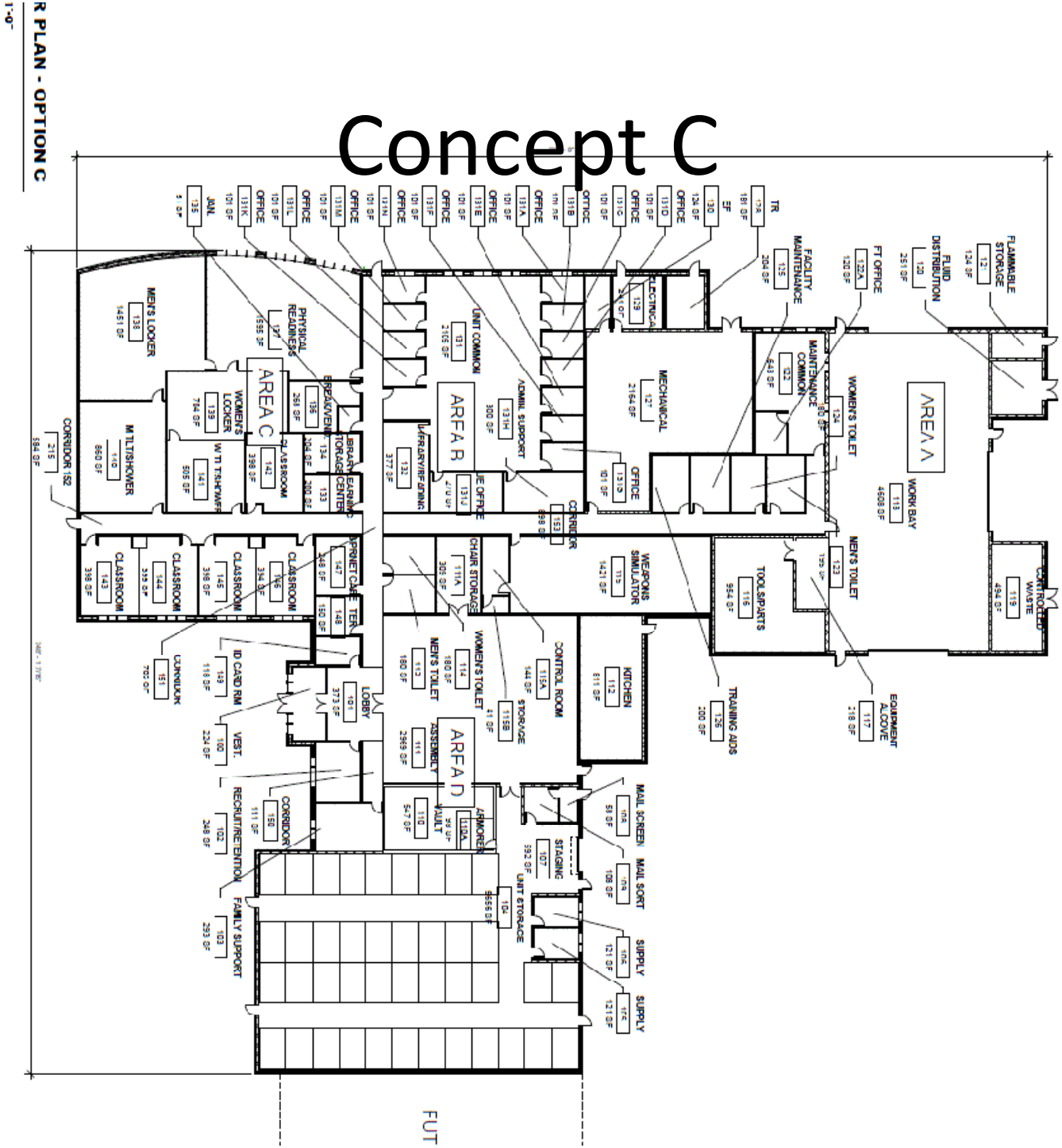
Mark
Date
Description
CONCEPT C SITE PLAN
Job No. 0000.000
Date 08/22/11
Drawn KLH
Checked TDM
LS103
Dwg # of #
SITE PLAN
1"=50.0'

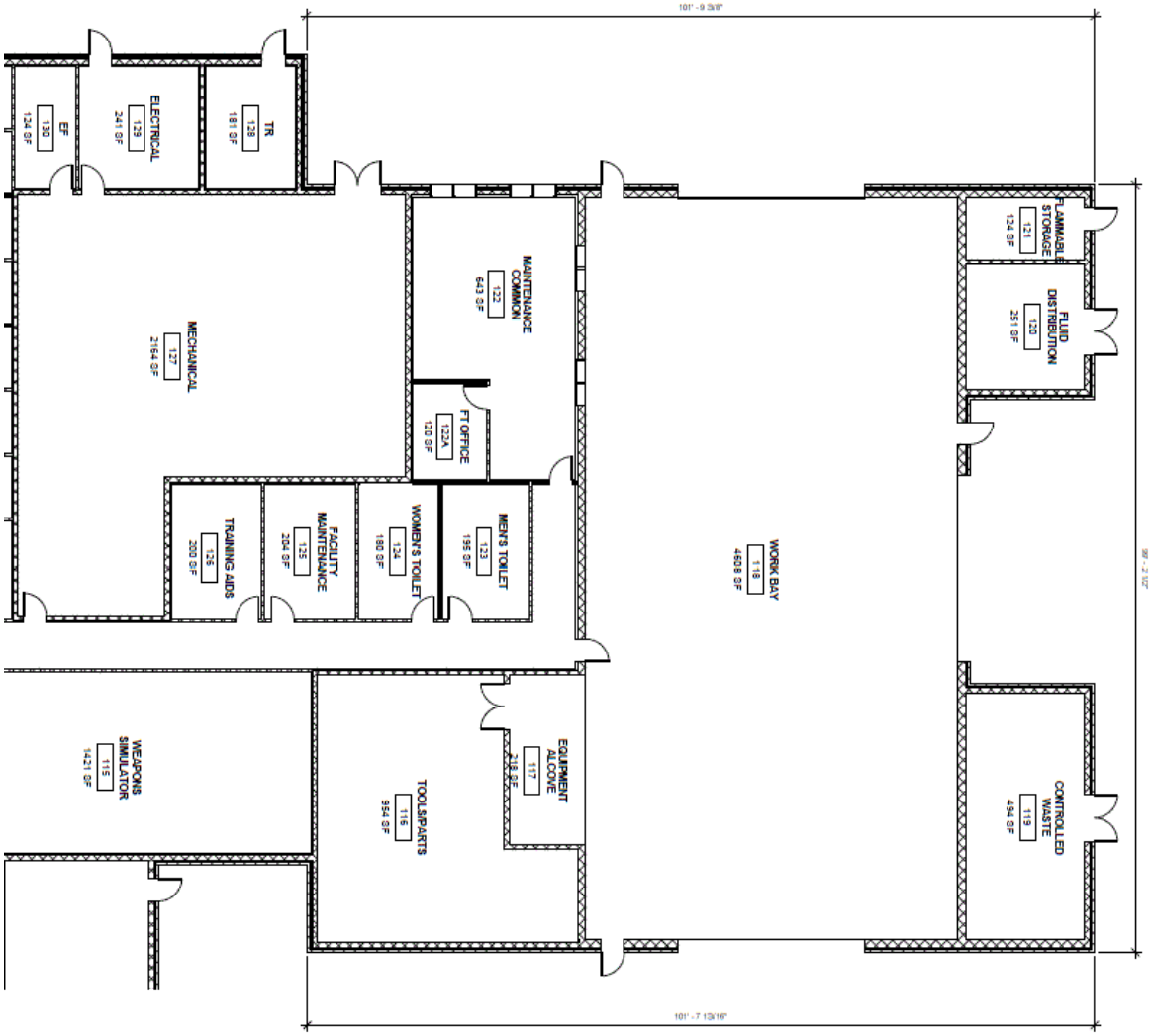
Concept C



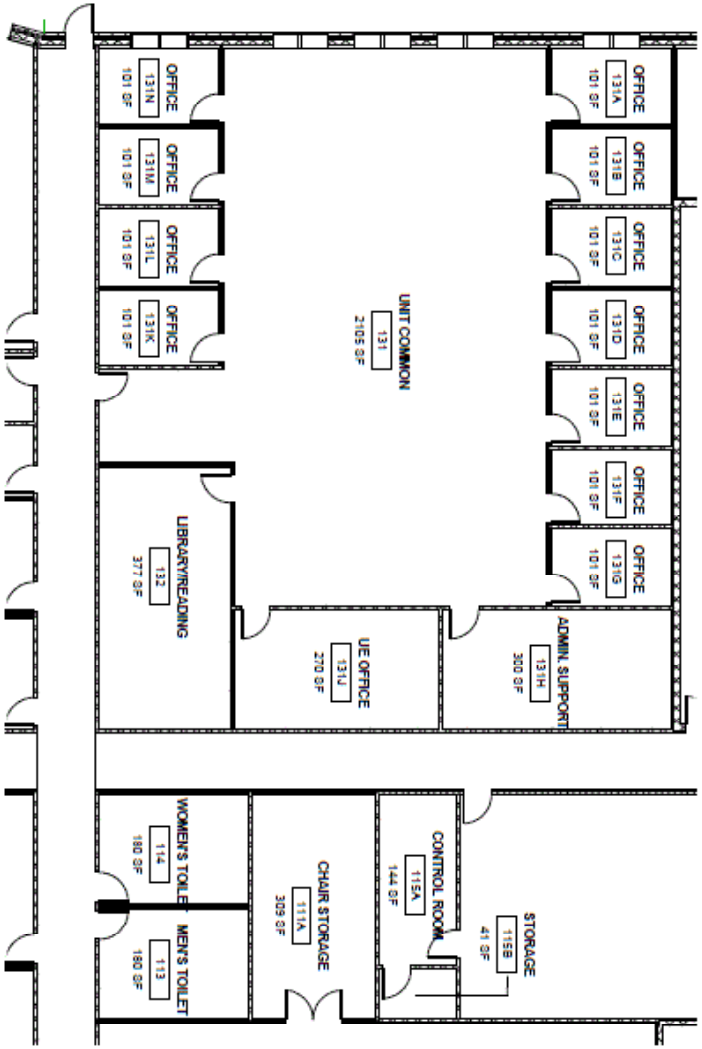
R PLAN - OPTION C

1'-0"

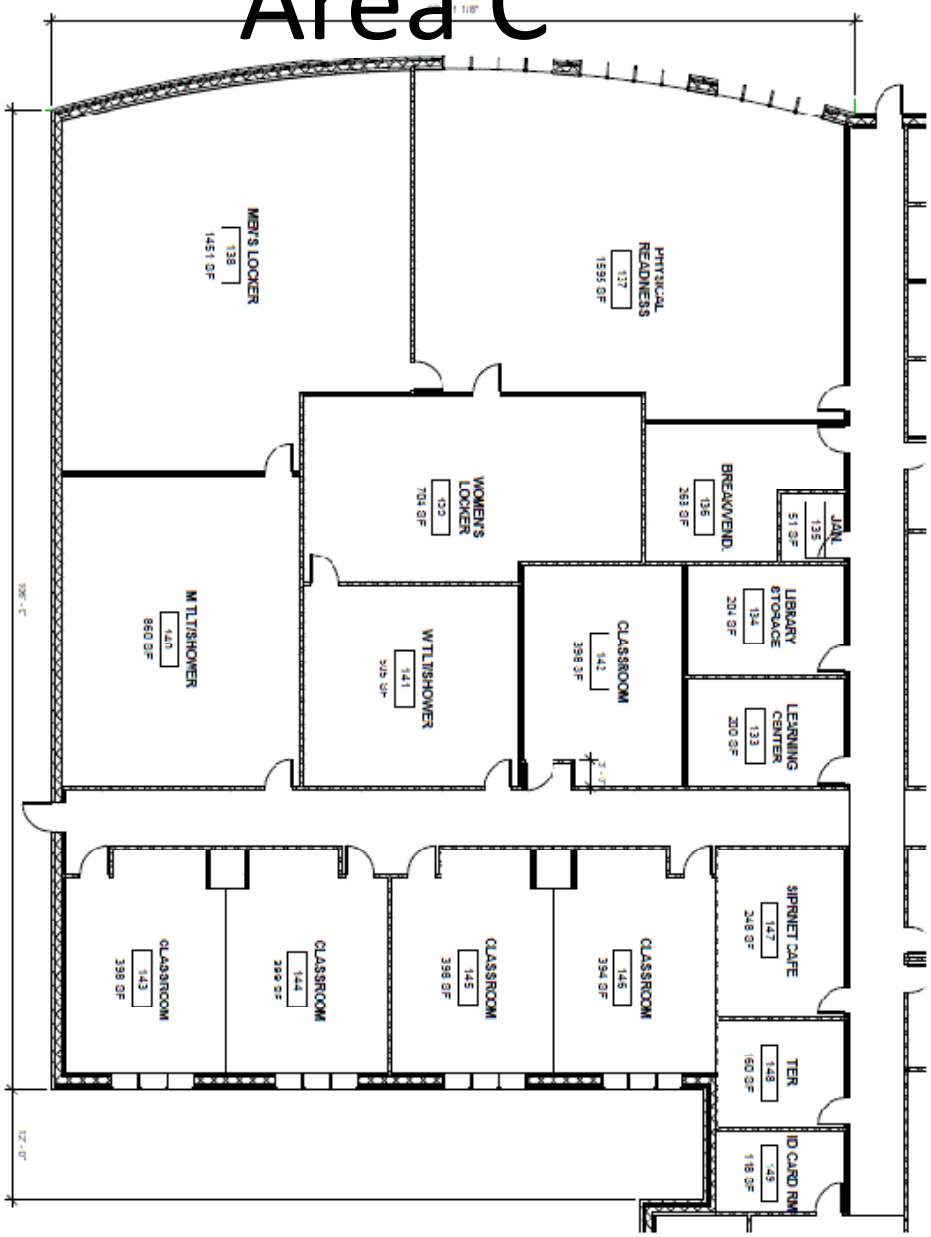
Concept C
Area A



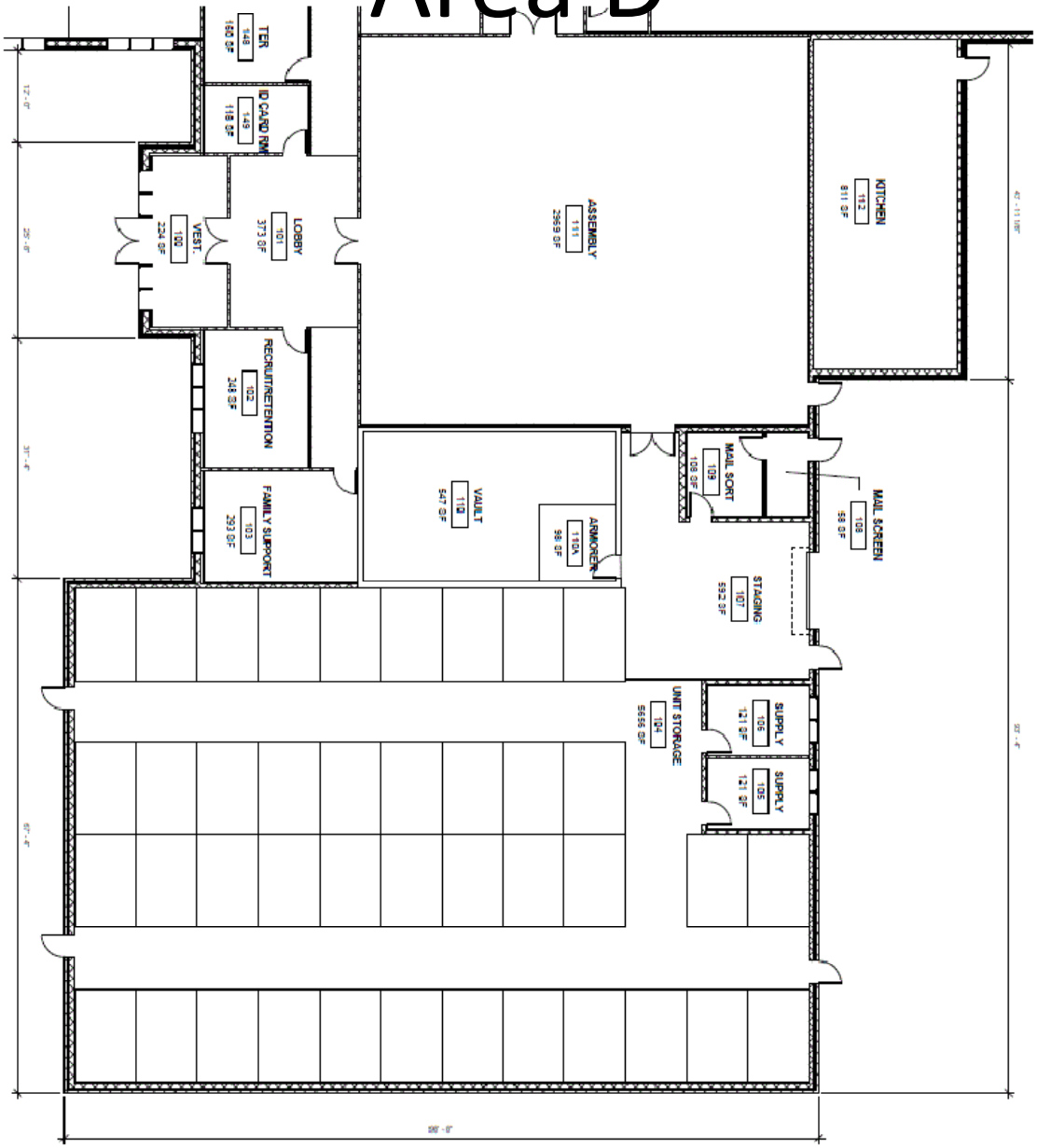
Concept C
Area B



Concept C
Area C



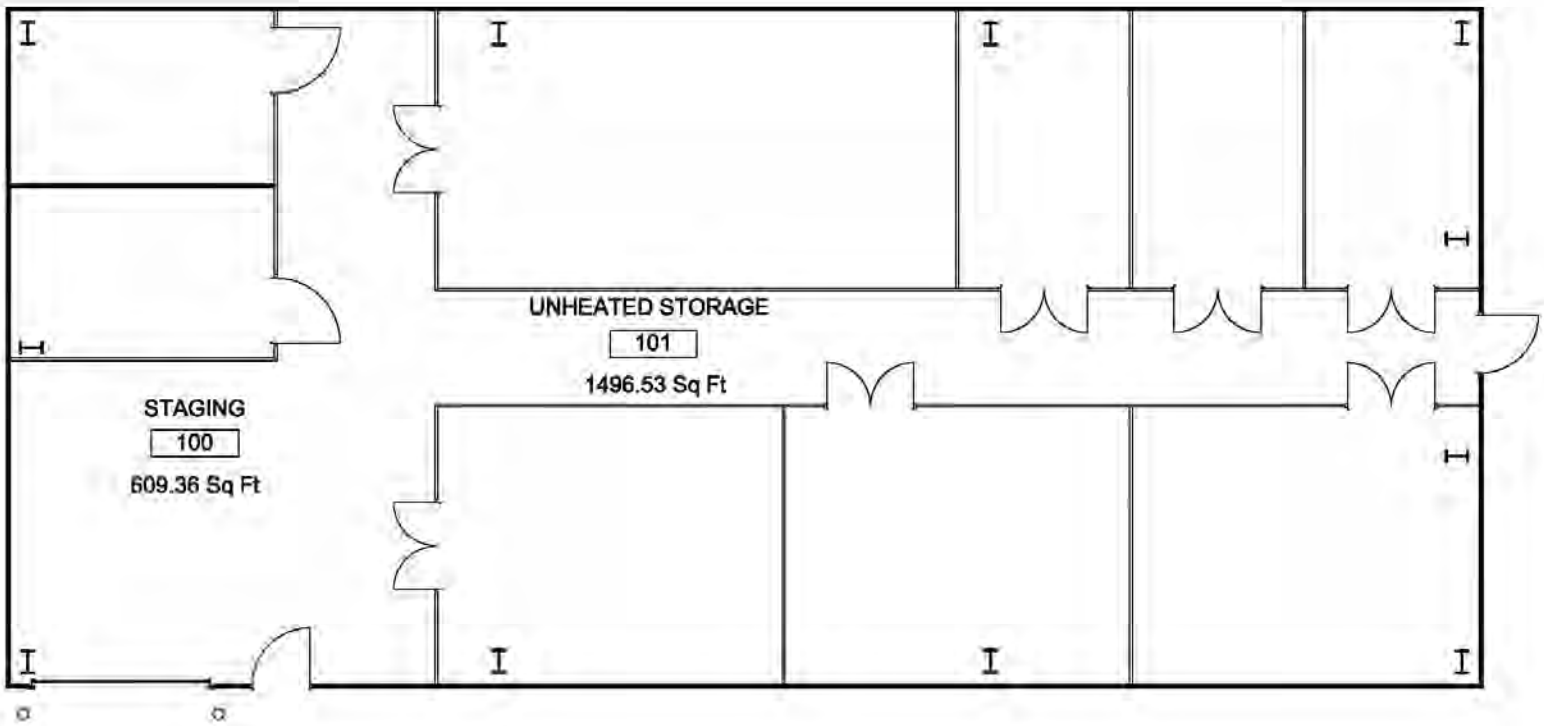
Concept C
Area D



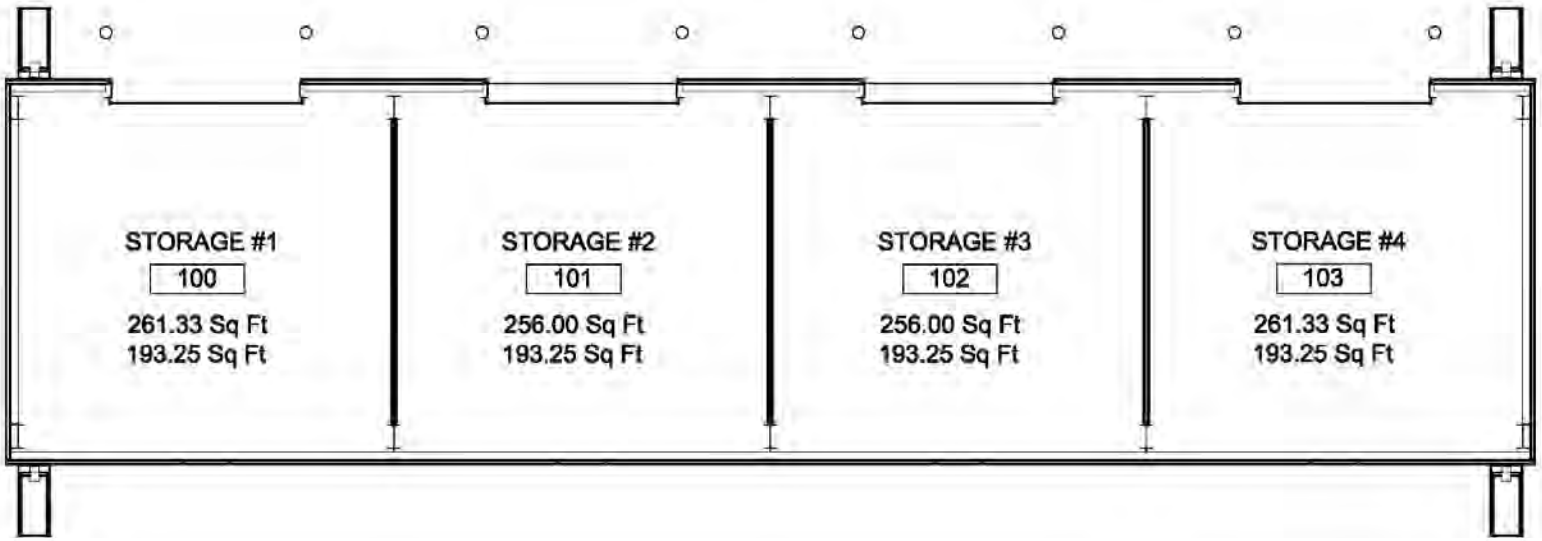
Design Charrette

- Thursday, September 29, 2011
- Real estate Review
- Unheated Storage Review
- Review of Revised Concepts
- Cost Estimate
- LEED
- Taskers
- Schedule

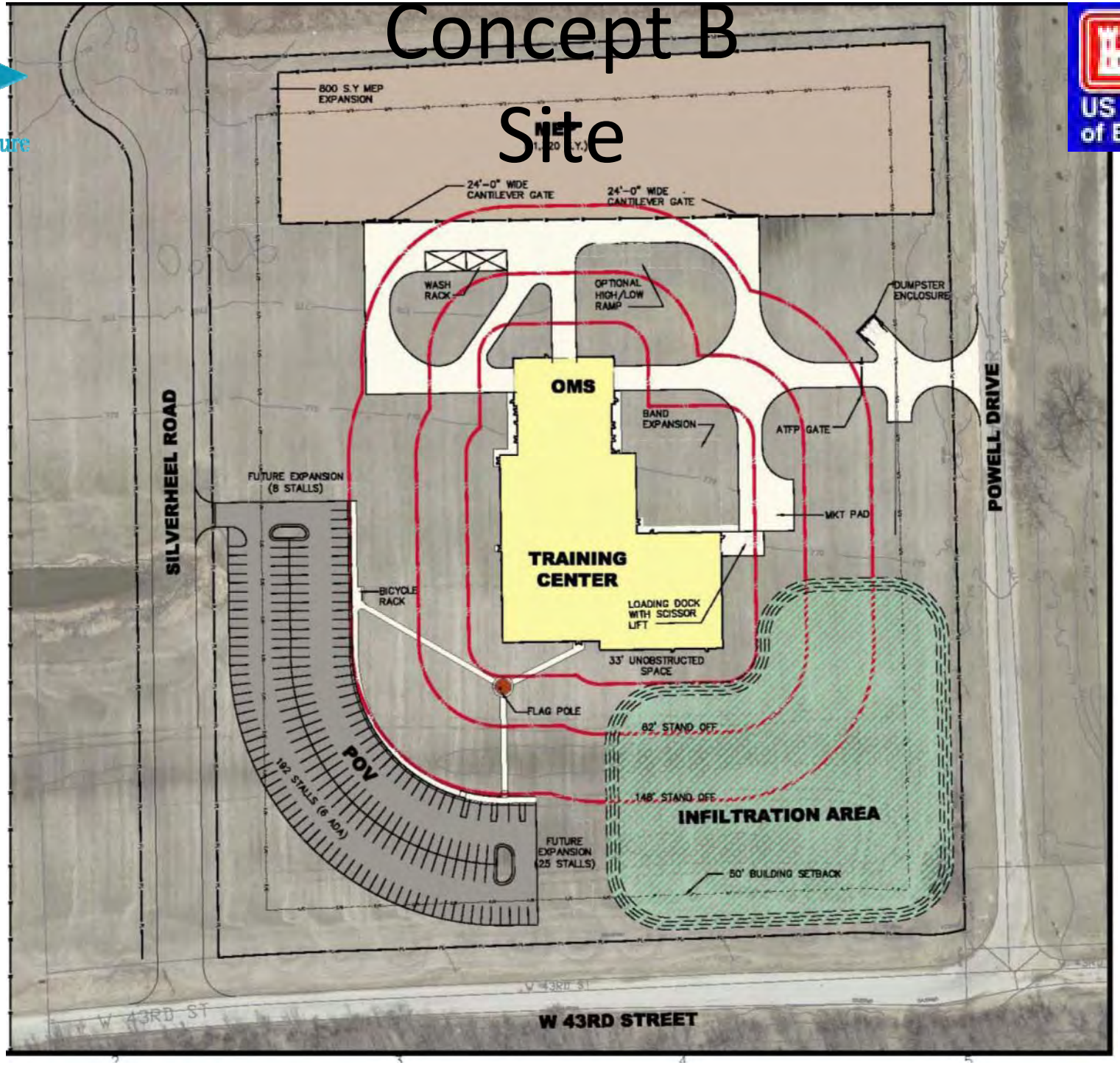
Concept UHS
Single Door



Concept UHS
Multiple Doors



Concept B Site



Concept B
Area A

Cost Estimate

DESCRIPTION	1391				AS DESIGNED				
KCK ARC Option B BRICK 6" Metal Stud	QTY	UM	UNIT COST	TOTAL	QTY	UM	UNIT COST	TOTAL	Difference
Primary Facilities									
Land	1	LS		$825,000.00	1	LS	$1,400,000.00	$1,475,000.00	$650,000.00
Army Reserve Center Building	36,468	SF	$170.84	$6,255,000.00	43,411	SF	$174.39	$7,570,569	$1,315,569.00
Vehicle Maintenance Shop	9,220		$230.59	$2,126,000.00			Included Above	$0.00	-$2,126,000.00
Unheated Storage Building	1,672		$98.09	$164,006.48	1672		$87.94	$147,035.00	-$16,971.48
Organizational Paving	0		$0.00	$0.00	11320	SY	$12.97	$146,826.00	$146,826.00
SDD and EPAct05, Information Systems, Antiterroris	1	LS	$174,000.00	$174,000.00				Included Above	-$174,000.00
Antiterrorism Measures	1	LS	$210,000.00	$211,000.00				Included Above	-$210,000.00
Cost - Primary Facilities/Building				**$9,755,006.48**				**$7,864,430.00**	**-$1,890,576.48**
Supporting Facilities Option B				**$1,480,000.00**				**$2,444,994.00**	**$964,994.00**
Electric Service	1	LS		$235,000.00	1	LS		$278,281.00	$43,281.00
Water, Sewer, Gas	1	LS		$320,000.00	1	LS		$135,596.00	-$184,404.00
Paving, Walks, Curb and Gutter	1	LS		$378,000.00	1	LS		$799,287.00	$421,287.00
Storm Drainage	1	LS		$81,000.00	1	LS		$175,592.00	$94,592.00
Site Improvement	1	LS		$375,000.00	1	LS		$846,953.00	$471,953.00
Information Systems	1	LS		$65,000.00	1	LS	Included Above	-	-$65,000.00
Antiterrorism Measures	1	LS		$26,000.00	1	LS		$67,978.00	$41,978.00
Sanitary Holding Tank					1	LS		$34,759.00	
Public Water Utility Distribution 1" 1/2 Force Main					1	LS		$1,880.00	
Fire hydrants					5	EA	$2,656.00	$13,280.00	
8" water main (Powell to Bonner Industrial Drive)					1	LS		$36,484.00	
3" overlay on 43rd					1	LS		$54,904.00	
								$10,309,424.00	
Midpoint of construction					4.01%			$413,407.90	
Subtotal				$11,232,000.00				$10,722,831.90	-$509,168.10
Contingency	5%			$562,000.00	5%			$536,141.60	-$25,858.40
Subtotal				$11,794,000.00				$11,258,973.50	-$535,026.50
Supervision, Inspection & Overhead (SIOH)	5.7%			$672,000.00	5.7%			$641,761.49	-$30,238.51
Current Working Estimate (CWE)				$12,466,000.00				$11,900,734.99	-$565,265.01
Design Fee				$472,000.00	5.00%			$536,141.60	
Subtotal				$13,000,000.00				$12,436,876.58	
Small Business Set Aside					4.50%			$482,527.44	
				$13,000,000.00				$12,919,404.02	
Land Cost Added in							$1,400,000.00	**$14,319,404.02**	**$1,319,404.02**
								% Over	1.10

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LEED 2009 for New Construction and Major Renovations

Project Checklist

Kans

Sustainable Sites — Possible Points: 26

Y	?	N			
Y			Prereq 1	Construction Activity Pollution Prevention	
		1	Credit 1	Site Selection	1
		1	Credit 2	Development Density and Community Connectivity	5
		1	Credit 3	Brownfield Redevelopment	1
		1	Credit 4.1	Alternative Transportation—Public Transportation Access	6
1			Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1
3			Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3
2			Credit 4.4	Alternative Transportation—Parking Capacity	2
2	0		Credit 5.1	Site Development—Protect or Restore Habitat	1
1			Credit 5.2	Site Development—Maximize Open Space	1
1			Credit 6.1	Stormwater Design—Quantity Control	1
1			Credit 6.2	Stormwater Design—Quality Control	1
	1		Credit 7.1	Heat Island Effect—Non-roof	1
1			Credit 7.2	Heat Island Effect—Roof	1
1			Credit 8	Light Pollution Reduction	1

Water Efficiency — Possible Points: 10

Y	?	N			
Y			Prereq 1	Water Use Reduction—20% Reduction	
4			Credit 1	Water Efficient Landscaping	2 to 4
	1		Credit 2	Innovative Wastewater Technologies	2
4	1		Credit 3	Water Use Reduction	2 to 4

Energy and Atmosphere — Possible Points: 35

Y	?	N			
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems	
Y			Prereq 2	Minimum Energy Performance	0
Y			Prereq 3	Fundamental Refrigerant Management	
10	0		Credit 1	Optimize Energy Performance	1 to 19
1	0		Credit 2	On-Site Renewable Energy	1 to 7
			Credit 3	Enhanced Commissioning	2
2			Credit 4	Enhanced Refrigerant Management	2
		1	Credit 5	Measurement and Verification	3
	1		Credit 6	Green Power	2

Materials and Resources — Possible Points: 14

Y	?	N			
Y			Prereq 1	Storage and Collection of Recyclables	0
		1	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1
2			Credit 2	Construction Waste Management	1 to 2
		1	Credit 3	Materials Reuse	1 to 2

Materials and Resources, Continued

Y	?	N			
2			Credit 4	Recycled Content	1 to 2
1	1		Credit 5	Regional Materials	1 to 2
	1		Credit 6	Rapidly Renewable Materials	1
1			Credit 7	Certified Wood	1

Indoor Environmental Quality — Possible Points: 15

Y	?	N			
Y			Prereq 1	Minimum Indoor Air Quality Performance	0
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	0
1			Credit 1	Outdoor Air Delivery Monitoring	1
1			Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
	1		Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems—Lighting	1
1	0		Credit 6.2	Controllability of Systems—Thermal Comfort	1
1			Credit 7.1	Thermal Comfort—Design	1
		1	Credit 7.2	Thermal Comfort—Verification	1
	1		Credit 8.1	Daylight and Views—Daylight	1
1			Credit 8.2	Daylight and Views—Views	1

Innovation and Design Process — Possible Points: 6

Y	?	N			
1	0		Credit 1.1	Innovation in Design: Specific Title Contractor to Identify	1
1	0		Credit 1.2	Innovation in Design: Specific Title Contractor to Identify	1
1	0		Credit 1.3	Innovation in Design: Specific Title Contractor to Identify	1
	1		Credit 1.4	Innovation in Design: Specific Title	1
	1		Credit 1.5	Innovation in Design: Specific Title	1
1			Credit 2	LEED Accredited Professional	1

Regional Priority Credits — Possible Points: 4

Y	?	N			
1			Credit 1.1	Regional Priority: Specific Credit SSC 4.4 Parking Capacity	1
1			Credit 1.2	Regional Priority: Specific Credit SSC 7.2 Heat Island Effect Roof	1
1			Credit 1.3	Regional Priority: Specific Credit WEc1 No/Potable/Irrigation	1
1			Credit 1.4	Regional Priority: Specific Credit EAc2 9% Renewable Energy	1

Total — Possible Points: 110

Y	?	N			
60	10	9		Total	

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

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Project Checklist

Project

US Army Corps of Engineers

Sustainable Sites — Possible Points: 26

Y	?	N				
13	1	4				
Y			Prereq 1	Construction Activity Pollution Prevention		
		1	Credit 1	Site Selection	1	Prime Farmland
		1	Credit 2	Development Density and Community Connectivity	5	
		1	Credit 3	Brownfield Redevelopment	1	
		1	Credit 4.1	Alternative Transportation—Public Transportation Access	6	
1			Credit 4.2	Alternative Transportation—Bicycle Storage and Changing Rooms	1	
3			Credit 4.3	Alternative Transportation—Low-Emitting and Fuel-Efficient Vehicles	3	
2			Credit 4.4	Alternative Transportation—Parking Capacity	2	
2			Credit 5.1	Site Development—Protect or Restore Habitat	1	
1			Credit 5.2	Site Development—Maximize Open Space	1	
1			Credit 6.1	Stormwater Design—Quantity Control	1	
1			Credit 6.2	Stormwater Design—Quality Control	1	
	1		Credit 7.1	Heat Island Effect—Non-roof	1	
1			Credit 7.2	Heat Island Effect—Roof	1	
1			Credit 8	Light Pollution Reduction	1	

Notes:

Water Efficiency — Possible Points: 10

Y	?	N				
8	1	0				
Y			Prereq 1	Water Use Reduction—20% Reduction		
4			Credit 1	Water Efficient Landscaping	2 to 4	
				Reduce by 50%	2	
			4	No Potable Water Use or Irrigation	4	
	1		Credit 2	Innovative Wastewater Technologies	2	
4			Credit 3	Water Use Reduction	2 to 4	
			2	Reduce by 30%	2	
			1	Reduce by 35%	3	
			1	Reduce by 40%	4	

Notes:

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Y	?	N				
		1		**Energy and Atmosphere**	Possible Points:	35
Y			Prereq 1	Fundamental Commissioning of Building Energy Systems		
Y			Prereq 2	Minimum Energy Performance		
Y			Prereq 3	Fundamental Refrigerant Management		
10			Credit 1	Optimize Energy Performance	1 to 19	
				Improve by 12% for New Buildings or 8% for Existing Building Renovations	1	
				Improve by 14% for New Buildings or 10% for Existing Building Renovations	2	
				Improve by 16% for New Buildings or 12% for Existing Building Renovations	3	
				Improve by 18% for New Buildings or 14% for Existing Building Renovations	4	
				Improve by 20% for New Buildings or 16% for Existing Building Renovations	5	
				Improve by 22% for New Buildings or 18% for Existing Building Renovations	6	
				Improve by 24% for New Buildings or 20% for Existing Building Renovations	7	
				Improve by 26% for New Buildings or 22% for Existing Building Renovations	8	
				Improve by 28% for New Buildings or 24% for Existing Building Renovations	9	
			10	Improve by 30% for New Buildings or 26% for Existing Building Renovations	10	Traget to get to 40 percent. Energy act and LEED use different cac
				Improve by 32% for New Buildings or 28% for Existing Building Renovations	11	
				Improve by 34% for New Buildings or 30% for Existing Building Renovations	12	
				Improve by 36% for New Buildings or 32% for Existing Building Renovations	13	
				Improve by 38% for New Buildings or 34% for Existing Building Renovations	14	
				Improve by 40% for New Buildings or 36% for Existing Building Renovations	15	
				Improve by 42% for New Buildings or 38% for Existing Building Renovations	16	
				Improve by 44% for New Buildings or 40% for Existing Building Renovations	17	
				Improve by 46% for New Buildings or 42% for Existing Building Renovations	18	
				Improve by 48%+ for New Buildings or 44%+ for Existing Building Renovations	19	
1	1		Credit 2	On-Site Renewable Energy	1 to 7	
				1% Renewable Energy	1	
				3% Renewable Energy	2	
				5% Renewable Energy	3	
				7% Renewable Energy	4	
			5	9% Renewable Energy	5	Possible Regional credit if they make 9 percent
				11% Renewable Energy	6	
				13% Renewable Energy	7	
			Credit 3	Enhanced Commissioning	2	
2			Credit 4	Enhanced Refrigerant Management	2	
		1	Credit 5	Measurement and Verification	3	
			Credit 6	Green Power	2	

Notes:

LEED

GLMVArchitecture

US Army Corps of Engineers

Y	?	N				
		3		**Materials and Resources**	Possible Points:	14
Y			Prereq 1	Storage and Collection of Recyclables		
		1	Credit 1.1	Building Reuse—Maintain Existing Walls, Floors, and Roof	1 to 3	
				Reuse 55%	1	
				Reuse 75%	2	
				Reuse 95%	3	
		1	Credit 1.2	Building Reuse—Maintain 50% of Interior Non-Structural Elements	1	
2			Credit 2	Construction Waste Management	1 to 2	
				50% Recycled or Salvaged	1	
			2	75% Recycled or Salvaged	2	
		1	Credit 3	Materials Reuse	1 to 2	
				Reuse 5%	1	
				Reuse 10%	2	
2	0		Credit 4	Recycled Content	1 to 2	
				10% of Content	1	
			2	20% of Content	2	
1	1		Credit 5	Regional Materials	1 to 2	
				10% of Materials	1	
				20% of Materials	2	
	1		Credit 6	Rapidly Renewable Materials	1	
1			Credit 7	Certified Wood	1	

Notes:

LEED

GLMVArchitecture

US Army Corps of Engineers

		1			
Y	?	N			
Y			Prereq 1	Minimum Indoor Air Quality Performance	
Y			Prereq 2	Environmental Tobacco Smoke (ETS) Control	
1			Credit 1	Outdoor Air Delivery Monitoring	1
1			Credit 2	Increased Ventilation	1
1			Credit 3.1	Construction IAQ Management Plan—During Construction	1
	1		Credit 3.2	Construction IAQ Management Plan—Before Occupancy	1
1			Credit 4.1	Low-Emitting Materials—Adhesives and Sealants	1
1			Credit 4.2	Low-Emitting Materials—Paints and Coatings	1
1			Credit 4.3	Low-Emitting Materials—Flooring Systems	1
1			Credit 4.4	Low-Emitting Materials—Composite Wood and Agrifiber Products	1
1			Credit 5	Indoor Chemical and Pollutant Source Control	1
1			Credit 6.1	Controllability of Systems—Lighting	1
1			Credit 6.2	Controllability of Systems—Thermal Comfort	1
1			Credit 7.1	Thermal Comfort—Design	1
		1	Credit 7.2	Thermal Comfort—Verification	1
	1		Credit 8.1	Daylight and Views—Daylight	1
1			Credit 8.2	Daylight and Views—Views	1

Indoor Environmental Quality — Possible Points: 15

Notes:

4	2	0			
Y	?	N			
1			Credit 1.1	Innovation in Design: Specific Title Contractor to Indentify	1
1			Credit 1.2	Innovation in Design: Contractor to Identify	1
1			Credit 1.3	Innovation in Design: Contractor to Identify	1
	1		Credit 1.4	Innovation in Design: Specific Title	1
	1		Credit 1.5	Innovation in Design: Specific Title	1
1			Credit 2	LEED Accredited Professional	1

Innovation and Design Process — Possible Points: 6

Notes:

4	0	0			
Y	?	N			
1			Credit 1.1	Regional Priority: Specific Credit SSC 4.4 Parking Capacity	1
1			Credit 1.2	Regional Priority: Specific Credit SC 7.2 Heat Island Effect Roof	1
1			Credit 1.3	Regional Priority: Specific Credit WEC1 No/Potable/Irrigation	1
1			Credit 1.4	Regional Priority: Specific Credit EAc2 9% Renewable Energy	1

Regional Priority Credits — Possible Points: 4

Notes:

60	9	9

Total — Possible Points: 110

Certified 40 to 49 points Silver 50 to 59 points Gold 60 to 79 points Platinum 80 to 110

Schedule

- VE Study October 3 to 5 for Study
- Charrette Report Submittal October 19, 2011
- EFS October 19, 2011
- VE Report Submittal, October, 26, 2011
- Teleconference on VE November 2, 2011
- Draft Final December 7, 2011.
- Draft Final meeting January 11, 2012.
- Corrected Final February 1, 2011
- Certified Final February 17, 2012.

Design Charrette

THE END