VALUE ENGINEERING TEAM STUDY

DOD SERVICE: **Army**
VALUE ENGINEERING OFFICER: **Norm Malbon, PE, AVS**

CIDC Standard Design Criteria and Prototypes for

RA-5-9, RA 10-15, DET-24, and BN HQ

Worldwide Application

PROJECT NO: N/A

COS: USACE Norfolk District

Feb 22-24, 2011

DRAFT REPORT

2/26/2011

VALUE ENGINEERING FIRM NAME: **Lemole Pointon Architects, PC**
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Suite 105
Virginia Beach, VA 23452
PHONE: **757.235.1031**

VALUE ENGINEERING STUDY TEAM LEADER: **Rick Lambert, PE, CVS**

VALUE ENGINEERING TEAM MEMBERS

NAME	DISCIPLINE
Rick Lambert, PE, CVS	Structural
Philip Pointon, AIA, LEED AP	Architect
Daniel Davies	Civil
Brandt Williams, PE	Mechanical

Note: The information contained in the final VE Study Report may differ from items presented during the Exit Brief based on review of additional information, comments from the user, or other additions and deletions made after the briefing.

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

FOREWORD:
The Subject Value Engineering Study contained herein has been performed in accordance with ER 11-1-321.

This VE Study was conducted in accordance with the format prescribed by ASTM and SAVE International standards using the 5-Step Process: Information, Speculation, Analysis, Development, and Presentation.

The rejection of any single VE proposal or group of proposals on a single project feature that may potentially save over $1,000,000 requires the signed concurrence of the Major Subordinate Command and Engineering Center Commanders.

VE Certification

The Project Manager shall submit the following statement with the Biddability, Constructability, Operability, and Environmental (BCOE):

"I, _____ [Project Manager], certify that this procurement action has completed the Value Engineering Process. A VE Study was completed / waived [circle one] on _____ [date]. All VE proposals indicating potential savings over $1,000,000 have been resolved with approval of the MSC and Engineering Center Commanders."

The PM with the assistance of the VE Officer shall:

1) Ensure implementation of accepted VE Study Proposals
2) Ensure the rationale for not accepting proposals is valid and documented
3) Ensure a request for approval for non-implementation of all VE Proposals and/or group of proposals with potential savings over $1,000,000 is made to the MSC and Engineering Center Commanders.

The VE Officer shall:

1) Ensure this electronic format VE report is incorporated into the appropriate VE lessons learned database
2) Ensure Quality Assurance for completeness, content, and accuracy
3) Ensure VE Study proposals be considered as a matter of official record at the time of the VE Study Presentation.

Design Recommendations are Qualitative Improvements, or non-monetary project or process enhancements produced by the VE efforts. These may include items such as value added project/program improvements, added sustainability, schedule improvements, quality improvements, functional improvements, advanced construction items, and plan validation.

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide
Standard Design Criteria

PROJECT DESCRIPTION & BACKGROUND

The CIDC Standard Design Criteria evaluated in this VE Study is prepared by the Center of Standardization to promote uniformity among a family of facility types used by the Army proponent to standardized functional requirements, programming requirements and technical features and performance. The criteria is to be implemented on a CONUS/OCONUS basis for future CIDC Facilities to be programmed, design and constructed at various installations. The criteria is presented n subparts for each type and size of facility. The CIDC documents provide criteria for the two most commonly constructed CIDC facility types; the Battalion Headquarters (BN HQ) and three sizes of Field Offices.

REQUIREMENT

The BN HQ facility supports management, logistical and administrative support to the subordinate field offices. This facility also inlcudes a Company Operations Facility (COF) element. This facility differs from other Army standard designs for both COF and BN HQ due to the unique nature if CIDC unit force structure and mission and therefore the existing COF and BN HQ designs are not appropriate. The CIDC field office provides operational capability in support of field agents with minimal administrative support. The field office buildings are similar but vary in size for 3 basic streengths of field elements; the RA 5-9 prototype, the RA 10-15 prototype and the DET 24 prototype. The Field Offices support the primary mission of criminal investigations.

CURRENT SITUATION

Because this is not for a specific project with an authorized DD1391 there is no current situtation to evaluate for this facility type. Due to the uncertainty of the potential project locations, site design information is minimal.

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide
Standard Design Criteria

EXECUTIVE SUMMARY

The VE Study for the CIDC Standard Design Criteria was conducted from Feb 22-24, 2011 using the December 2010 Design Submittal with updated drawings and cost estimate dated February 2011. No site related costs were provided. The cost estimate appears to utilize a 1.54 mark-up and is the basis of VE items for potential savings (or added costs). Due to the CIDC Standard Design Criteria, there are two basic types of facilities (Field Offices and HQ) and four (4) total facility prototypes. Time limitations for the VE Study restricted the development of potential suggestions for each size and type of building; the development of a VE Item may apply to a single design as the basis of savings or may include recommendations applicable to all buildings.

The study commence with an ***information gathering phase*** in which the Design Team and User briefed the VE Team on the current designs and the mission and functions of the users. Information gathering also included the preview of documents prior to the study due to time limitations. The ***function phase*** was abbreviated by the VE Team (see the enclosed FAST diagram). The ***creative phase*** (speculation) resulted in 52 VE Suggestions being identified; a 53rd item was later added. None of the suggestions were deleted. The enclosed Cost Model was also prepared ahead of time to expedite the ***analysis phase.*** In the analysis phase 10 items were determined to be mutually exclusive (MX) of one or more other items. Also, in the analysis phase 29 items were determined to be design recommendations (DR); of which 8 items would add cost if implemented. No suggestions were deleted.

The results of the ***development phase*** are reflected in this report and identify a potential savings of up to $1.57M. See each work sheet for advatnages and disadvantages and other related information for the suggestions listed. The exit briefing on Feb 24, 2011 intiated the ***presentation phase***. The COS, the User and the Design Team should further each suggestion for determination to implement or reject each item. Results should be reported to the VE Officer for reporting in the VERS.

Notes to the Project Delivery Team (PDT)

1. VE item suggestions do not constitute a directive to the PDT to re-design unless the user, Project Manager (PM) and installation have evaluated and accepted the item. Acceptance of a VE item does not necessarily justify a scope in design services or provide justification for additional fees or delays in project design schedule or milestones. Only the Contracting Officer, with input from PM, can determine contractual changes and authorize potential changes.

2. Supplemental information inserted into the VE Report is provided for informational purposes only. Product or manufacturer literature does not imply an endorsement by the VE Team or government that the product or material will satisfy all requirements and should not be construed by the PDT as the only source to be evaluated or considered.

3. The PDT remains responsible for full compliance with all applicable criteria and standards. Reliance upon a VE suggestion does not relieve PDT members of the professional liability to fully design, detail, or specify necessary project features to accomplish the proposed savings.

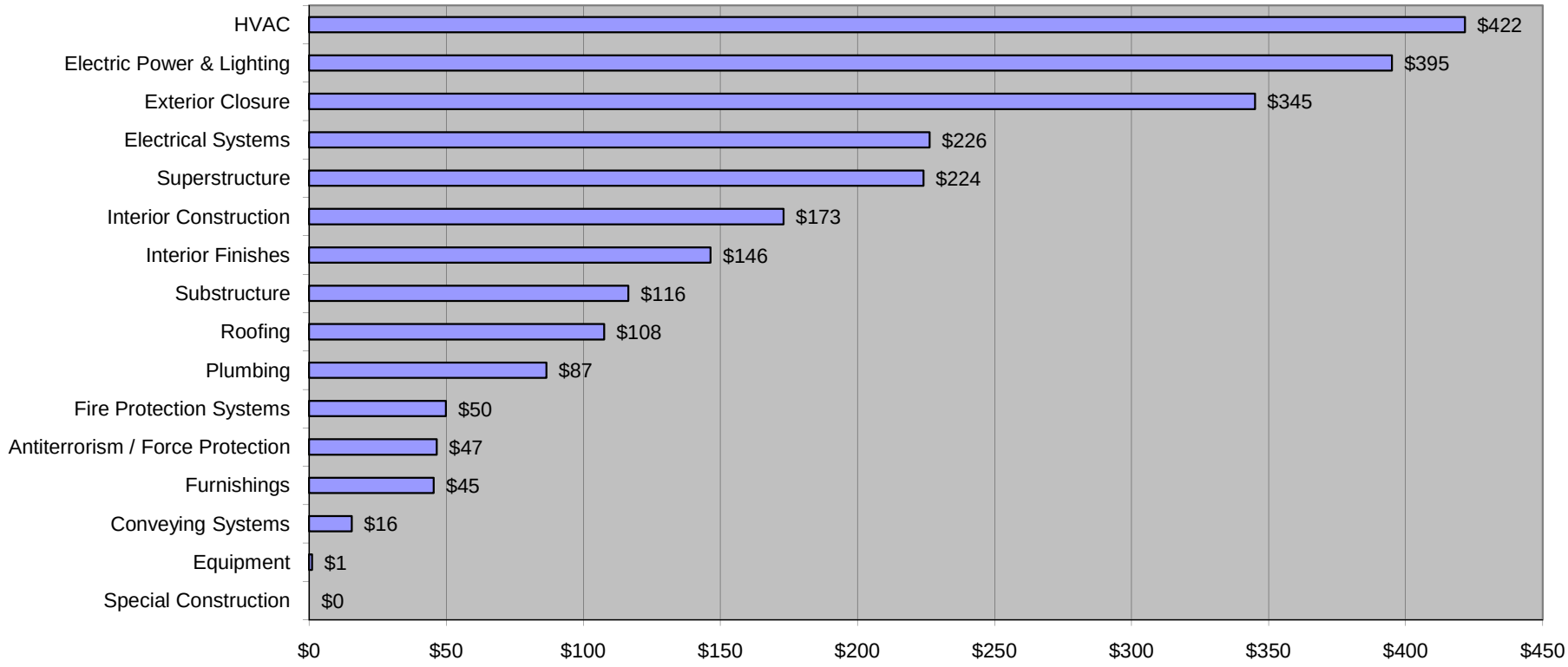
4. Sketches are provided for informational purposes only.

Notes to the Project Manager

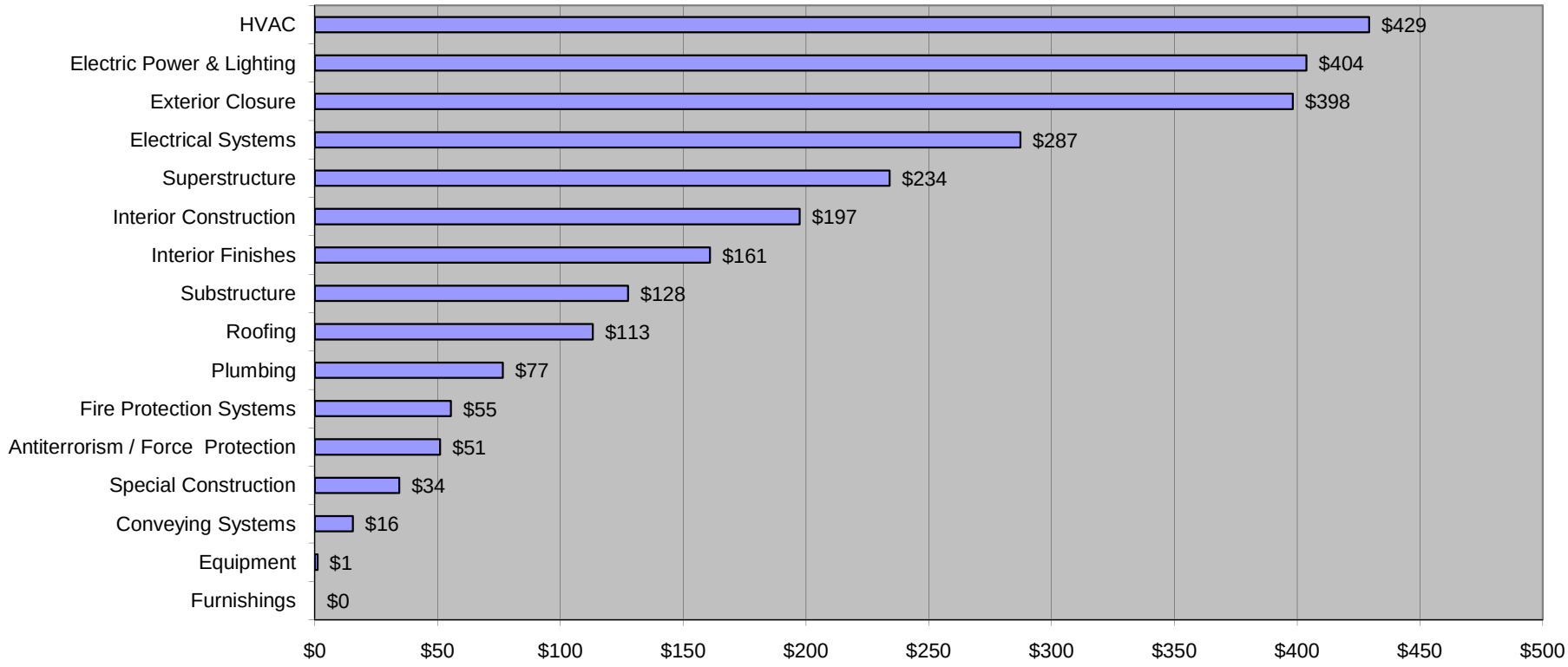
1. The Project Manager (PM) is responsible for seeing that the VE Study is properly briefed or presented to the appropriate project stakeholders for consideration of all VE suggestions. Each suggestion should be designated with an action item and any necessary description of justification for rejecting an item, or explanation of accepting an item with modification should be documented.

2. The PM and VEO are responsible for forwarding the study and related documentation to the ACSIM, Headquarters and to the relevant Center of Standardization points of contact.

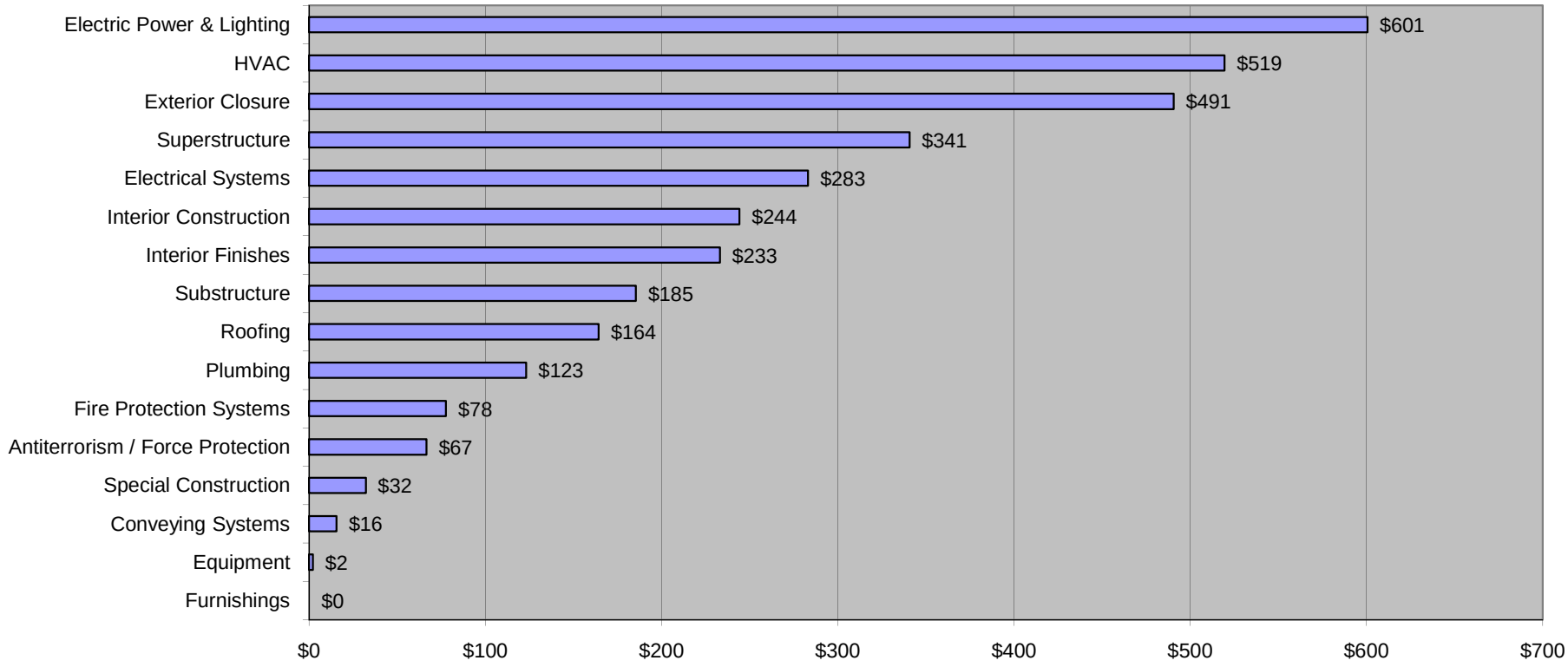
COST MODEL:
CIDC Standard Design - RAS



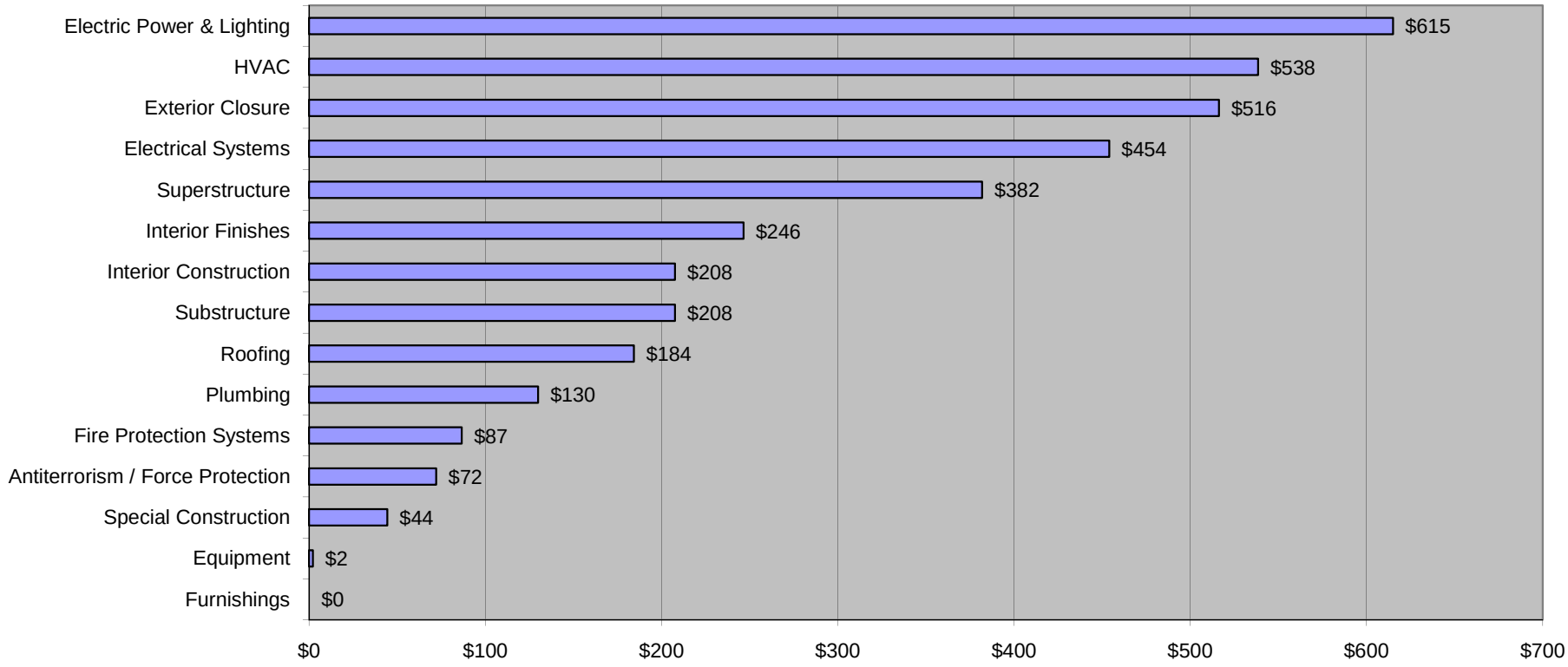
COST MODEL:
CIDC Standard Design - RA 10-15



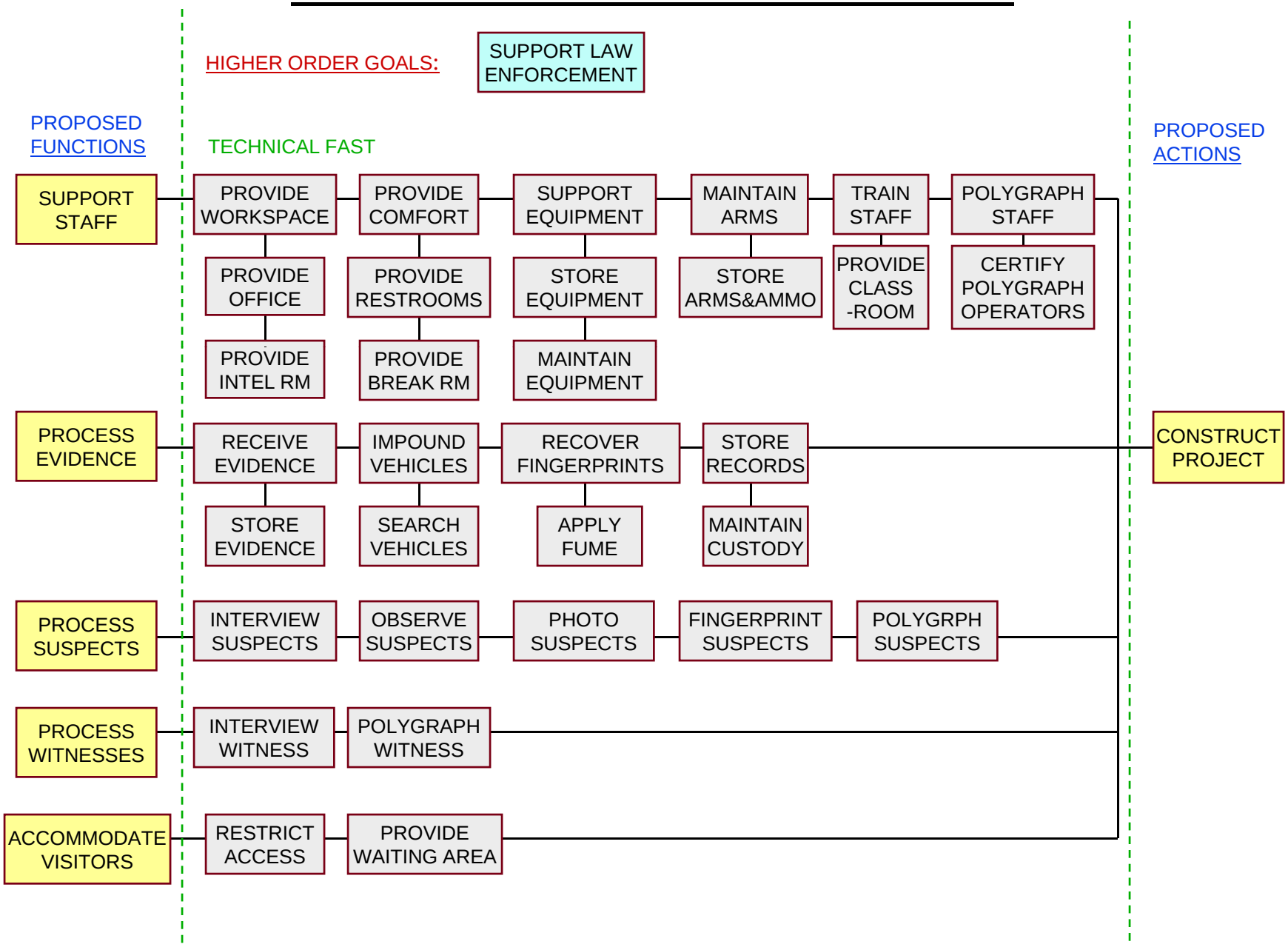
COST MODEL:
CIDC STANDARD DESIGN - Det 24



COST MODEL:
CIDC Standard Design - Batt HQ



FAST DIAGRAM FOR CIDC STANDARD DESIGN



VALUE ENGINEERING TEAM STUDY

CIDC Standard Design - 35% Design Submittal

Worldwide

Center of Standardization Criteria

ITEM	DESCRIPTION	RANK	DISCIPLINE	REMARKS	USER ACTION		POTENTIAL SAVINGS
1	Reduce the concrete slab thickness from 6" to 4" (applies to all)	P	Structural	4	Review	$	131,410
2	Reduce building height by lowering the roof slope (applies to all)	P	Structural	0	Review	$	13,752
3	Reduce the building height by lowering bearing of roof trusses (applies to all)	P	Structural	0	Review	$	261,024
4	Delete the vestibule and allow the waiting room to function as the airlock (applies to all)	P	Structural	5	Review	$	16,645
5	Delete 1 door into the Intel Center (applies ohnly to RA 10-15)	P	Structural	0	Review	$	1,163
6	Separate the vehicle processing from the building into a stand alone structure (based on RA 5-9 and RA 10-15)	DR	Architectural	3	MX of 52	$	(73,064)
7	Provide a single interconnecting corridor ILO the two shown	DR	Architectural	0	Review	$	-
8	Use low slope with mansard roof and place HVAC equipment on roof	P	Structural	6	Review	$	353,542
9	Allow mech/elec rooms to be accessible outside of the security fencing	DR	Architectural	0	Review	$	-
10	Combine staff & visitor parking reduce HC spaces	P	Civil	0	Review	$	134,773
11	Optimize the size of vehicular circulation to reduce the pavement, curb & gutter	P	Civil	0	Review	$	47,193
12	Specify Cat. 2 ILO Cat. 4 for building importance	P	Structural	0	Review	$	279,679
13	Use 4 pipe fan coil system	P	Mechanical		MX of 14-17 & 44	$	114,635
14	Use a hybrid geothermal system	P	Mechanical		MX of 13 & 15-17 & 44	$	16,871
15	Use variable flow refrigerant (VFR) system	P	Mechanical		MX 13, 14, 16, 17 & 44	$	128,601
16	Use a radiant heating/cooling system	DR	Mechanical		MX of 13-15, 17 & 44	$	(25,028)
17	Use roof top HVAC units	P	Mechanical		MX of 13-16 & 44	$	212,398
18	Use low flow plumbing fixtures	DR	Mechanical	0	Review	$	-
19	Use storage type domestic hot water heaters ILO instantaneous	DR	Plumbing	0	Review	$	-
20	Add a staff entrance on the side	DR	Architectural	0	Review	$	(4,229)
21	Treat the small & medium CID as non-primary gathering for ATFP UFC to reduce standoff to 10m	P	Structural	0	Review	$	29,744
22	Use PVC waste & vent piping	P	Plumbing	0	Review	$	1,397
23	Evaluate alternate water piping materials	P	Plumbing	0	Review	$	-
24	Evaluate HVAC system matrix for different geographic locale of projects	DR	Mechanical	0	Review	$	-
25	Evaluate HVAC zoning	DR	Mechanical	0	Review	$	-
26	Eliminate vehicle impound on the BN HQ site layout	P	Civil	0	Review	$	11,134
27	Provide the garage HVAC with negative pressure	DR	Mechanical	0	Review	$	-
28	Add workbench, flammable locker, and eyewash to TOE for arms cleaning	DR	Architectural	0	Review	$	-
29	Add a gyspum ceiling under roof trusses and do not extend the partitions to underside of roof	P	Structural	0	Review	$	169,006
30	Relocate the mechanical room door closer to the electrical room door	DR	Architectural	0	Review	$	-
31	Use aluminum cable up to the panel boards	P	Electrical	0	Review	$	588
32	Use MC cable where allowed by code	P	Electrical	0	Review	$	9,944
33	Provide recessed floor outlets in selected assembly areas	DR	Electrical	0	Review	$	(3,347)
34	Use quadruplex receptacles in drywall partitions in selected areas	DR	Electrical	0	Review	$	-
35	Delete the lightning protection from the cost estimate	P	Electrical	7	Review	$	5,193
36	Evaluate porous pavement options for parking areas	DR	Civil	2	Review	$	(126,896)
37	Provide for fire apparatus access around building	DR	Civil	0	Review	$	(66,028)
38	Add an exterior plug and transfer switch to connect a mobile generator	DR	Electrical	0	MX of 42	$	-
39	Stripe the parking areas for more efficient HC spaces	P	Civil	0	Review	$	924
40	Use dedicated battery packs for emergency lighting	P	Electrical	0	Review	$	-
41	Use LED bollard lighting for walkways	DR	Civil	0	Review	$	(14,630)
42	Provide an emergency generator	DR	Electrical	0	MX of 38	$	-

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design - 35% Design Submittal
Worldwide
Center of Standardization Criteria

ITEM	DESCRIPTION	RANK	DISCIPLINE	REMARKS	USER ACTION		POTENTIAL SAVINGS
43	Vary the structural grid to assure no columns are in open office areas (applies to BN HQ only)	DR	Structural	0	Review	$	-
44	Use ground mounted packaged HVAC equipment	DR	Mechanical		MX of 13-17	$	-
45	Evaluate the use of a wireless IT system	DR	Electrical	0	Review	$	-
46	Evaluate the use of gray water harvesting for flushing toilets	DR	Mechanical	1	Review	$	-
47	Provide sloped floor and sump in the vehicle processing garage	DR	Structural	0	Review	$	-
48	Provide prefab HAZ waste storage on the outside	DR	Civil	0	Review	$	(18,480)
49	Provide an exhaust hose and run outside in lieu of engineered vehicle exhaust	P	Mechanical	0	Review	$	11,314
50	Show vehicle lift frame on plans in lieu of hydraulic post lift	DR	Structural	0	Review	$	-
51	Provide weapon clearing barrels at all doors	DR	Architectural	0	Review	$	-
52	Require air/vapor barrier at vehicle processing partitions with interior spaces	DR	Architectural	0	MX of 6	$	-
53	Evaluate and define EMCS functions per the 24/7 aspect of the facility	DR	Mechanical	0	Review	$	-
					Net of all items above =	$	1,619,229
					Subtotal of MX Items =	$	374,413
					Subtotal of items that add cost =	$	(331,701)
					Potential savings less MX items and adds =	$	1,576,516

LEGEND

P = Proposal
DR = Design Recommendation
MX = Mutually Exclusive
NU = Not Used or deleted

NOTES

1. Proposed savings are based on direct costs with a 1.54 mark-up and should be verified by the Cost Engineer.
2. All items are preliminary until verified.
3. Some items have life cycle savings that are not reflected due to insufficient information or detail.
4. Mutually exclusive items (MX) would preclude one or the other from being adopted.
5. Some items may be suitable for certain sites and projects but not all.
6. The potential savings will vary for different size buildings and localities.
7. See the attached review comments for additional information including more detail on several Design Recommendations listed above.

REMARKS

1. This item could provide LEED Credit under Water Efficiency 1, 2, or 3
2. This suggestion may not be suitable in some localities.
3. Some sites may not require a vehicle processing of the installation already has a CIDC with this capability.
4. Consider retaining the 6-inch slab in the vehicle processing bay.
5. Verify that this approach will meet the LEED Credit.
6. This item may be restricted by local installation design guides or practices for geographic location.
7. This item would not be a savings if the lightning protection is required.

ACCRONYMS

ILO = in lieu of
IAW = in accordance with
HAZ = hazardous
LED = light emitting diode
BN HQ = Battalion Headquarters
ATFP = Anti-terrorism/Force Protection
IT = Information technology
EMCS = Energy monitoring and control system

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 1

DESCRIPTION: Reduce the concrete slab thickness from 6" to 4"

DISCIPLINE: Structural

FUNCTION: Support floor

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: Slabs are shown as 6" thick in the cost estimate

PROPOSED CHANGE: Use 4" slabs for all but vehicle processing area

ADVANTAGES:
- Saves money
-
-
-

DISADVANTAGES:
- None identified
-
-
-

JUSTIFICATION: 4" slab thickness is sufficient for all spaces except vehicle processing. Reducing the slab thickness will save money.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 267,403	1.54	$ 411,801	
PROPOSED CHANGE	$ 182,072	1.54	$ 280,391	
TOTAL SAVINGS			$ 131,410	$ -

ITEM PROPOSAL #: 1

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Batt HQ - 6" slab	SF	16377	$ 5.39	$ 88,272	1
Det 24 - 6" slab	SF	14017	$ 5.39	$ 75,552	1
RA 10-15 - 6" slab	SF	10053	$ 5.39	$ 54,186	1
RA 5-9 - 6" slab	SF	9164	$ 5.39	$ 49,394	1
				$ -	
				$ -	
SUBTOTAL				**$ 267,403**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Batt HQ - 4" slab	SF	16377	$ 3.67	$ 60,104	1
Det 24 - 4" slab	SF	14017	$ 3.67	$ 51,442	1
RA 10-15 - 4" slab	SF	10053	$ 3.67	$ 36,895	1
RA 5-9 - 4" slab	SF	9164	$ 3.67	$ 33,632	1
				$ -	
				$ -	
SUBTOTAL				**$ 182,072**	

GENERAL NOTES: Total savings reflects quantities for one of each building type and size.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

LAMBERT ENGINEERING CO.
820 CREEKSIDE DRIVE
MT. PLEASANT, S.C. 29464
(843) 352-4654

Project CIDC VE
Subject
Design by RDL Check by
Date 2/25/11 Sheet 1 of

VE Rec #1 — Estimate reflects quantities for HQ, Det 24, RA 10-15, RA 5-9

#2 - same

#3 - same

#4 - General notes & cost line item shows quantities for each building type HQ, Det 24, RA 10-15 & RA 5-9

#5 - only pertains to RA 10-15

#8 - Horiz projection for roof area in cost estimate

HQ	16,377 SF
Det 24	14,017
RA 10-15	10,053
RA 5-9	9,164
TOTAL =	49,611

#12 Steel framing

	Joist	Col
HQ	41 T	5.19 T
Det 24	36 T	4.63 T
RA 10-15	25 T	3.19 T
RA 5-9	24 T	3.05 T
Total	126 T +	16.06 T

Importance factor for Occupancy 4 = 1.5

proposed Occupancy 2 = 1.0

∴ Strength req'd is directly related to importance safety factor

$\frac{1.0}{1.5} = .67$ for proposed tonnage

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 2

DESCRIPTION: Reduce building height by redugin the roof slope

DISCIPLINE: Structural

FUNCTION: Shelter spaces

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: Present roof slope shown on elevations is 4:12

PROPOSED CHANGE: Propose reducing roof slope to 3:12

ADVANTAGES:
- Slightly less roof area, thus saves money
- Reduced air volume to condition
- Building looks less massive
-

DISADVANTAGES:
- None identified
-
-
-

JUSTIFICATION: 3:12 roof slope is more than sufficient for standing seam roofing and is the minimum slope for asphalt shingle roofing. Minor cost savings. Building will look less massive.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 443,522	1.54	$ 683,024	
PROPOSED CHANGE	$ 434,592	1.54	$ 669,272	
TOTAL SAVINGS			$ 13,752	$ -

ITEM PROPOSAL #: 2

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Batt HQ - SSMR, ins, deck	SF	16377	$ 8.94	$ 146,410	1
Det 24 - SSMR, ins, deck	SF	14017	$ 8.94	$ 125,312	1
RA 10-15 - SSMR, ins, dec	SF	10053	$ 8.94	$ 89,874	1
RA 5-9 - SSMR, ins, deck	SF	9164	$ 8.94	$ 81,926	1
				$ -	
				$ -	
SUBTOTAL				**$ 443,522**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Batt HQ - SSMR, ins, deck	SF	16377	$ 8.76	$ 143,463	1
Det 24 - SSMR, ins, deck	SF	14017	$ 8.76	$ 122,789	1
RA 10-15 - SSMR, ins, dec	SF	10053	$ 8.76	$ 88,064	1
RA 5-9 - SSMR, ins, deck	SF	9164	$ 8.76	$ 80,277	1
				$ -	
				$ -	
SUBTOTAL				**$ 434,592**	

GENERAL NOTES: Total savings reflects quantities for one of each building type and size.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 3

DESCRIPTION: Reduce the building height by lowering the truss bearing (wall)

DISCIPLINE: Structural

FUNCTION: Enclose space

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: Building elevations show 14' wall height

PROPOSED CHANGE: Propose reducing wall height to 10'

ADVANTAGES:
- Less cost
- Building looks less massive
-
-

DISADVANTAGES:
- None identified
-
-
-

JUSTIFICATION: Reducing wall height to 10' will save money. Ductwork and wiring can be run above the ceiling through the roof framing.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 593,163	1.54	$ 913,471	
PROPOSED CHANGE	$ 423,667	1.54	$ 652,447	
TOTAL SAVINGS			$ 261,024	$ -

ITEM PROPOSAL #: 3

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Batt HQ - 14' wall	SF	8269	$ 21.10	$ 174,476	1
Det 24 - 14' wall	SF	7821	$ 21.10	$ 165,023	1
RA 10-15 - 14' wall	SF	6477	$ 21.10	$ 136,665	1
RA 5-9 - 14' wall	SF	5545	$ 21.10	$ 117,000	1
				$ -	
				$ -	
SUBTOTAL				**$ 593,163**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Batt HQ - 10' wall	SF	5906	$ 21.10	$ 124,617	1
Det 24 - 10' wall	SF	5586	$ 21.10	$ 117,865	1
RA 10-15 - 10' wall	SF	4626	$ 21.10	$ 97,609	1
RA 5-9 - 10' wall	SF	3961	$ 21.10	$ 83,577	1
				$ -	
				$ -	
SUBTOTAL				**$ 423,667**	

GENERAL NOTES: Total savings reflects quantities for one of each building type and size.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 4

DESCRIPTION: Delete the vestibule and allow the waiting room to function as the airlock

DISCIPLINE: Structural

FUNCTION: Contain air

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: Current floor plan designs have a waiting room, vestibule, and covered entry. The waiting area is separated from interior space with a door to restrict access.

PROPOSED CHANGE: Designate the waiting room as a combined waiting room / vestibule and eliminate the separate vestibule.

ADVANTAGES:
- Reduces cost
- Frees up square footage
-
-

DISADVANTAGES:
- Temperature fluctuations on door opening
- May impact the LEED Credits
-
-

JUSTIFICATION: Since there is a door between the waiting room and the rest of the building, the waiting room can serve as an air lock and eliminate the need for a separate vestibule to accomplish this function

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 10,808	1.54	$ 16,645	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ 16,645	$ -

ITEM PROPOSAL #: 4

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Slab 144+180+150+80 SF	SF	554	$ 5.39	$ 2,986	1
Roof 144+180+150+80 SF	SF	554	$ 8.94	$ 4,953	1
Wall 36+39+35+26 SF	SF	136	$ 21.10	$ 2,870	1
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 10,808**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: Estimated quantities added for HQ + Det24 + RA 10-15 + RA5-9. Total savings reflects quantities for one of each building type and size.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
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5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 5

DESCRIPTION: Delete 1 door into the Intel Center (Building RA 10-15 only)

DISCIPLINE: Structural

FUNCTION: Provide access

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: Present design includes two doors: one to corridors on either side of the building

PROPOSED CHANGE: Propose eliminating one door to the Intel Center room

ADVANTAGES:
- Saves a small amount of money
- Stops room from being used as corridor
- Less chance for visitors to see sensitive info
-

DISADVANTAGES:
- More distance to get into room from other side
-
-
-

JUSTIFICATION: Only one door is needed to intel room in the RA 10-15 building. Too many doors make the room too accessible and promote walking through the room for a short cut.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 755	1.54	$ 1,163	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ 1,163	$ -

ITEM PROPOSAL #: 5

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
3'x7' Wood oor, hm frame	Ea	1	$ 755.00	$ 755	1
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 755**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: Why is there an intel room in only the RA 10-15 building and not in the RA 5-9 and Det 24 buildings? There should be consistency in room names and functions.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 6

DESCRIPTION: Separate the vehicle processing from the building into a stand alone structure

DISCIPLINE: Architectural

FUNCTION: Design Recommendation - functional isolation for risk management

CRITERIA CHALLENGE: Maybe CRITERIA NO: COS CIDC

ORIGINAL DESIGN: The current design integrates the vehicle processing bay in the building adjacent to or in close proximity of other occupied spaces and evidence storage.

PROPOSED CHANGE: Construct a stand alone single bay vehicle processing structure with room for tools, layout of dissassembled parts, and other provisions.

ADVANTAGES:
- Isolate dissimilar construction
- Isolate potential hazards for occupants
- Better safety for staff
- Better protection for evidence

DISADVANTAGES:
- Some redesign is required
- Increases initial cost
- Increase site requirements
- Increases program gross area slightly

JUSTIFICATION: Vehicles brought into processing could be contaminated with assortment of CBRNE hazards that would endanger occupants and expose building and evidence to contamination.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ 47,444	1.54	$ 73,064	
TOTAL SAVINGS			$ (73,064)	$ -

ITEM PROPOSAL #: 6

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Add two ext walls	SF	700	$ 55.42	$ 38,794	1
Add 10% of vehicle pros	SF	60	$ 107.50	$ 6,450	1
Site increases (fence & w	LS	1	$ 2,200.00	$ 2,200	1
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 47,444**	

GENERAL NOTES: Cost Increase is for two sides of the bay having exterior wall assemblies ILO interior partition and assumes 10% additional floor area. Building RA 10-15 is the basis for increases

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 7

DESCRIPTION: Provide a single interconnecting corridor ILO the two shown

DISCIPLINE: Architectural

FUNCTION: Design Recommendation - interior circulation

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: RA-5-9 and RA 10-15 have two interior corridors running the length of the building with two interconnecting corridors.

PROPOSED CHANGE: Revise space layout to utilize a single interconnecting corridor to minimize circulation square footage.

ADVANTAGES:
- Improved use of program area
-
-
-

DISADVANTAGES:
- Minimal redesign required
- Perceived convenience to users
-
-

JUSTIFICATION: Reducing the area for circulation can allow re-purposing for other functional needs or could allow a reduction of total gross area for each building type (RA 5-9 and RA 10-15)

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 7

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: This suggestion assumes the space would be converted to net usable area in other rooms and does not indicate a cost savings. If square footage is reduced a commensurate savings would accrue to the project.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 8

DESCRIPTION: Use low slope with mansard roof and place HVAC equipment on roof

DISCIPLINE: Structural

FUNCTION: Shelter building

CRITERIA CHALLENGE: Possibly CRITERIA NO: COS or Installation Design Guide

ORIGINAL DESIGN: Current design has sloped roof and a large mechanical room inside the building.

PROPOSED CHANGE: Proposed design would change the roof system to a mansard around the perimeter with a low sloped single ply membrane roof in the middle.

ADVANTAGES:
- Roof is much less massive
- Saves building square footage
- Saves money
-

DISADVANTAGES:
- May require waiver from installation design guide
- More potential for roof leaks
-
-

JUSTIFICATION: This roof system is very commonly used in the private sector because it hides the mechanical equipment and doesn't take up as much valuable floor space inside the building.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 767,978	1.54	$ 1,182,687	
PROPOSED CHANGE	$ 538,406	1.54	$ 829,145	
TOTAL SAVINGS			$ 353,542	$ -

ITEM PROPOSAL #: 8

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
SSMR	SF	49611	$ 5.48	$ 271,868	1
Roof framing 5 PSF@ $2/lb	SF	49611	$ 10.00	$ 496,110	1
				$ -	1
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 767,978**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Single ply roofing (75%)	SF	37208	$ 2.50	$ 93,020	1
Bar joists 3 psf @ $2/lb	SF	49611	$ 6.00	$ 297,666	1
SSMR for mansard (25%)	SF	12403	$ 5.48	$ 67,968	1
Mansard deck	SF	12403	$ 2.43	$ 30,139	1
Mansard frm 2 psf @ $2/lb	SF	12403	$ 4.00	$ 49,612	1
				$ -	
SUBTOTAL				**$ 538,406**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 9

DESCRIPTION: Allow mech/elec rooms to be accessible outside of the security fencing

DISCIPLINE: Architectural

FUNCTION: Design Recommendation - building access for DPW

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current designs locate the exterior doors for Mech and Elec rooms within the secured fence perimeter thereby requiring DPW and maintenance personnel to be granted access through the gate

PROPOSED CHANGE: Re-align fencing or reconfigure floor plan to locate the access to the mechanicl and electrical rooms directly from the exterior without coming through the fenced enclosure.

ADVANTAGES:
- Deconflicts the service vehicle in the GOV parking
- Eliminates need for DPW to get access from agent
-
-

DISADVANTAGES:
- Minimal redesign
-
-
-

JUSTIFICATION: DPW access requires an agent inside to open the secured gate and DPW vehicles would be obstructing either GOV parking spaces or the drive aisles.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 9

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: No savings is indicated as it is assumed the construction cost would remain the same although a reduction in fencing may be a possible benefit or an added paved access. This should be combied with Item 30

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 10

DESCRIPTION: Combine staff & visitor parking reduce HC spaces

DISCIPLINE: Civil

FUNCTION: Parking areas

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: Segregated POV and staff parking areas show a total of 4 handicap parking stalls for 28 total parking stalls

PROPOSED CHANGE: Combine POV and staff parking pods into one parking area and provide only 2 required handicap parking stalls

ADVANTAGES:
- Reduction in handicap striping and signage
- Reduction in impervious (asphalt) coverage
- Elimination of redundant sidewalks
-

DISADVANTAGES:
- POV and staff parking combined and not segregated
- Potential for staff and visitor interaction
- Elimination of driveway access
-

JUSTIFICATION: Reduction in impervious coverage effectively reducing the potential size of stormwater management facilities. Optimizing site design. Provides site selection flexibility.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 193,075	1.54	$ 297,336	
PROPOSED CHANGE	$ 105,560	1.54	$ 162,562	
TOTAL SAVINGS			$ 134,773	$ -

ITEM PROPOSAL #: 10

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Curb and gutter (6")	LF LF	1125	$ 27.00	$ 30,375	4
Asphalt pavement (2/3/8)	SY	1910	$ 40.00	$ 76,400	4
Sidewalk (4")	SF	5100	$ 12.00	$ 61,200	4
Handicap ramp	EA	47	$ 500.00	$ 23,500	6 (VE Team)
Handicap symbol	EA	4	$ 200.00	$ 800	6 (VE Team)
Handicap striping	EA	4	$ 200.00	$ 800	6 (VE Team)
SUBTOTAL				**$ 193,075**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Curb and gutter (6")	LF	580	$ 27.00	$ 15,660	4
Asphalt pavement (2/3/8)	SY	1325	$ 40.00	$ 53,000	4
Sidewalk (4")	SF	2900	$ 12.00	$ 34,800	4
Handicap ramp	EA	3	$ 500.00	$ 1,500	6 (VE Team)
Handicap symbol	EA	2	$ 200.00	$ 400	6 (VE Team)
Handicap striping	EA	1	$ 200.00	$ 200	6 (VE Team)
SUBTOTAL				**$ 105,560**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 11

DESCRIPTION: Optimize the size of vehicular circulation to reduce the pavement, curb & gutter

DISCIPLINE: Civil

FUNCTION: Vehicular circulation

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: Segregated visitor circulation pattern with two driveway access points and loop, large turn-around within the secure area and inconsistent aisle widths

PROPOSED CHANGE: Elimination of one driveway entrance, standardized aisle widths and optimization of dual-use driveway/turn-around area

ADVANTAGES:
- Reduction in pavement area and curb & gutter
- Compact, efficient use of space
- More efficient construction
-

DISADVANTAGES:
- None apparent
-
-
-

JUSTIFICATION: Reduction in impervious coverage effectively reducing the potential size of stormwater management facilities. Optimizing site design. Provides site selection flexibility.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 219,220	1.54	$ 337,599	
PROPOSED CHANGE	$ 188,575	1.54	$ 290,406	
TOTAL SAVINGS			$ 47,193	$ -

ITEM PROPOSAL #: 11

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Curb and gutter (6")	LF	1130	$ 27.00	$ 30,510	4
Asphalt pavement (2/3/8)	SY	2650	$ 40.00	$ 106,000	4
Sidewalk (4")	SF	2455	$ 12.00	$ 29,460	4
Security fence	LF	710	$ 75.00	$ 53,250	6 (VE Team)
				$ -	
				$ -	
SUBTOTAL				**$ 219,220**	

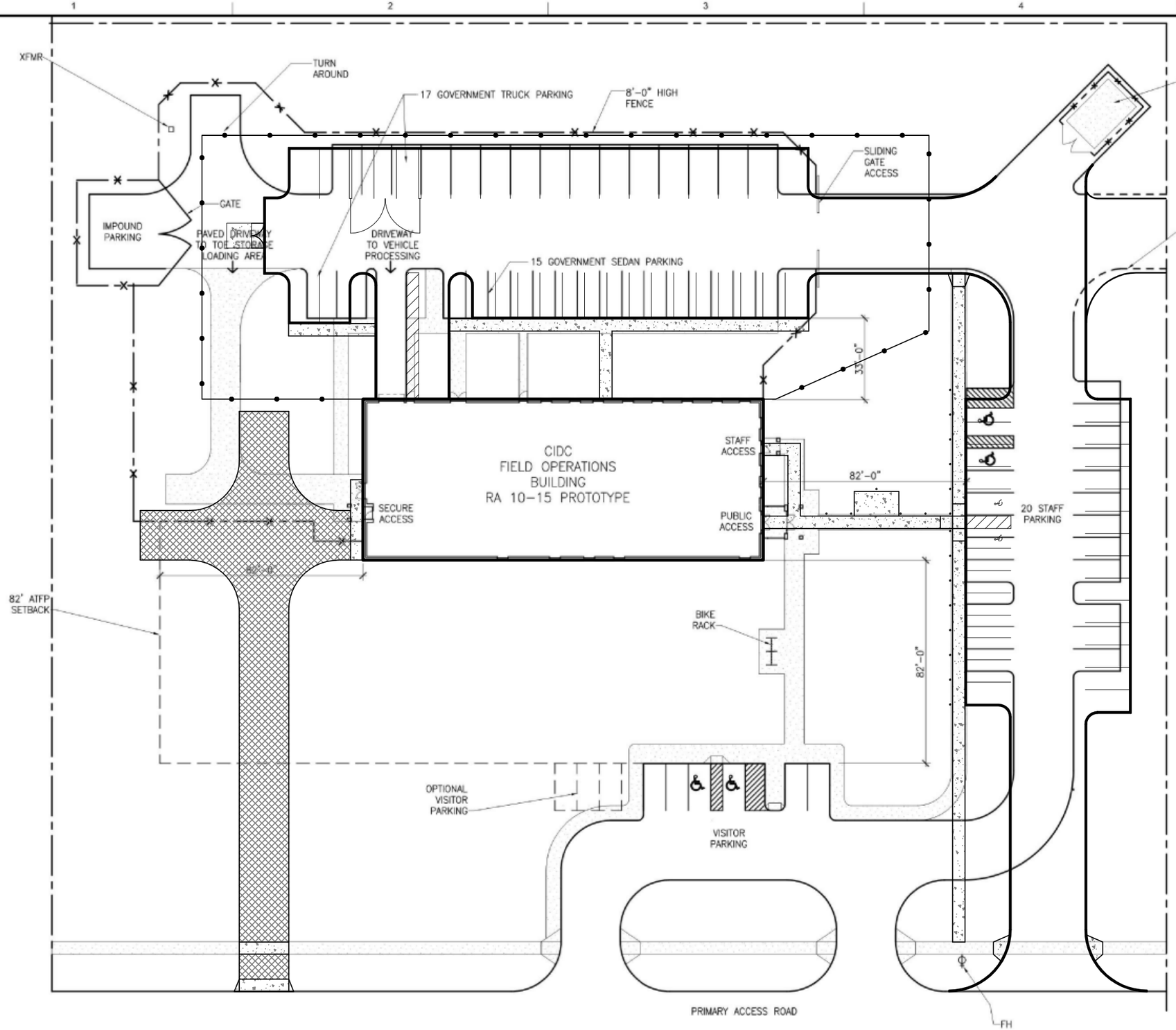
PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Curb and gutter (6")	LF	950	$ 27.00	$ 25,650	4
Asphalt pavement (2/3/8)	SY	2230	$ 40.00	$ 89,200	4
Sidewalk (4")	SF	2300	$ 12.00	$ 27,600	4
Security fence	LF	615	$ 75.00	$ 46,125	6 (VE Team)
				$ -	
				$ -	
SUBTOTAL				**$ 188,575**	

GENERAL NOTES: Evaluate the efficiency of the angled dumpster area on a site-by-site basis relative to visibility from adjoining roadways and site constraints

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)



SCHEMATIC SITE PLAN – RA 10-15 PROTOTYPE

SCALE: 3/64" = 1'-0"

GRAPHIC SCALE

0 2' 5' 10' 20' 40'

SCALE: 3/64" = 1'-0"

NOT FOR CONSTRUCTION

US Army Corps of Engineers
Norfolk District

REVISIONS			
SYM	DESCRIPTION	DATE	APPR'D

PLOT DATE: 08-30-2010
CONTRACT NO.:
PROJECT NO.:
DESIGNED BY:
DWN BY:
CKD BY:
SUBMITTED BY:
PLOT SCALE: 1" = 100'
DATE: 08-30-2010

PARSONS BRINCKERHOFF
6161 KEMPSVILLE RD.
NORFOLK, VA. 23502
SUITE 110

USACE - CIDC RA 10-15 BUILDING

SCHEMATIC SITE PLAN

SHEET ID
C-200
SHEET OF

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 12

DESCRIPTION: Specify Cat. 2 ILO Cat. 4 for building importance

DISCIPLINE: Structural

FUNCTION: Enclose space

CRITERIA CHALLENGE: Yes CRITERIA NO: COS

ORIGINAL DESIGN: Occupancy category for structural design is not clearly defined in the project documentation. The designer would probably select occupancy category 4 since the building is used for law enforcement.

PROPOSED CHANGE: Specify in the design criteria the structure shall be designed to meet occupancy category 2 standard occupancy structural criteria for seismic and wind design.

ADVANTAGES:
- Less cost
-
-
-

DISADVANTAGES:
- Building could sustain more damage
-
-
-

JUSTIFICATION: The building is not a police station and would not remain open for business after a natural disaster. This is a standard office building that happens to house police detectives.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 544,776	1.54	$ 838,955	
PROPOSED CHANGE	$ 363,167	1.54	$ 559,277	
TOTAL SAVINGS			$ 279,679	$ -

ITEM PROPOSAL #: 12

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Joist framing	TON	126	$ 3,988.44	$ 502,543	1
Columns	TON	16.06	$ 2,629.69	$ 42,233	1
				$ -	1
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 544,776**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Joist framing	TON	84	$ 3,988.44	$ 335,029	1
Columns	TON	10.7	$ 2,629.69	$ 28,138	1
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 363,167**	

GENERAL NOTES: Occupancy category 4 has an importance factor of 1.5, meaning that the building strength is required to be 50% stronger. This results in substantially more cost.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 13

DESCRIPTION: Use 4 pipe fan coil system (Item is MX of several others)

DISCIPLINE: Mechanical

FUNCTION: Provide environmental control to occupied spaces

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The narrative design provides for the use of water-cooled self-contained indoor packaged units with VAV boxes having electric resistance heat.

PROPOSED CHANGE: The proposed recommendation is to provide a four pipe fancoil system utlizing an air-cooled chiller with either heat recovery or a full free-cooling option, hydronic boiler & pumps.

ADVANTAGES:
- Anticipated LCC
- Precludes need for most of programmed mech space
- Provides increased system operation flexibility
- Concept adaptable world wide with minor changes

DISADVANTAGES:
- Redesign effort required
-
-
-

JUSTIFICATION: System operation flexibility and anticipated LCC suggest this be one of the HVAC system types included in the matrix for acceptable design solutions that would be evaluated on each project.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 409,991	1.54	$ 631,386	
PROPOSED CHANGE	$ 335,553	1.54	$ 516,752	
TOTAL SAVINGS			$ 114,635	$ -

ITEM PROPOSAL #: 13

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Current HVAC system	Sq.Ft	9069	$ 41.90	$ 379,991	1
Mechanical Room	Sq.Ft	300	$ 100.00	$ 30,000	1
				$ -	1
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 409,991**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Proposed HVAC system	Sq.Ft	9069	$ 37.00	$ 335,553	4
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 335,553**	

GENERAL NOTES: The hydronic pumps, boilers, appurtenances would all be mounted on a skid mounted package that is located outside the building, thus mitigating the need for the majority of the programmed mechanical space. Fancoil units would be provided directly with outside air. The cost for this proposal are based on the RA 5-9 prototype. Proposed system mitigates the amount of reheat required and the amount of interstitial space required. This proposal assumes a net reduction in mechanical room space of 300 sq.ft.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 14

DESCRIPTION: Use a hybrid geothermal system (Item is MX of several others)

DISCIPLINE: Mechanical

FUNCTION: Provide environmental control to occupied spaces

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The narrative design provides for the use of water-cooled self-contained indoor packaged units with VAV boxes having electric resistance heat.

PROPOSED CHANGE: The proposed recommendation is to provide a hybrid geothermal system utlizing geothermal heat pumps, a geothermal wellfield sized for the heating load and a closed circuit cooling tower

ADVANTAGES:
- Anticipated LCC
- Precludes need for most of programmed mech space
- Provides increased system operation flexibility
- Concept adaptable world wide with minor changes

DISADVANTAGES:
- Redesign effort required
-
-
-

JUSTIFICATION: System operation flexibility and anticipated LCC suggest this be one of the HVAC system types included in the matrix for acceptable design solutions that would be evaluated on each project.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 409,991	1.54	$ 631,386	
PROPOSED CHANGE	$ 399,036	1.54	$ 614,515	
TOTAL SAVINGS			$ 16,871	$ -

ITEM PROPOSAL #: 14

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Current HVAC system	Sq.Ft	9069	$ 41.90	$ 379,991	1
Mechanical Room	Sq.Ft	300	$ 100.00	$ 30,000	1
				$ -	1
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 409,991**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Proposed HVAC system	Sq.Ft	9069	$ 44.00	$ 399,036	6 (VE Team)
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 399,036**	

GENERAL NOTES: The hydronic pumps, appurtenances would all be mounted on a skid mounted package that is located outside the building, thus mitigating the need for the majority of the programmed mechanical space. Geothermal heat pump units would be provided directly with outside air. The geothermal heat pump would be provided with the free condenser water or a modulating hot gas reheat option The cost for this proposal are based on the RA 5-9 prototype. Proposed system mitigates the amount of reheat required and the amount of interstitial space required. This proposal assumes a net reduction in mechanical room space of 300 sq.ft. The closed circuit cooling tower should be sized IAW ASHRAE TRP-1384

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 15

DESCRIPTION: Use variable flow refrigerant (VFR) system (This item is MX of several others)

DISCIPLINE: Mechanical

FUNCTION: Provide environmental control to occupied spaces

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The narrative design provides for the use of water-cooled self-contained indoor packaged units with VAV boxes having electric resistance heat.

PROPOSED CHANGE: The proposed recommendation is to provide a variable flow refrigerant system with heat recovery option and a dedicated outside air system (DOAS)

ADVANTAGES:
- Anticipated LCC
- Precludes need for most of programmed mech space
- Provides increased system operation flexibility
- Concept adaptable world wide with minor changes

DISADVANTAGES:
- Redesign effort required
-
-
-

JUSTIFICATION: System operation flexibility and anticipated LCC suggest this be one of the HVAC system types included in the matrix for acceptable design solutions that would be evaluated on each project.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 409,991	1.54	$ 631,386	
PROPOSED CHANGE	$ 326,484	1.54	$ 502,785	
TOTAL SAVINGS			$ 128,601	$ -

ITEM PROPOSAL #: 15

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Current HVAC system	Sq.Ft	9069	$ 41.90	$ 379,991	1
Mechanical Room	Sq.Ft	300	$ 100.00	$ 30,000	1
				$ -	1
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 409,991**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Proposed HVAC system	Sq.Ft	9069	$ 36.00	$ 326,484	6 (VE Team)
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 326,484**	

GENERAL NOTES: The DOA unit would be located outside the building, thus mitigating the need for the majority of the programmed mechanical space. Indoor cooling/heating units type would be provided based on room function and location. The cost for this proposal are based on the RA 5-9 prototype. Proposed system mitigates the need for reheat and the amount of interstitial space required. This proposal assumes a net reduction in mechanical room space of 300 sq.ft. The use of the heat recovery option allows for significant system efficiency increase when heating and cooling are both required on the same system as it redistributes the heat removed from one space to another one that is need of heating (mass balance of energy)

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 16

DESCRIPTION: Use a radiant heating/cooling system (This item is MX of several others)

DISCIPLINE: Mechanical

FUNCTION: Provide environmental control to occupied spaces

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The narrative design provides for the use of water-cooled self-contained indoor packaged units with VAV boxes having electric resistance heat.

PROPOSED CHANGE: The proposed recommendation is to provide a four pipe radiant cooling/heating system with a DOAS

ADVANTAGES:
- Anticipated LCC
- Precludes need for most of programmed mech space
- Provides increased system operation flexibility
- Concept adaptable world wide with minor changes

DISADVANTAGES:
- Redesign effort required
- Additional first cost
- Loss of humidity control would be a big issue
- Perception of use in humid climates

JUSTIFICATION: System operation flexibility and anticipated LCC suggest this be one of the HVAC system types included in the matrix for acceptable design solutions that would be evaluated on each project.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 409,991	1.54	$ 631,386	
PROPOSED CHANGE	$ 426,243	1.54	$ 656,414	
TOTAL SAVINGS			$ (25,028)	$ -

ITEM PROPOSAL #: 16

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Current HVAC system	Sq.Ft	9069	$ 41.90	$ 379,991	1
Mechanical Room	Sq.Ft	300	$ 100.00	$ 30,000	1
				$ -	1
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 409,991**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Proposed HVAC system	Sq.Ft	9069	$ 47.00	$ 426,243	6 (VE Team)
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 426,243**	

GENERAL NOTES: The hydronic pumps, boilers, appurtenances would all be mounted on a skid mounted package that is located outside the building, thus mitigating the need for the majority of the programmed mechanical space. The cost for this proposal are based on the RA 5-9 prototype. Proposed system mitigates the need for reheat and the amount of interstitial space required. This proposal assumes a net reduction in mechanical room space of 300 sq.ft. Outside air would be provided through the use of a DOA unit. Cooling would be provided by an air-cooled chiller and heating through a hot water boiler.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 17

DESCRIPTION: Use roof top HVAC units (Thie item is MX of several others)

DISCIPLINE: Mechanical

FUNCTION: Provide environmental control to occupied spaces

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The narrative design provides for the use of water-cooled self-contained indoor packaged units with VAV boxes having electric resistance heat.

PROPOSED CHANGE: The proposed recommendation is to provide packaged rooftop units

ADVANTAGES:
- Lower first cost
- Precludes need for most of programmed mech space
- Provides increased system operation flexibility
- Concept adaptable world wide with minor changes

DISADVANTAGES:
- Redesign effort required
- Requires flat or low sloped roof
- Perception of maintenance issues
- Requires proper access to roof for service

JUSTIFICATION: First cost savings and world wide use of this system type suggest this be one of the HVAC system types included in the matrix for acceptable design solutions that would be evaluated on each project.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 409,991	1.54	$ 631,386	
PROPOSED CHANGE	$ 272,070	1.54	$ 418,988	
TOTAL SAVINGS			$ 212,398	$ -

ITEM PROPOSAL #: 17

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Current HVAC system	Sq.Ft	9069	$ 41.90	$ 379,991	1
Mechanical Room	Sq.Ft	300	$ 100.00	$ 30,000	1
				$ -	1
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 409,991**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Proposed HVAC system	Sq.Ft	9069	$ 30.00	$ 272,070	6 (VE Team)
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 272,070**	

GENERAL NOTES: The use of rooftop units can be provided with hot gas reheat and various heat recovery options (energy wheels) that will provide cost effective means of providing outside air while controlling hunidity. This proposal assumes a net reduction in mechanical room space of 300 sq.ft. This proposal is by far the least expensive from the first cost standpoint of those suggested for the HVAC matrix, but is the least desirable from a desired system concept. The use of a VAV system for terminal air delivery would remain the same.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 18

DESCRIPTION: Use low flow plumbing fixtures

DISCIPLINE: Mechanical

FUNCTION: DR: See Design Review Comments

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN:

PROPOSED CHANGE:

ADVANTAGES:
-
-
-
-

DISADVANTAGES:
-
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 18

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 19

DESCRIPTION: Use storage type domestic hot water heaters ILO instantaneous

DISCIPLINE: Mechanical

FUNCTION: DR: See Design Review Comments

CRITERIA CHALLENGE: CRITERIA NO:

ORIGINAL DESIGN:

PROPOSED CHANGE:

ADVANTAGES:
-
-
-
-

DISADVANTAGES:
-
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 19

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 20

DESCRIPTION: Add a staff entrance on the side

DISCIPLINE: Architectural

FUNCTION: Design Recommendation - Ingress and Egress

CRITERIA CHALLENGE: Maybe CRITERIA NO: COS CIDC

ORIGINAL DESIGN: The current designs (RA-5-9 and RA-10-15) require the agents to enter and exit the building to and from the GOV Parking in a very circuitous route to get from office to vehicles and back into TOE or office.

PROPOSED CHANGE: Introduce a more direct ingress/egress from the agents portion of the building directly into the GOV parking area.

ADVANTAGES:
- More time efficient access to vehicles
- More efficient access to TOE room
-
-

DISADVANTAGES:
- Minimal redesign
- Minimal increased costs for door & partition
- Requires one more CCTV location
- May require more circulation space

JUSTIFICATION: The current circulation of an agent entering and exiting the building, getting to their GOV vehicle picking up the TOE and then heading to a crime scene (and the return trip) is very inefficient.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 1,940	1.54	$ 2,987	
PROPOSED CHANGE	$ 4,686	1.54	$ 7,216	
TOTAL SAVINGS			$ (4,229)	$ -

ITEM PROPOSAL #: 20

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Exterior wall	SF	35	$ 55.42	$ 1,940	1
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 1,940**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Door, transom & sidelight	EA	1	$ 2,701.00	$ 2,701	1
Corridor partition	LF	240	$ 8.27	$ 1,985	1
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 4,686**	

GENERAL NOTES: See sketch of current flow and proposed flow location. Cost includes a new exterior door and a partition to create a path of egress.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 21

DESCRIPTION: Treat the small & medium CID as non-primary gathering for ATFP UFC to reduce standoff to 10m

DISCIPLINE: Structural

FUNCTION: Protect personnel

CRITERIA CHALLENGE: Yes CRITERIA NO:

ORIGINAL DESIGN: Current criteria designates all building types as "primary gathering facilities"

PROPOSED CHANGE: Propose not designating the RA 10-15 and RA 5-9 facilities as "primary gathering facilities"

ADVANTAGES:
- Less real estate required
- Siting closer to road requires less pavement
-
-

DISADVANTAGES:
- None identified
-
-
-

JUSTIFICATION: The smaller CID facililities would not have an occupancy greater than 50 people and therefore do not need to be designed as primary gathering facilities. 82' setback could be reduced to 33'

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 19,314	1.54	$ 29,744	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ 29,744	$ -

ITEM PROPOSAL #: 21

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Pavement 4 (8 x 16.33)	SY	522	$ 37.00	$ 19,314	4
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 19,314**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: Two access roads could be reduced in length by 49' for both the RA 10-15 and RA 5-9 building types.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

LAMBERT ENGINEERING CO.
820 CREEKSIDE DRIVE
MT. PLEASANT, S.C. 29464
(843) 352-4654

Project CIDC VE
Subject
Design by RDL Check by
Date 2/25/11 Sheet of

#21 Pertains to RA 10-15 & RA 5-9
site plans are similar
Reduce setback 82' (25m) to 33' (10 m)
∴ could reduce 24' roadway by 49' L
ie $\frac{24' \times 49'}{9}$ x 2 places per bldg
= 261 SQ YD PER BLDG
x 2 BLDGS
522 SQ YDS

#29 GYP CEILINGS in cost estimate

Batt HQ	2794 SF
Det 24	4527
RA 10-15	3,513
RA 5-9	3,281
	14,115 SF

WALLS above ceilings - figure on these being around vehicle processing, agents rooms, suspect rooms

Batt HQ	none		
Det 24	630 LF	x 9' H avg =	5670 SF
RA 10-15	520	x 9' H avg =	4680 SF
RA 5-9	482	x 7' H avg =	3374 SF
			13,724 SF

Gyp clg direct attached
on total projected area all buildings
(see #8)
= 49,611 SF

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 22

DESCRIPTION: Use PVC waste & vent piping

DISCIPLINE: Plumbing

FUNCTION: Conveys waste to the sanitary sewer system

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: Current narrative does not address type of piping. Cost estimate uses Cast Iron no-hub throughout

PROPOSED CHANGE: The proposed recommendation is use schedule 40 DWV PVC W&V piping with solvent cememt joints

ADVANTAGES:
- Industry standard use
- Ease of installation
- Readily available world wide
- Not suspectible to scale build up

DISADVANTAGES:
- Can't be used in return air plenums
- Noiser
- Preception of quality
-

JUSTIFICATION: In the single story prototype buildings noise shouldn't be a factor. Ease of use and availability suggest that at the very least the contractor be given the option of using PVC piping. MILCON Transformation policy would encourage this use.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 9,976	1.54	$ 15,363	
PROPOSED CHANGE	$ 9,069	1.54	$ 13,966	
TOTAL SAVINGS			$ 1,397	$ -

ITEM PROPOSAL #: 22

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Current Design	Sq.Ft	9069	$ 1.10	$ 9,976	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 9,976**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Proposed Design	Sq.Ft	9069	$ 1.00	$ 9,069	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 9,069**	

GENERAL NOTES: PVC can be used in facilities as long as the piping is not exposed (IE: run through) a return air plenum. All of this piping would be envisioned to be run in the wall until it entered the attic and thus would not run through a return air plenum.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 23

DESCRIPTION: Evaluate alternate water piping materials

DISCIPLINE: Mechanical

FUNCTION: DR: See Design Review Comments

CRITERIA CHALLENGE: CRITERIA NO:

ORIGINAL DESIGN:

PROPOSED CHANGE:

ADVANTAGES:
-
-
-
-

DISADVANTAGES:
-
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 23

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 24

DESCRIPTION: Evaluate HVAC system matrix for different geographic locale of projects

DISCIPLINE: Mechanical

FUNCTION: DR: See Design Review Comments

CRITERIA CHALLENGE: CRITERIA NO:

ORIGINAL DESIGN:

PROPOSED CHANGE:

ADVANTAGES:
-
-
-
-

DISADVANTAGES:
-
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 24

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 25

DESCRIPTION: Evaluate HVAC zoning

DISCIPLINE: Mechanical

FUNCTION: DR: See Design Review Comments

CRITERIA CHALLENGE: CRITERIA NO:

ORIGINAL DESIGN:

PROPOSED CHANGE:

ADVANTAGES:
-
-
-
-

DISADVANTAGES:
-
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 25

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 26

DESCRIPTION: Eliminate vehicle impound on the BN HQ site layout

DISCIPLINE: Civil

FUNCTION: Secured vehicle storage impound

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current site layout indicates a vehicle impound parking area

PROPOSED CHANGE: Eliminate the vehicle impound area from the site layout of the BN HQ

ADVANTAGES:
- Not required by the function of the building
-
-
-

DISADVANTAGES:
- None apparent
-
-
-

JUSTIFICATION: No apparent need for vehicle impound storage as no vehicle processing garage within BN HQ footprint

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 9,110	1.54	$ 14,029	
PROPOSED CHANGE	$ 1,880	1.54	$ 2,895	
TOTAL SAVINGS			$ 11,134	$ -

ITEM PROPOSAL #: 26

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Curb and gutter (6")	LF	80	$ 27.00	$ 2,160	4
Asphalt pavement (2/3/8)	SY	80	$ 40.00	$ 3,200	4
Security fence	LF	50	$ 75.00	$ 3,750	4
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 9,110**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Curb and gutter (6")	LF	40	$ 27.00	$ 1,080	4
Asphalt pavement (2/3/8)	SY	20	$ 40.00	$ 800	4
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 1,880**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 27

DESCRIPTION: Provide the garage HVAC with negative pressure

DISCIPLINE: Mechanical

FUNCTION: DR: See Design Review Comments

CRITERIA CHALLENGE: CRITERIA NO:

ORIGINAL DESIGN:

PROPOSED CHANGE:

ADVANTAGES:
-
-
-
-

DISADVANTAGES:
-
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 27

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 28

DESCRIPTION: Add workbench, flammable locker, and eyewash to TOE for arms cleaning

DISCIPLINE: Architectural

FUNCTION: Design Recommendation - arms cleaning

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current design TOE and Arms Vault do not allow for a work bench and accessories to clean gov't issued small arms and agents currently clean weapons at their desk.

PROPOSED CHANGE: Provide a work bench, flammable storage locker for cleaning solvents and accessories to allow cleaning of arms in the TOE area prior to returning weapons to the Arms Vault

ADVANTAGES:
- Meets a need not currently met
- More appropriate location for cleaning function
- Containment for hazmat solvents
- Disposal for cleaning patches

DISADVANTAGES:
- None
-
-
-

JUSTIFICATION: Cleaning of arms is essential to the mission and providing a safe and segregated location will permit the function to be performed more efficiently in a suitable environment than the desk in an agent's office.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 28

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: Installing a bench and locker in the TOE would be FFE and adds no building cost. A portable eyewash can be used rather than plumbing a water and waste line.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 29

DESCRIPTION: Add a gyspum ceiling under roof trusses and do not extend the partitions to underside of roof

DISCIPLINE: Structural

FUNCTION: Enclose space

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: Present design has a combination of acoustical tile and gyp board ceilings. Many interior walls will have to run all the way up to the roof for fire protection.

PROPOSED CHANGE: Proposed design provides a gypsum board ceiling over the entire building fastened directly to the bottom chord of roof trusses.
All interior walls would stop at the truss bearing height. Attic drafts stops may be required.

ADVANTAGES:
- Eliminates walls above the truss bearing height
- Simplifies construction
- reduces volume of air to be conditioned
-

DISADVANTAGES:
- No vaulted ceilings open to the roof
- Adds a layer of gyp board above acoustical tile
-
-

JUSTIFICATION: Gyp board on a suspension system accounts for approx 1/3 of building area. The gyp can be fastened directly to the underside of the roof trussses and eliminate the suspension system.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 157,371	1.54	$ 242,351	
PROPOSED CHANGE	$ 47,627	1.54	$ 73,346	
TOTAL SAVINGS			$ 169,006	$ -

ITEM PROPOSAL #: 29

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Gyp clg w/ suspension	SF	14115	$ 7.26	$ 102,475	1
Sound wall above clg	SF	13724	$ 4.00	$ 54,896	1
				$ -	1
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 157,371**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Gyp clg direct attach	SF	49611	$ 0.96	$ 47,627	1
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 47,627**	

GENERAL NOTES: Installing a hard ceiling througout will eliminate the need for walls above the ceiling around areas like officers offices, interview rooms, and vehicle processing room. Det 24, RA10-15, and RA5-9 buildings need sound barriers above the ceiling.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 30

DESCRIPTION: Relocate the mechanical room door closer to the electrical room door

DISCIPLINE: Architectural

FUNCTION: Design Recommendation - Exterior access

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current layout of the adjacent mechanical and electrical room doors requires additional sidewalk circulation

PROPOSED CHANGE: Place the doors in closer proximity to allow reduced sidewalk and permit a canopy cover for both in geographic locations that demand the use of canopy cover at these services entrances

ADVANTAGES:
- Easier to share canopy coverage
- Minimizes concrete walk and stoop
-
-

DISADVANTAGES:
- Minimal redesign
-
-
-

JUSTIFICATION: More efficient for access and weather protection

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 30

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: See attached sketches. This should be combined with Item 9.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 31

DESCRIPTION: Use aluminum cable up to the panel boards

DISCIPLINE: Electrical

FUNCTION: Electrical service to panelboards

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current design appears to use copper cabling connections to the panel boards

PROPOSED CHANGE: Provide aluminum cabling feeders to the panelboards (Quantified savings for 100 LF for comparison and will vary by building size and number of panels)

ADVANTAGES:
- Improved fastening systems at panel board
- Initial cost savings
-
-

DISADVANTAGES:
- Requires larger conduit
- Perceived safety for use of aluminum
-
-

JUSTIFICATION: This is permitted by NEC and is an industry standard practice and MILCON transformation policy would encourage this approach.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 1,375	1.54	$ 2,118	
PROPOSED CHANGE	$ 993	1.54	$ 1,529	
TOTAL SAVINGS			$ 588	$ -

ITEM PROPOSAL #: 31

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Current service estimated				$ -	
#2 copper conductor	CLF	4	$ 310.00	$ 1,240	4
1-1/4" rigid galv conduit	CLF	1	$ 135.00	$ 135	4
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 1,375**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
#1 alum conductor	CLF	4	$ 210.00	$ 840	4
1-1/2" rigid galv conduit	CLF	1	$ 153.00	$ 153	4
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 993**	

GENERAL NOTES: The cost estimate and design is too preliminary to perform a detailed comparison of costs for current and proposed but shows the comparison for 100 LF of cabling.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 32

DESCRIPTION: Use MC cable where allowed by code

DISCIPLINE: Electrical

FUNCTION: Electrical design - convenience receptacles

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current design indicates the use of conduit and wire conductors to the electrical devices.

PROPOSED CHANGE: Allow the use of MC cable were permitted by the building code in enclosed drywall partitions and ceilings. Quantities are assumed based on size and layout of RA-5-9

ADVANTAGES:
- Initial cost savings
- Faster installation
-
-

DISADVANTAGES:
- Harder to retrofit devices in the future
-
-
-

JUSTIFICATION: This approach is approved by NEC and would be consistent with MILCON Transformation policy to reduce construction costs and time of electrical installation.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 14,481	1.54	$ 22,301	
PROPOSED CHANGE	$ 8,024	1.54	$ 12,357	
TOTAL SAVINGS			$ 9,944	$ -

ITEM PROPOSAL #: 32

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
1/2" EMT Conduit	CLF	34	$ 249.00	$ 8,466	4
#12 CU Conductor	CLF	134	$ 44.89	$ 6,015	4
				$ -	4
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 14,481**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
2#12 w/G MC Cable	CLF	34	$ 236.00	$ 8,024	4
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 8,024**	

GENERAL NOTES: The buildings are essentially administrative in nature with a very low likelihood of being reconfigured or re-purposed to other mission once constructed. An option is to use conduit and wire for homerun to panel from first device.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 33

DESCRIPTION: Provide recessed floor outlets in selected assembly areas

DISCIPLINE: Electrical

FUNCTION: Design Recommendation - interior electrical distribution

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current design criteria does not indicate the provision of convenience receptacles in the center of large rooms for assembly (classroom and conference rooms)

PROPOSED CHANGE: Indicate the provision of flush recessed floor receptacles in the Classroom and larger conference rooms in the BN HQ building.

ADVANTAGES:
- Increased convenience for user
- Allows multi-purpose function capability
-
-

DISADVANTAGES:
- Initial increased cost
-
-
-

JUSTIFICATION: Building spaces should be as versatile as possible and power within large open areas permits a variety of uses and configurations for building users.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ 2,173	1.54	$ 3,347	
TOTAL SAVINGS			$ (3,347)	$ -

ITEM PROPOSAL #: 33

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Underfloor 1/2 conduit	CLF	2	$ 249.00	$ 498	4
Circuit wiring	CLF	8	$ 44.89	$ 359	4
Quad flush floor recept	EA	4	$ 329.00	$ 1,316	4
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 2,173**	

GENERAL NOTES: Cost assumes a 50-feet length of homerun from panel to 2 each receptacle located in the Classroom and Conf Room spaces of the BN HQ.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 34

DESCRIPTION: Use quadruplex receptacles in drywall partitions in selected areas

DISCIPLINE: Electrical

FUNCTION: Design Recommendation - interior electrical distribution

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current criteria does not make recommendations for higher density receptacles in selected areas

PROPOSED CHANGE: Consider inclusion in the room data sheets a provision for additional receptacles at selected areas

ADVANTAGES:
- Increased convenience for available power
- Can improve flexibility
-
-

DISADVANTAGES:
- Would likely increase initial cost slightly
-
-
-

JUSTIFICATION: Criteria should anticipate recommendations that improve user friendliness.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 34

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: No cost increase is calculated as the square foot parametric cost of the buildings should cover this provision.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 35

DESCRIPTION: Delete the lightning protection from the cost estimate

DISCIPLINE: Architectural

FUNCTION: Lightning protection

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current cost estimates include lightning protection for each building

PROPOSED CHANGE: Delete the cost from the estimate - The buildings do not have the importance factor of a mission critical facility. (Estimate for DET-24 does not appear to include lightning protection)

ADVANTAGES:
- Initial cost savings
-
-
-

DISADVANTAGES:
- Risk that the NFPA calcs encourage a system
-
-
-

JUSTIFICATION: NFPA calculations for each building & location will obviously vary but it is anticipated that the majority of buildings will not require a lightning protection system.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 3,372	1.54	$ 5,193	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ 5,193	$ -

ITEM PROPOSAL #: 35

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Avg. lightning protection	LS	1	$ 3,372.00	$ 3,372	1
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 3,372**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: Reduction is based on the average for all 3 buildings. Some of the lightning protection costs in the estimate do not appear adequate for the grounding and air terminals that would be required - verify pricing shown. The NFPA calculuations never "require" a lightning protection system. The risk to the facility is minimal.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 36

DESCRIPTION: Evaluate porous pavement options for parking areas only

DISCIPLINE: Civil

FUNCTION: Reduction is stormwater runoff

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: Impervious (asphalt) pavement

PROPOSED CHANGE: Use of porous pavement alternatives in lot traffic volume and parking areas

ADVANTAGES:
- Reduction in stormwater runoff
- Increased stormwater infiltration
- Reduction in stormwater management facilities
-

DISADVANTAGES:
- Aesthetics
- Maintenance
- Cost
-

JUSTIFICATION: Reduction in impervious coverage effectively reducing the potential size of stormwater management facilities. Optimizing site design. Provides site selection flexibility.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 58,400	1.54	$ 89,936	
PROPOSED CHANGE	$ 140,800	1.54	$ 216,832	
TOTAL SAVINGS			$ (126,896)	$ -

ITEM PROPOSAL #: 36

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Asphalt pavement (2/3/8)	SY	1460	$ 40.00	$ 58,400	4
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 58,400**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Porous pavement (6/2/2)	SY	1280	$ 110.00	$ 140,800	6 (VE Team)
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 140,800**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 37

DESCRIPTION: Provide for fire apparatus access around building

DISCIPLINE: Civil

FUNCTION: Fire fighting access

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: No fire access provided

PROPOSED CHANGE: 20-foot wide fire access provided

ADVANTAGES:
- Full access to all sides of the building
- Use of turf pavers having no impervious value
- Dual function can be used by building maintenance
-

DISADVANTAGES:
- Additional security measures required
- Maintenance
-
-

JUSTIFICATION: Optimizing site design. Provides site selection flexibility.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ 42,875	1.54	$ 66,028	
TOTAL SAVINGS			$ (66,028)	$ -

ITEM PROPOSAL #: 37

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Turf paver	SF	6125	$ 7.00	$ 42,875	6 (VE Team)
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 42,875**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 38

DESCRIPTION: Add an exterior plug and transfer switch to connect a mobile generator

DISCIPLINE: Electrical

FUNCTION: DR: See Design Review Comments

CRITERIA CHALLENGE: CRITERIA NO:

ORIGINAL DESIGN:

PROPOSED CHANGE:

ADVANTAGES:
-
-
-
-

DISADVANTAGES:
-
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 38

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 39

DESCRIPTION: Stripe the parking areas for more efficient HC spaces

DISCIPLINE: Civil

FUNCTION: Handicap parking areas

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: HC Stall layouts currently show one (1) 5-foot and one (1) 8-foot striped loading/unloading zone

PROPOSED CHANGE: Meet current ADA regulations with 11-foot parking stall and 5-foot striped loading/unloading area

ADVANTAGES:
- Flexibility in locating handicap spaces
- Flexibility in adding more handicap spaces
-
-

DISADVANTAGES:
- More pavement and curbing
- More striping
-
-

JUSTIFICATION: Optimizing site design. Provides site selection flexibility.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 800	1.54	$ 1,232	
PROPOSED CHANGE	$ 200	1.54	$ 308	
TOTAL SAVINGS			$ 924	$ -

ITEM PROPOSAL #: 39

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Handicap striping	EA	4	$ 200.00	$ 800	6 (VE Team)
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 800**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Handicap striping	EA	1	$ 200.00	$ 200	6 (VE Team)
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 200**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 40

DESCRIPTION: Use dedicated battery packs for emergency lighting

DISCIPLINE: Mechanical

FUNCTION: DR: See Design Review Comments

CRITERIA CHALLENGE: CRITERIA NO:

ORIGINAL DESIGN:

PROPOSED CHANGE:

ADVANTAGES:
-
-
-
-

DISADVANTAGES:
-
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 40

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 41

DESCRIPTION: Use LED bollard lighting for walkways

DISCIPLINE: Civil

FUNCTION: Lighting

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: No pedestrian lighting shown on the site layouts and cost estimate reflects pole mounted high pressure lighting

PROPOSED CHANGE: Providing pedestrian lighting

ADVANTAGES:
- Safety
- Security
-
-

DISADVANTAGES:
- None apparent
-
-
-

JUSTIFICATION: Health and welfare of pedestrians on sidewalk areas

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ 9,500	1.54	$ 14,630	
TOTAL SAVINGS			$ (14,630)	$ -

ITEM PROPOSAL #: 41

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Bollard lights (10' O.C.)	EA	19	$ 500.00	$ 9,500	6 (VE Team)
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 9,500**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 42

DESCRIPTION: Provide an emergency generator

DISCIPLINE: Mechanical

FUNCTION: DR: See Design Review Comments

CRITERIA CHALLENGE: CRITERIA NO:

ORIGINAL DESIGN:

PROPOSED CHANGE:

ADVANTAGES:
-
-
-
-

DISADVANTAGES:
-
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 42

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 43

DESCRIPTION: Vary the structural grid to assure no columns are in open office areas (BN HQ only)

DISCIPLINE: Structural

FUNCTION: Support roof

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: Current design for Battalion HQ shows a very uniform structural grid. The grid does not correspond to walls in the open offices, so columns will occur in the open offices.

PROPOSED CHANGE: Vary the structural grid to eliminate the columns in the open offices.

ADVANTAGES:
- Eliminates conflicts with columns
-
-
-

DISADVANTAGES:
- Longer spans will cost more
-
-
-

JUSTIFICATION: A uniform structural grid is a noble goal but it does not work with the Battalion HQ floor plan. Adjusting the grid will eliminate column conflicts in the open office areas.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 43

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: There are no column footprints shown at the structural grid intersections. Once columns are sized and located the spacing of cubicle systems furniture will be disrupted.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 44

DESCRIPTION: Use ground mounted packaged HVAC equipment

DISCIPLINE: Mechanical

FUNCTION: DR: See Design Review Comments

CRITERIA CHALLENGE: CRITERIA NO:

ORIGINAL DESIGN:

PROPOSED CHANGE:

ADVANTAGES:
-
-
-
-

DISADVANTAGES:
-
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 44

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 45

DESCRIPTION: Evaluate the use of a wireless IT system

DISCIPLINE: Mechanical

FUNCTION: DR: See Design Review Comments

CRITERIA CHALLENGE: CRITERIA NO:

ORIGINAL DESIGN:

PROPOSED CHANGE:

ADVANTAGES:
-
-
-
-

DISADVANTAGES:
-
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 45

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 46

DESCRIPTION: Evaluate the use of gray water harvesting for flushing toilets

DISCIPLINE: Mechanical

FUNCTION: DR: See Design Review Comments

CRITERIA CHALLENGE: CRITERIA NO:

ORIGINAL DESIGN:

PROPOSED CHANGE:

ADVANTAGES:
-
-
-
-

DISADVANTAGES:
-
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 46

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 47

DESCRIPTION: Provide sloped floor and sump in the vehicle processing garage

DISCIPLINE: Structural

FUNCTION: Support floor

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: Original design shows a flat floor in the vehicle processing garage.

PROPOSED CHANGE: Slope the floor to the center of the room and install a sump with grate to capture an oil spill.

ADVANTAGES:
- Feature is provided to capture an oil spill
-
-
-

DISADVANTAGES:
- Additional cost for sump and grate
-
-
-

JUSTIFICATION:

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 47

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 48

DESCRIPTION: Provide prefab HAZ waste storage on the outside

DISCIPLINE: Civil

FUNCTION: Hazardous waste storage

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: No hazardous storage provided

PROPOSED CHANGE: Provide a prefab concrete box with lockable swing door access on a 10-foot by 10-foot concrete pad

ADVANTAGES:
- Storage of HAZ waste outside of the building
- HAZ waste stored in a safe and secure area
- Ease of removal from site
-

DISADVANTAGES:
- Safety
- Maintenance and removal
- Handling
-

JUSTIFICATION: Removal of HAZ waste materials from inside of the building into a secure, freestanding box for safe disposal

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ 12,000	1.54	$ 18,480	
TOTAL SAVINGS			$ (18,480)	$ -

ITEM PROPOSAL #: 48

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Prefab HAZ waste storage	EA	1	$ 12,000.00	$ 12,000	6 (VE Team)
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 12,000**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 49

DESCRIPTION: Provide an exhaust hose and run outside in lieu of engineered vehicle exhaust

DISCIPLINE: Mechanical

FUNCTION: Removes carbon monoxide fumes

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current design provides for an enginnered vehicle exhaust system

PROPOSED CHANGE: The proposed recommendation is to provide vehicle exhaust hoses connected the the tailpipe and run under or through the overhead door for removal of carbon monoxide fumes.

ADVANTAGES:
- Reduced O&M cost
- Lower LCC
- Not necessary for function
-

DISADVANTAGES:
- None apparent
-
-
-

JUSTIFICATION: The proposed recommendation provides adequate fume removal and occupant safety.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ 8,342	1.54	$ 12,847	
PROPOSED CHANGE	$ 995	1.54	$ 1,532	
TOTAL SAVINGS			$ 11,314	$ -

ITEM PROPOSAL #: 49

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Engrd vehicle exhaust	LS	1	$ 8,342.00	$ 8,342	1
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 8,342**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
Hose exhaust system	LS	1	$ 995.00	$ 995	4
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ 995**	

GENERAL NOTES: The system/arrangement pictured on the following page was taken from an advertisement for a service station.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 50

DESCRIPTION: Show vehicle lift frame on plans in lieu of hydraulic post lift

DISCIPLINE: Structural

FUNCTION: Hoist vehicle

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The present drawings show the vehicle lift with a center support and four arms radiating out in a fashion that appears to be a hydraulic post lift. The cost estimate shows a frame lift.

PROPOSED CHANGE: The drawing should more accurately depict the type of vehicle lift that is proposed for the project.

ADVANTAGES:
- Avoids potential interference
- Could encourage room enlargement
-
-

DISADVANTAGES:
- None identified
-
-
-

JUSTIFICATION: A vehicle lift frame is larger than the lift that is shown on the drawings. The vehicle processing bay probably needs to be wider but this isn't clear since the vehicle lift is not accurately shown.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 50

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES:

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 51

DESCRIPTION: Provide weapon clearing barrels at all doors

DISCIPLINE: Architectural

FUNCTION: Design Recommendation - safety

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current design does not indicate gun clearing barrels to be provided at entrances.

PROPOSED CHANGE: Clearly state in the COS criteria that clearing barrels for small arms are required at each entrance to include visitor, agent and TOE entrances.

ADVANTAGES:
- The users of the facility are routinely armed
-
-
-

DISADVANTAGES:
- These often become trash receptacles & smokers urns
- Can be very unattractive if not planned for
-
-

JUSTIFICATION: Safety is paramount and operational standards will require the clearing barrels which should not appear as an after thought in the design of the entrances and walks.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 51

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: These do not necessarily need to be a cost increase but budgeting for them should be reflected and desribing them in a Design/Build RFP should not be an afterthought.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 52

DESCRIPTION: Require air/vapor barrier at vehicle processing partitions with interior spaces

DISCIPLINE: Architectural

FUNCTION: Design Recommendation - envelope integrity

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current design criteria does not appear to explicitly define the limits of the air barrier between the unconditioned vehicle processing and the adjacent conditioned spaces

PROPOSED CHANGE: Room data sheets in the CIDC Criteria should include mention of air barrier requirements where an unconditioned space abuts conditioned spaces (i.e. veh. processing, mech/elec, etc.)

ADVANTAGES:
- Compliance with high performance design criteria
- Explicit limits defined for use in RFP's
-
-

DISADVANTAGES:
- None
-
-
-

JUSTIFICATION: Compliance with criteria & QA/QC during construction. In some locales the high performance building criteria requires more explicit delineation of the air barrier.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 52

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: The current design using the under side of roof deck for the thermal insulation requires more complex air barrier installation on the partitions to underside of the deck. See Item 29 for related information.

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design
Worldwide

ITEM PROPOSAL #: 53

DESCRIPTION: EMCS

DISCIPLINE: Mechanical

FUNCTION: Monitor and control the HVAC systems

CRITERIA CHALLENGE: No CRITERIA NO:

ORIGINAL DESIGN: The current design narrative does not go into sufficient detail to describe the anticipated function of the building's BAS and basewide EMCS.

PROPOSED CHANGE: Optimize the function and number of points with what is actually required for the building's BAS and limit the authority the basewide EMCS has on building operation

ADVANTAGES:
- Provides local control for 24/7 operation
- Simplifies controls
-
-

DISADVANTAGES:
- None apparent
-
-
-

JUSTIFICATION: The fact that the building is a 24/7 type operation, the EMCS basewide tie in should be more of a monitoring and diagnostic tool than one that actually controls the operation of the building.

COST SUMMARY	TOTAL LABOR & MATERIAL	MARK UP	FIRST COST	LIFE-CYCLE COST
ORIGINAL DESIGN	$ -	1.54	$ -	
PROPOSED CHANGE	$ -	1.54	$ -	
TOTAL SAVINGS			$ -	$ -

ITEM PROPOSAL #: 53

ORIGINAL DESIGN

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

PROPOSED DESIGN CHANGE

ITEM	U/M	QTY	UNIT COST	TOTAL	SOURCE
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
				$ -	
SUBTOTAL				**$ -**	

GENERAL NOTES: The cost estimate provides a quantity of points for the local BAS. However, until the system types are decided on and coordinated with the estimate the cost provided is just a shot in the dark and a place holder. Based on the current design philosophy, the number of points indicated are inadequate for the system described in the mechanical narrative. The building's BAS should be the device used to schedule the on-off operation of each of the systems with the basewide EMCS used for monitoring and diagnostics. Lighting control, both inside and out should be considered for incorporation into the building's BAS

SOURCE CODE KEY

1 Project Cost Estimate
2 CES Database
3 CACES Database
4 Means Est. Manual
5 Vendor
6 Other (Specify)

VALUE ENGINEERING TEAM STUDY

CIDC Standard Design - 35% Design Submittal
Worldwide Application
Center of Standardization Criteria

ITEM	DESCRIPTION	RANK	Comments	DISCP
1	Reduce the concrete slab thickness from 6" to 4"	P	<>	S
2	Reduce building height (roof slope)	P	<Add Comments Here>	S
3	Reduce building height (wall)	P	<Add Comments Here>	S
4	Delete the vestibule and allow the waiting room to function as the airlock	P	<Add Comments Here>	S
5	Delete 1 door into the Intel Center	DR	<Add Comments Here>	S
6	Separate the vehicle processing from the building into a stand alone structure	DR	<Add Comments Here>	A
7	Provide a single interconnecting corridor ILO the two shown	DR	<Add Comments Here>	A
8	Use low slope with mansard roof and place HVAC equipment on roof	P	MX of several items	S
9	Allow mech/elec rooms to be accessible outside of the security fencing	DR	<Add Comments Here>	A
10	Combine staff & visitor parking reduce HC spaces	P	<Add Comments Here>	C
11	Optimize the size of vehicular circulation to reduce the pavement, curb & gutter	DR	<Add Comments Here>	C
12	Specify Cat. 2 ILO Cat. 4 for building importance	P	<Add Comments Here>	S
13	Use 4 pipe fan coil system	DR	MX of several items	M
14	Use a hybrid geothermal system	DR	MX of several items	M
15	Use variable flow refrigerant (VFR) system	DR	MX of several items	M
16	Use a radiant heating/cooling system	DR	MX of several items	M
17	Use roof top HVAC units	DR	MX of several items	M
18	Use low flow plumbing fixtures	DR	<Add Comments Here>	M
19	Use storage type domestic hot water heaters ILO instantaneous	DR	<Add Comments Here>	M
20	Add a staff entrance on the side	DR	<Add Comments Here>	A
21	Treat the small & medium CID as non-primary gathering for ATFP UFC to reduce standoff to 10m	P	<Add Comments Here>	S
22	Use PVC waste & vent piping	P	<Add Comments Here>	M
23	Evaluate alternate water piping materials	P	<Add Comments Here>	M
24	Evaluate HVAC system matrix for different geographic locale of projects	DR	<Add Comments Here>	M
25	Evaluate HVAC zoning	DR	<Add Comments Here>	M
26	Eliminate vehicle impound on the BN HQ site layout	P	<Add Comments Here>	C
27	Provide the garage HVAC with negative pressure	DR	<Add Comments Here>	M
28	Add workbench, flammable locker, and eyewash to TOE for arms cleaning	DR	<Add Comments Here>	A
29	Add a gyspum ceiling under roof trusses and do not extend the partitions to underside of roof	P	<Add Comments Here>	S
30	Relocate the mechanical room door closer to the electrical room door	DR	<Add Comments Here>	A
31	Use aluminum cable up to the panel boards	P	<Add Comments Here>	A

32	Use MC cable where allowed by code	P	<Add Comments Here>	A
33	Provide recessed floor outlets in selected assembly areas	DR	<Add Comments Here>	A
34	Use quadraplex receptacles in drywall partitions in selected areas	DR	<Add Comments Here>	A
35	Delete the lightning protection from the cost estimate	P	<Add Comments Here>	A
36	Evalaute pourous pavement options for parking areas	DR	<Add Comments Here>	C
37	Provide for fire apparatus access around building	DR	<Add Comments Here>	C
38	Add an exterior plug and transfer switch to connect a mobile generator	DR	MX of 42	M
39	Stripe the parking areas for more efficient HC spaces	DR	<Add Comments Here>	C
40	Use dedicated battery packs for emergency lighting	P	<Add Comments Here>	M
41	Use LED bollard lighting for walkways	DR	<Add Comments Here>	C
42	Provide an emergency generator		MX of 38	M
43	Vary the structural grid to assure no columns are in open office areas	DR	<Add Comments Here>	S
44	Use ground mounted packaged HVAC equipment	DR	MX of several items	M
45	Evaluate the use of a wireless IT system	DR	<Add Comments Here>	M
46	Evaluate the use of gray water harvesting for flushing toilets	DR	<Add Comments Here>	M
47	Provide sloped floor and sump in the vehicle processing garage	DR	<Add Comments Here>	S
48	Provide prefab HAZ waste storage on the outside	DR	<Add Comments Here>	C
49	Provide an exhaust hose and run outside in lieu of engineered vehicle exhaust	P	<Add Comments Here>	M
50	Show vehicle lift frame on plans in lieu of hydraulic post lift	DR	<Add Comments Here>	S
51	Provide weapon clearing barrels at all doors	DR	<Add Comments Here>	A
52	Require air/vapor barrier at vehicle processing partitions with interior spaces	DR	<Add Comments Here>	A
53	Evaluate and define EMCS functions per the 24/7 aspect of the facility	DR	<Add Comments Here>	M

VALUE ENGINEERING TEAM STUDY

Attendance Sign-In Sheet Date: 2/22/2011

Name	Discipline	Organization	Phone	Email
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Philip Pointon, AIA, LEED	VE Team Architect	Lemole Pointon Architects	757.235.1031	ppointon3@cox.net

VALUE ENGINEERING TEAM STUDY

EXIT BRIEF Attendance Sign-In Sheet Date: 2/24/2011

Name	Discipline	Organization	Phone	Email
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LPA

ARCHITECTURE

VE Study Document Review

US Army Corps of Engineers

PROJECT:	**Criminal Investigation Division Command Standard Designs**		
LOCATION:	**CONUS/OCONUS locations**	**PROJECT NO.:**	**COS Criteria**
REVIEWER:	**Rick Lambert, PE, CVS**	**DISCIPLINE:**	**Civil / Structural**

NO.	DOCUMENT (DWG. or SPEC. NO.)	COMMENT
1	35% submittal Para 3.1.3	Reconsider whether the primary gathering designation is pertinent to the RA 5-9 and RA 10-15 facilities. If building occupancy is less than 50 people, the facility should not be designated as primary gathering and setbacks should be reduced accordingly.
2	35% submittal Para 3.1.4	Question the need for providing separate visitor and staff parking areas. Designated spaces can be identified by pavement marking or signs
3	35% submittal Para 3.4.1	There is a contradiction on asking for a building that allows flexibility for interior configuration yet showing plans with a column grid line with interior columns. If a rigid frame prefab building was allowed, there would be no interior columns, yet the paragraph says that a prefab building with tapered columns should be avoided. Prefab buildings with rigid frames can be designed with straight columns. This paragraph should prohibit the use of columns and interior bearing walls if the goal is to have complete flexibility for moving walls in the future.
4	35% submittal Para 3.4.2	Cite the specific criteria, codes, and standards that are to be used. Provide specific guidance to clarify items that require interpretation such as the building occupancy category to be used for design since this has major implications on the importance factor that is used for determining forces on the structure. The user has indicated that this building is not a police station and will not need to remain open immediately after a natural disaster. Standard occupancy category rating is sufficient.
5	35% submittal Para 3.4.3	Same comment as No 1 above. Reconsider the primary gathering designation.
6	35% submittal Para 3.4 general	Add a requirement for submittal of design calculations, similar to para 3.7.3
7	35% submittal Para 3.4 general	There are a multitude of structural systems that could be used for this building. The only one that is mentioned to be avoided is the prefabricated building with tapered columns. Consider providing a list of the acceptable materials and building framing types.
8		
9		

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ARCHITECTURE

VE Study Document Review

US Army Corps of Engineers

PROJECT:	**Criminal Investigation Division Command Standard Designs**		
LOCATION:	**CONUS/OCONUS locations**	**PROJECT NO.:**	**COS Criteria**
REVIEWER:	**Philip L. Pointon, AIA, LEED AP**	**DISCIPLINE:**	**Architectural**

NO.	DOCUMENT (DWG. or SPEC. NO.)	COMMENT
1	General	Research the risk of agents inadvertently bringing CBRNE hazards into evidence through the vehicle processing. This may require provisions for pressurization and exhaust to avoid contaminating the entire building.
2	General	Define bare minimum site area requirements for Planners to identify candidate sites at the programming phase of the project life.
3	BN HQ Cost Estimate	Some of the line items are for specific geographic locations that will not apply everywhere. Can these items be identified as a separate list? For instance,01010121 is for frost depth modification which is applicable to a location like Ft. Drum, NY but would not apply to a location like Ft. Jackson, SC.
4	BN HQ Cost Estimate	03010102 Brick veneer unit price does not appear to include the cost of sheathing and other vapor barrier and these do not appear to be listed as separate line items.
5	BN HQ Cost Estimate	FSA: Janitor Storage does not appear to include a mop sink or shelf and mop holder accessory.
6	BN HQ Cost Estimate	FSA: Locker Rooms does not list the lockers.
7	BN HQ Cost Estimate	Verify the fire suppression costs are all inclusive for the system. The 3 line items appear to be about $3.06/SF which appears a little low for wet pipe suppression.
8	DET 24 Cost Estimate	This has similar items to the ones listed above for the BN HQ Cost Estimate.
9	RA 5-9 Cost Estimate	This has similar items to the ones listed above for the BN HQ Cost Estimate.
10	RA 10-15 Cost Estimate	This has similar items to the ones listed above for the BN HQ Cost Estimate.
11	BN HQ Dwg A-403	Sections B2 and D3 are labeled as E/W (east/west) and N/S (north/south). The descriptions should be longitudinal and transverse.
12	BN HQ Dwg A-403	Titleblock project information does not match other BN HQ drawings; missing USACE – CIDC.
13	Drawing A600 – all	The net area listing includes spaces that are typically part of the

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VE Study Document Review

US Army Corps of Engineers

PROJECT:	**Criminal Investigation Division Command Standard Designs**		
LOCATION:	**CONUS/OCONUS locations**	**PROJECT NO.:**	**COS Criteria**
REVIEWER:	**Philip L. Pointon, AIA, LEED AP**	**DISCIPLINE:**	**Architectural**

NO.	DOCUMENT (DWG. or SPEC. NO.)	COMMENT
	buildings	gross (i.e. vestibule, porch, mech, elec, etc.)
14	General	The net areas and gross areas do not appear to be calculated accurately – verify.
15	Drawings - Sections	The titleblocks for the sections drawings all indicate the PB logo in the top right and all other drawings indicate the Corps logo.
16	Drawings - Civil	Several of the site layouts do not appear to match the scale as indicated on the sheet as determined by scaling know items such as drive width or parking stall dimensions.
17	Drawings - Civil	The site layouts seem to be specific in some regards and silent on others for similar levels of details. For example: a fire hydrant location is shown (which would vary from site to site), but no site lighting layout is indicated. Or transformer locations are shown but a preferred PIV location is not.
18	Drawings - Civil	Consider putting the transformer locations outside the fence to allow private utility access to these without coming inside the fence
19	Cost Estimate	There does not appear to be any site costs reflected.
20	Cost Estimate	The drawings imply a hydraulic post but the cost estimate is based on a two post frame type of lift
21	Dwg A101	Why does the mechanical room have two double doors from the exterior.
22	Floor Plans	Are the corridor doors provided with a lite or a sidelite?
23	Cost Estimate DET-24	There does not appear to be a line item for lightning protection in this estimate similar to the other building types. Verify.
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PROJECT:	**Criminal Investigation Division Command Standard Designs**		
LOCATION:	**CONUS/OCONUS locations**	**PROJECT NO.:**	**COS Criteria**
REVIEWER:	**Brandt H. Williams, PE, CIAQP**	**DISCIPLINE:**	**Mechanical/Plumbing/Electrical**

NO.	DOCUMENT (DWG. or SPEC. NO.)	COMMENT
1	Design Narrative	Storage type domestic water heaters vs instantaneous: There are multiple factors that need to be considered when deciding the type of domestic water heater(s) that are to be used for each site. The use of solar almost certainly dictates a storage type of water heater system, while projects that don't employ solar type the cost of the utility available (natural gas, propone gas, fuel oil & electric), the equipment and installed cost must be evaluated for providing the lowest LCC & optimizing the design.
2	Design Narrative	Evaluate HVAC zoning: The design narrative indicates that each space will be provided with a "separate system". We recommend that areas of similar use and/or occupancy and/or thermal exposure be consolidated into a single larger zone. There will be an incurred first cost savings and it is not mission essential that these spaces each are provided with separate control.
3	Design Narrative	Create HVAC matrix (or scalable rating system) based on geographic locale: Given that these prototype buildings can be literally site adapted world wide the use of an HVAC matrix will add greatly to the proper selection and life cycle costing of the HVAC systems. System matrix should be based on multiple factors that will allow the system types to be analyzed and narrowed down to two or three at the most for further evaluation and life cycle costing. Geographic locale, dewpoint, HDD, CDD, interstitial space requirements, utilities available and their respective incremental cost are all items that should be considered when constructing the matrix.
4	Design Narrative	Make garage negative pressure: Due to the nature of the use of the vehicle processing bay it is recommended that this area be provided with a separate heating and ventilating system and be designed to constantly run under negative pressure relative to all adjacent connected areas.
5	Design Narrative	Low flow plumbing fixtures: It recommended that low flow 1.28 GPF water closets, 0.125 GPF urinals, 0.5 GPM faucets and 1.5 GPM shower heads all be used to reduce annual water consumption.
6	Design Narrative	Use ground mounted package equipment: The use of this type of

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REVIEWER:	**Brandt H. Williams, PE, CIAQP**	**DISCIPLINE:**	**Mechanical/Plumbing/Electrical**

NO.	DOCUMENT (DWG. or SPEC. NO.)	COMMENT
		equipment provides some advantages over roofmounted equipment and will require that the outside air intakes be extended to 10'AFG. It will also require some exposed ductwork, either a concrete pad to mount it on or an elevated frame in areas subject to large snowfall and a vertical means of running the ductwork to a point above the ceiling, either exposed outside or in a vertical chase inside.
7	Design Narrative	Chapter 3 needs major work to be consistent with the requirements of ASHRAE 90.1-2007, ASHRAE 62.1-2007 & other required criteria. Some of these revisions include ensuring the correct version/edition is referenced for all criteria, load calculations are limited to 105% safety factor not 115% as indicated, including plumbing criteria, electrical criteria, etc.
8	Design Narrative	Evaluate alternate water piping materials: Copper while still a preferred material for interior domestic water piping systems has gotten so expensive that the use of PEX or other non-ferrous water piping system may be an acceptable alternative that should be considered.
9	Design Narrative	Evaluate the use of gray water harvesting for flushing toilets: Gray water systems should be considered for irrigation and or water closet/urinal flushing when the project site design requires storm water detention, retention or re-charging.
10	Design Narrative	Add an exterior plug and transfer switch to connect a mobile generator: Providing this and circuiting to those panels wired into the manual transfer switch circuit those loads that would be mission essential to sustaining the operation of the facility over an extended power outage provides a considerable amount of flexibility at a very small additional first cost
11	Design Narrative	Use dedicated battery packs for emergency lighting: Consider this option for providing emergency lighting as opposed to specifying the 2x2 or 2x4 fixtures be provided with a battery pack.
12	Design Narrative	Provide an emergency generator: Consider providing a small generator sized to handle mission essential loads that would allow the facility to sustain the operation of the facility over an extended

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REVIEWER:	**Brandt H. Williams, PE, CIAQP**	**DISCIPLINE:**	**Mechanical/Plumbing/Electrical**

NO.	DOCUMENT (DWG. or SPEC. NO.)	COMMENT
		power outage.
13	Design Narrative	Evaluate the use of a wireless IT system: The design narrative provides a paragraph on the use of wireless technology. We recommend the use of a secured wireless network in addition to a hard wired network be considered for flexibility as many of the agents will use portable laptop type computers.
14	Design Narrative	Evaluate use of fluorescent fixtures: The narrative suggest the use of a combination of 2x2 and 2x4 fixture types. The selection of the size should be based on what is the optimized design solution for stocking replacement lamps.
15	Cost Estimate	The mechanical cost estimate is based on a parametric model for a similar type facility. However, the parametric mechanical model is not anywhere close to what the design philosophy is and therefore we don't believe it is an accurate reflection of the actual mechanical cost associated with this project. Additionally each of the buildings shows a lower $/sq.ft cost as the size increases. There isn't enough difference in the size of these buildings that the unit cost should be reduced as much as it is indicated in each estimate.