

MINOR STATE CAPITAL OUTLAY PROJECTS

REQUEST FOR PROPOSAL

This form is used for requesting proposals from professional service contractors for minor state capital outlay projects. (Authority: 1984 PA 131)

Professional Services for Renovations

File No. 511/10104.MNB
Index No. 26000

Department of Military and Veterans Affairs
Five Michigan National Guard Maintenance Facilities in East Michigan
Selfridge Air National Guard Base (2), Flint Armory, Washtenaw Armory & Midland Armory

PROPOSAL DUE DATE: Thursday, March 18, 2010, 2:00 p.m., Local Time

MULTIPLIERS ABOVE 2.70 WILL NOT BE ALLOWED FOR AWARD OF FUTURE CONTRACTS BY THE DEPARTMENT OF MANAGEMENT AND BUDGET, FACILITIES ADMINISTRATION, DESIGN AND CONSTRUCTION DIVISION FOR THE PROFESSIONAL'S SERVICES OR FOR THE PROFESSIONAL'S CONSULTANT'S SERVICES.

ISSUING OFFICE

U.S. Mail Address

Department of Management & Budget
Facilities Administration
P.O. Box 30026
Lansing, MI 48909

Express Mail Address

Department of Management & Budget
Facilities Administration
530 W. Allegan Street
First Floor, Stevens T. Mason Building
Lansing, MI 48933

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Minor State Capital Outlay Projects
REQUEST FOR PROPOSAL
Part I - Technical Proposal
Part II – Cost Proposal
Professional Services for Renovations

File No. 511/10104.MNB
Index No. 26000

Department of Military and Veterans Affairs
Five Michigan National Guard Maintenance Facilities in East Michigan
Selfridge Air National Guard Base (2), Flint Armory, Washtenaw Armory & Midland Armory

SECTION I GENERAL INFORMATION

I-1 Purpose

This Request for Proposal provides the prospective prime professional service contractor, hereafter referred to as the professional, with information to enable preparation of a proposal for renovations to five maintenance facilities; Selfridge Air National Guard Base (2), Flint Armory, Washtenaw Armory & Midland Armory in Selfridge, Flint, Ypsilanti & Midland, Michigan. The service to be completed should encompass as a minimum the following phase(s) from the Department of Management and Budget's attached Sample Standard Contract for Professional Services:

<u>Phase</u>	
100	Study
200	Program Analysis
300	Schematic Design
400	Preliminary Design
500	Final Design
600	Construction Administration - Office Services
700	Construction Administration - Field Services

I-2 Project/Program Statement

See attached project/program statement for more detailed information. The design professional, by submitting a Technical (Part I) and Cost (Part II) Proposal to the department for evaluation during the selection process, ascertains that they can and will provide a complete design based on the approved project/program statement. No increase in compensation fee to the design professional will be allowed unless there is a material change made to the scope of work of the project/program statement and the change to the project/program statement is approved, in writing, by Facilities Administration, Design and Construction Division.

I-3 Issuing Office

This Request for Proposal is issued by the Department of Management and Budget, hereafter referred to as the issuing Office. PROPOSALS SHALL BE RETURNED TO THE ISSUING OFFICE. The point of contact for this Request for Proposal is:

Chris Bahjet, Project Director
Department of Management and Budget
Facilities Administration, Design and Construction Division
P.O. Box 30026
Lansing, MI 48909
Telephone Number: (517) 749-7519

I-4 Contract Award

Professionals are being requested to submit a proposal in two parts. These professionals will be evaluated based on their Technical Proposal - Part I, and Cost Proposal - Part II. Proposals will be evaluated based on the Technical Portion - Part I eighty percent (80%) and the Cost Proposal - Part II twenty percent (20%).

The Department of Management and Budget will offer a contract to the professional firm that has been recommended by the Advisory Committee after their evaluation of the combined Parts I - Technical and Part II - Cost Proposals.

Contract award will be undertaken by the state through the Department of Management and Budget within thirty (30) days following the due date of the proposal being submitted to the issuing office with the professional firm whose proposal (Parts I and II) the Advisory Committee determines to be in the state's best interest.

Professional firms awarded contracts by Facilities Administration, must be certified by the Michigan Department of Civil Rights for compliance with State of Michigan nondiscrimination requirements. If submittal is made by a Joint Venture, BOTH FIRMS must be certified. **Attach a copy of the Certificate of Awardability to each of the returned proposals, along with one completed, signed Professional Contractor Demographics, Statistics and Certification form; one completed, signed Certification Regarding Debarment, Suspension, and other Responsibility Matters form.**

Due to recent processing improvements by the Department of Management & Budget (DMB) and the Department of Civil Rights (DCR) concerning Certificates of Awardability, consideration may be given to proposals received while final certification is still pending. In order to qualify for such consideration a professional who does not possess a Certificate of Awardability valid through the proposal due date must do each of the following:

- Notify MDCR in writing, by sending a facsimile (fax) to 313-456-3826 at least 3 business days prior to the proposal due date, that the professional has submitted a proposal contingent upon a pending Certificate of Awardability. Notice shall indicate for the proposal being submitted upon, the scheduled proposal due date, the name and phone number(s) of a contact person able to speak for the professional on the subject of awardability, and the date on which the professional's application for Certificate of Awardability was initially filed.
- Ensure that all information required on the application for Certificate of Awardability was provided to MDCR.
- The professional is responsible for securing all pertinent information from the Department of Civil Rights prior to submitting a proposal. Communications should be directed to:

Michigan Department of Civil Rights
Cadillac Place
3054 W. Grand Boulevard
Suite 3-600
Detroit, MI 48202
Telephone Number: (313) 456-3822 or 456-3700

I-5 Rejection of Proposals

The state reserves the right to reject any or all proposals, in whole or in part, received as a result of this Request for Proposal.

I-6 Incurring Costs

The state is not liable for any cost incurred by the professional prior to acceptance of a proposal and the award and execution of a contract and issuance of the state's contract order.

I-7 Mandatory Preproposal Meeting

A MANDATORY PREPROPOSAL MEETING will be conducted by the Issuing Office for this Request for Proposal at Grand Ledge Armory, 16583 Wright Road, Grand Ledge, Michigan, at 11:00 a.m. on March 5, 2010.

I-8 Economy of Preparation

Proposal should be prepared simply and economically, providing a straightforward, concise description of the professional's ability to meet the requirements of the Request for Proposal. **Fancy bindings, three-ring binders, colored displays, promotional materials, and so forth, are not desired. Emphasis should be on completeness and clarity of content.**

I-9 Responsibilities of Prime Professional Service Contractor

The prime professional service contractor will be required to assume responsibility for all professional services offered in their proposal whether or not they possess them within their organization. Further, the state will consider the professional to be the sole point of contact with regard to contractual matters, including payment of any and all charges resulting from the contract. The prime professional shall possess a license to practice in the State of Michigan pursuant to Public Act 299 of 1980, Article 20.

I-10 Proposals

The professional must submit a complete response to this Request for Proposal. Each proposal must be submitted in four (4) copies to the issuing office. No other distribution of proposals will be made by the professional. Part I and Part II of the proposal should be submitted at the same time. To be considered, proposals must arrive at the issuing office **on or before 2:00 p.m., local time, on Thursday, March 18, 2010.** Professionals mailing proposals should allow normal delivery time to ensure timely receipt of their proposals. Proposals received after this time will be returned unopened. The **outside envelope** should be clearly marked **"Eastern Michigan National Guard Armories - Maintenance Shop Repairs."** Proposal must be signed by an official authorized to bind the professional firm to its provisions. **NO FACSIMILES OR E-MAILS OF THE REQUEST FOR PROPOSAL WILL BE ACCEPTED.** **NOTE:** Parking is at a premium in the area of the Stevens T. Mason Building. Security measures may affect the delivery time of mail and packages sent via UPS, Fed Ex, and Airborne Express. Those hand-delivering their proposal should be prepared to present a pictured identification to the security guard on duty in the lobby of the Stevens T. Mason Building and allow extra time for their proposal to reach Facilities Administration. It remains the responsibility of the professional firm to submit request for proposals as specified. Please allow ample time to arrive at the office prior to the 2:00 p.m. deadline.

SECTION II PROPOSAL FORMAT - PART I - TECHNICAL

(Proposal must be submitted in the format outlined below):

II-1 Business Organization

State the full name and address of the organization and, if applicable, the branch office, consultants or other subordinate elements that will provide or assist in providing the service. Indicate whether you operate as an individual, partnership or corporation; if as a corporation, include the state in which you are incorporated. State whether you are licensed to operate and practice in the State of Michigan.

II-2 Statement of the Problem and Budget

State in concise terms your understanding of the problem and, in summary, your plan for accomplishing the project within the initial construction allocation.

II-3 Management Summary and Work Plan/Schedule

Describe in narrative form your plan for accomplishing the project. Describe clearly and concisely each task required to complete the project. Include a detailed PERT-type display, or similar time sequenced-related but undated schedule, showing each task and phase in your work plan.

II-4 Personnel Staff

The professional must be able to staff a project team that possesses qualifications and all the expertise necessary to undertake the project. Include the full payroll signature names of all personnel by classification that will be employed in the scope of the work. Indicate which of these individuals you consider to be "Key Personnel" to the successful completion of the project. Identify "Key Personnel" by name and position/classification title. Resumes of qualifications for "Key Personnel" must be provided. No substitution of any "Key Personnel/Employee" will be

made by the professional without the prior written consent of the department. Before any such substitution, the professional shall submit to the department a detailed written justification for such substitution, supported by the professional qualifications of any proposed replacement.

II-5 Organization Chart

Provide an organization chart outlining authority and communication lines for each "Key Personnel" and personnel staff.

II-6 Work Experience

Provide project work experience.

SECTION III PROPOSAL FORMAT - PART II - COST

III-1 Instructions

Part II - Cost Proposal shall carefully interface with all phases/tasks of the work plan identified in the Part I - Technical Proposal. Total cost shall be estimated using direct payroll rates for personnel performing a direct service times a multiplier. The multiplier for direct payroll rates shall not normally exceed 2.5 All multipliers must be accompanied with accounting records prepared by a qualified accountant justifying the multiplier. (See attached guideline page for instructions regarding the "Overhead Items Allowed for Professional Service Contractor's Multiplier Calculation.") **COST PROPOSALS WITHOUT THESE CERTIFIED ACCOUNTING RECORDS SHALL RECEIVE A REDUCED SCORE BY THE ADVISORY COMMITTEE.**

Consultants providing services must submit a separate multiplier (with proper documentation) for services that they will provide. No mark-up of the consultants billing or direct payroll rates will be allowed.

Contracts will not be issued with a multiplier above 2.70.

The department will reimburse the professional for the actual cost of printing and reproduction of Phase 100 Survey and/or Study Reports, bidding documents/drawings and specifications and U.S. Mail regular shipping postage and handling of bidding documents, soil borings, site surveys and any required laboratory testing. No mark-up of these costs will be allowed.

All other costs, such as indirect labor, phones, miscellaneous reproduction, travel, etc., shall be included in the professional's multiplier.

If the project is further than 100 miles one-way from the professional firms office, Facilities Administration may entertain a proposal to include reimbursable costs for travel mileage to the project site at the State of Michigan's rates if the professional firm can demonstrate a cost savings to the State, if reimbursed for travel mileage in accordance with the current travel rates provided in the State of Michigan's "Schedule of Travel and Meal Reimbursement Rates" versus an adjustment to the professional's multiplier. If such a situation exists, the professional shall include with the proposal an estimated amount reflecting proposed travel costs and a schedule showing proposed frequency of such travel, including detailed itemized backup documentation indicating how this estimate was determined.

The design phase tasks shall cumulatively include any contingent services required for subsequent issuing and processing of bulletins arising from, but not limited to, design errors and/or omissions, code compliance (precipitating either from plan review or on-site/field observations), modification of existing structures or systems necessary to achieve the intent of the project statement.

The design phase services shall include either by cumulative allowance or by specific task, the furnishing of all project data and services necessary to legally implement the project. This includes but may not be limited to, code reviews and/or interpretations, project meetings, presentations, hearings, utility allocations requests, and/or connections, easements, or permits.

Any contract issued by the state pursuant to this proposal anticipates that the professional will provide, but shall not seek compensation for services necessary to respond to and resolve contractor claims arising wholly or in part from the professional's design errors or omissions or other aspects of the design or for any aspect of the professional's performance which is inconsistent with the professional or construction contracts. No task or part thereof may include costs for such efforts.

III-2 Identification of Personnel and Estimated Compensation

III-2-A. Primary Professional/Consultant - Position Classification and Employee Wage Information

Utilizing a format similar to the attached Form III-2-A, identify the architectural and/or engineering discipline service being provided and the primary professional/consultant's technical employee(s) names and position classifications for the project and their current hourly direct payroll rates and hourly billing rates at the beginning of the project. Also, provide the technical employee(s) anticipated hourly direct payroll rates and hourly billing rates at the end of the project based on the professional's estimated schedule duration. This range of current and anticipated hourly direct payroll and billing rates shall reflect the actual costs currently being paid to all the primary professional/consultant's technical employees professional services within their specified position classification, and shall include any anticipated pay increases over the life of the professional/consultant's estimated contract schedule.

Multiplier

To determine your current billing rate, multiply the employee(s) current direct payroll rate times your firm's calculated multiplier. (See the attached guideline page for instructions regarding the "Overhead Items Allowed For Professional Service Contractor's Multiplier Calculation," and the attached "Sample Standard Contract For Professional Services," Article 2, Compensation Text.) The multiplier for a professional firm for direct payroll rates shall normally not exceed 2.5. Professional service contracts will not be issued to a professional firm with a multiplier above 2.70. ALL multipliers must be accompanied with accounting records prepared by a qualified accountant justifying their multiplier. Consultants providing professional services must submit a separate multiplier (with proper documentation) for services that they will provide. No mark-up of the consultants billing or rates will be allowed. ALL other costs, such as indirect labor, telephones, miscellaneous reproduction, travel, etc., shall be included in the professional's multiplier.

- III-2-B. Utilizing a format similar to that shown in III-2-B, identify for each phase/task the estimated hours for each employee and include the direct payroll rate for the employee. Please note that employees of a separate professional firm or consultant, if proposed, should also be included and noted.
- III-2-C. Utilizing a format similar to that shown in III-2-C, identify the phase number, firm name, address, description of the professional services to be provided and the total amount of all authorized direct expenses of a reimbursable nature.
- III-2-D. Utilizing the format shown in III-2-D, carry forward the previously determined subtotal amounts for each phase and adjust those amounts utilizing a multiplier. The use of a multiplier for direct payroll should include, but not limited to, such items as fringe benefits, vacations, sick leave, insurance, meals, lodging, travel, all computer time, and clerical/secretarial services (not project related), telephone services, reproduction services for other than bid documents, employees not providing a direct service, other indirect costs and profit, etc. Similarly, indicate the multiplier that covers your handling fee for authorized reimbursable work. Repeat the above for each phase and summarize all phases using the format shown in III-2-E. The combination of all phases shall become the professional's maximum not-to-exceed cost for all design services. Compensation for each phase will be in accordance with the attached "Sample Standard Contract for Professional Services," Article 2, Compensation text.
- III-2-E. Use for each phase of the project the following sample formats to establish your total compensation. Please note that the hours for each phase/task must be identified under III-2-B and that the phase/tasks must be based and referenced to your Part I - Technical Proposal.

III-2-A.

PROFESSIONAL/CONSULTANT
Position/Classification and Employee Wage Information

Firm Name

Discipline Services Provided

***Multiplier**

2.5

Position/Classification	Employee(s) Name	Hourly \$ Pay Range	
		Direct Payroll From \$ - To \$	Billing Rate \$From - To \$
Principal/Project Manager**	Robert J. Hafel	37.00 - 40.70	92.50 - 101.75
Senior Architect	Donald E. McReynolds	29.00 - 31.90	72.50 - 79.75
Civil Engineer**	Ruby D. Riley	26.00 - 28.60	65.00 - 71.50
Structural Engineer**	Charles D. Gibson	33.00 - 36.30	82.50 - 90.75
Mechanical Engineer**	William D. Murphy	29.00 - 31.90	72.50 - 79.75
Senior Structural Engineer	Robert L. Hunter	30.00 - 33.00	75.00 - 82.50
Electrical Engineer	Carolyn M. Phillips	19.00 - 20.90	47.50 - 52.25
Draftsperson	As Selected	17.00 - 18.70	42.50 - 46.75
Quality Control/Assurance	William King	25.00 - 27.50	62.50 - 68.75
CADD Operator	Arnold T. Ross	13.00 - 14.30	32.50 - 35.75

The Direct Payroll and Billing Rate pay range shall reflect actual cost currently paid to all employees within their specified position/ classification, and shall include any anticipated pay increases over the life of the contract.

*Multiplier will be in accordance with the attached guideline page for instructions regarding the "Overhead Items Allowed for Professional Service Contractor's Multiplier Calculation," and the attached "Sample Standard Contract for Professional Services," Article 2, Compensation Text.

**Key Project Personnel

III-2-B. Direct Payroll Format**Phase 400 - Preliminary Design**

EMPLOYEES NAME	POSITION/ CLASSIFICATION	HOURS FOR TASK ITEMS				TOTAL HOURS	DIRECT PAYROLL RATES \$	SUBTOTAL AMOUNTS \$	MULTI- PLIER	TOTAL AMOUNT \$
		401	403	404	410					
Robert J. Hafel	Principal/Proj Mgr	12	8	2	8	30	37.00	1,110.00	2.86	3,174.60
Donald McReynolds	Senior Architect	1				1	29.00	29.00	2.86	82.94
Ruby D. Riley	Civil Engineer	1	8			9	26.00	234.00	2.86	669.24
Charles D. Gibson	Structural Engineer			8		8	33.00	264.00	2.87	754.04
William D. Murphy	Mech. Engineer.					0	29.00	0.00	2.86	0.00
Robert L. Hunter	Sr. Struct. Eng.					0	30.00	0.00	2.86	0.00
Carolyn M. Phillips	Electrical Engineer	6	8		8	22	19.00	418.00	2.86	1,195.48
As Selected	Draftsperson					0	17.00	0.00	2.86	0.00
William King	Quality Control					0	25.00	0.00	2.86	0.00
Arnold T. Ross	CAD Operator	2				2	13.00	26.00	2.86	74.36
SUBTOTAL		22	24	10	16	72		\$2,081.00		\$5,951.66

III-2C. Authorized Reimbursable Services/Testing and \$ Expenses***Multiplier: 1.0****Phase 500 - Final Design**

NAME OF FIRM	DESCRIPTION OF SERVICES PROVIDED	TOTAL \$ AMOUNT
XYZ Productions, Inc. Lansing, Michigan	Printing and reproduction of final design bidding documents, drawings, and Specifications	10,000.00
SUBTOTAL		\$ 10,000.00

***MULTIPLIER DOES NOT INCLUDE AND THE STATE WILL PAY FOR (UNDER REIMBURSABLE COSTS):**

1. Printing and reproduction of Phase 100 Survey and/or Study Final Reports.
2. Printing and reproduction of Phase 500 Final Design Bidding Documents/Drawings, and Specifications.
- 3.* Travel mileage costs for projects in excess of 100 miles in each direction from the professional's office if the professional firm can demonstrate a cost savings to the State, if reimbursed for travel mileage in accordance with the current travel rates provided in the State of Michigan's "Schedule of Travel and Meal Reimbursement Rates" versus an adjustment to the professional's multiplier.

III-2-D. Phase Summary Format

Phase 500 - Final Design

ITEM	SUBTOTAL AMOUNTS	MULTIPLIER	TOTAL \$ AMOUNT
Direct Payroll	\$14,717.00	2.86	\$42,090.62
Reimbursable	\$10,000.00	1.00	\$10,000.00
SUBTOTAL			\$52,090.62

III-2-E. Phase Summary Format - (IF A MULTIPHASE PROJECT)

	PHASE								TOTAL	
	400		500		600		700		HOURS	\$ COST
	HOURS	\$ COST	HOURS	\$ COST	HOURS	\$ COST	HOURS	\$ COST		
	30	3,174.60	79	8,042.32	50	5,291.00	62	6,560.84	218	23,068.76
	1	82.94	62	5,142.28	20	1,658.80	8	663.52	91	7,547.54
	9	669.24	38	2,825.60	0	0.00	0	0.00	47	3,494.92
	8	755.04	54	5,096.52	9	188.76	6	566.28	70	6,606.60
	0	0.00	36	2,985.84	20	1,658.80	6	497.64	62	5,142.28
	0	0.00	49	4,204.20	8	686.40	0	0.00	57	4,890.60
	22	1,195.48	105	5,705.70	22	1,195.48	14	760.76	163	8,857.42
	0	0.00	124	6,028.88	0	0.00	0	0.00	124	6,028.88
	0	0.00	8	572.00	0	0.00	0	0.00	8	572.00
	0	0.00	0	0.00	0	0.00	134	10,347.48	134	10,347.48
	2	74.36	40	1,487.20	18	669.24	16	594.88	76	2,825.68
SUBTOTALS	72	5,951.66	592	42,090.62	140	11,348.48	246	19,991.40	1050	79,382.16

ESTIMATED REIMBURSABLE \$ EXPENSES \$10,000.00

TOTAL FEE \$89,382.16

PROJECT STATEMENT

STATE OF MICHIGAN
 DEPARTMENT OF MANAGEMENT AND BUDGET
 Facilities Administration
 First Floor, Stevens T. Mason Building
 P.O. Box 30026
 Lansing, Michigan 48909

FILE NUMBER 511/10104.MNB (Eastern Michigan)	INDEX NUMBER(S) 26000	COMPTROLLER OBJECT	APPROVAL DATE
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DEPARTMENT

Dept of Military & Veterans Affairs

AGENCY

Reserve Forces Support Center

ADDRESS

3423 N. Martin Luther King, Lansing, MI 48906-2934

AGENCY CONTACT

Brian Bushnell, CEM

TELEPHONE NUMBER

(517) 481-7561

DEPARTMENT OF MANAGEMENT AND BUDGET PROJECT MANAGER

Chris M. Bahjet

TELEPHONE NUMBER

(517) 749-7519

PROJECT DESCRIPTION

The State of Michigan, Department of Management and Budget is seeking proposals to provide design and construction administration services including phase 100 through 700 to plan, prepare plans/ specifications and administer the renovations of five existing Eastern Michigan National Guard vehicle maintenance facilities located at; Selfridge Air National Guard Base, Flint, Ypsilanti, Midland and Selfridge (another location within the base). Scope of work varies by site and will include code and safety updates, ventilation and facility improvements. Please check the attached document titled Work Scope Brief to see more details.

PLEASE CHECK DMB WEB SITE ON MARCH 4th FOR ANY UPDATES

SPECIAL WORKING CONDITIONS

Please check with the National Guard Representative as each site requires its own security requirements.

DESIRED SCHEDULE OF WORK

To have a selected construction bid recommended by the professional by Friday 9/10/2010. Construction schedule to be determined by work scope and after plans are developed.

LOCATION OF WORK AREAS- Western Michigan

1. FMS #2, Selfridge Air National Guard Base, MI 48045
2. AASF#2, Selfridge Air National Guard Base, Michigan 48045
3. FMS #3, Flint Armory, 1101 Chavez Dr. Flint, Flint, MI 48503-4856
4. FMS #17, Washtenaw Armory, 7400 S. Huron Rd., Ypsilanti, MI 48197
5. FMS #22, Midland Armory, 2300 Airport Rd, Midland, Michigan 48462

REFERENCE STANDARDS: This project will comply with all codes, standards, regulations, and workers' safety rules that are administered by federal agencies (EPA, OSHA, and DOT), state agencies (MIOSHA, DNR, and DCH), and any other local regulations and standards that may apply.

This form is required to be a part of the professional service contract. (Authority: 1984 PA 431)

Attachment(s)

DMVA Files 511/10104.MNB & 511/10103.MNB

East & West Michigan Maintenance Shop Repairs (two file numbers) will be advertised as two projects .

Schedule:

The dates, which might vary slightly, are noted here to give an idea of the limited time frame we have before having a PSC recommended construction bid by the fixed date of 9/13/2010.

2/12/2010	Start Advertise for a PSC 2/12 through 3/4
3/05/2010	PSC Walkthrough
3/18/2010	Proposals due
3/26/2010	Owner PSC selection meeting
4/30/2010	Award- Selected PSC to receive letter of selection. PSC to send insurance information to DMB as soon as notified. This to be followed up closely to keep dates as close as possible.
5/03/2010	Start site meetings at (5+7=12) sites in sequence. Only one site meeting is scheduled per site. PSC is free to visit sites as many times as required. <i>Five Eastern Michigan Facilities 511/10104.MNB</i>
5/03/2010	1. AM: Selfridge FMS 2. PM: Selfridge AASF# 2
5/04/2010	3. AM: Flint 4. PM: Midland
5/05/2010	5. AM: Washtenaw <i>Seven Western Michigan Facilities 511/10103.MNB</i>
5/06/2010	1. AM: Grand Ledge 2. PM: Fort Custer
5/07/2010	3. AM: Wyoming 4. PM: Montague
5/10/2010	5. AM Sault St. Marie
5/11/2010	6. AM Ishpeming 7. PM Kingsford
5/12/2010	End of site visits.
7/30/2010	Complete all plans and specification
7/30/2010	Mail/hand deliver CD to DMB. DELEG review to be concurrent during advertising to save time.
8/05/2010	Start 3 weeks construction bid advertising.
8/26/2010	Pre bid meeting
9/09/2010	Bids due- All DMB bids must be due on Thursdays at 2:00 PM
9/10/2010	PSC recommendation for selection.
9/13/2010	Justification and submitting recommendation
9/13/2010	Submitting due date to DMB
9/30/2010	Ad board meeting and bid approval

CBahjet 2/11/2010

First partnering meeting 2/10/2010, Date MOP received 1/22/2010, Date MOP signed 1/13/2010

REQUEST FOR PROPOSAL OF ARCHITECTURAL/ENGINEERING SERVICES

Maintenance Shop Repairs Eastern Michigan Project Number FM100008

Department of Military and Veterans' Affairs
3 DEC 2009

In General:

The Facilities Maintenance Shops (FMS's) and Army Aviation Support Facilities (AASF) for the Michigan Army National Guard are located throughout the state and are used for the maintenance of army guard rolling stock and rotary wing aircraft..

Maintenance Facilities for this project are located:

FMS #2, Selfridge Air force Base, Mt Clemens, Michigan
FMS #3, Flint Armory, 1101 Chavez, Flint, Michigan
FMS #17, Washtenaw Armory, 7400 S. Huron Rd., Washtenaw, Michigan
FMS #22, Midland Armory, 2300 Airport Rd., Midland, Michigan
AASF#2, Selfridge Air Force Base, Mt. Clemens, Michigan

The project is to

- 1). Correct safety violations and health issues at the facilities
- 2) Correct larger health issues i.e. deluge air
- 3) Work on backlog of maintenance projects
- 4) Construct additional facilities required

Budget

Budget for this project is \$900,000

CHANGES:

Maintenance Shop Repairs-lower Michigan
PROJECT NUMBER FM100008
21 NOV 09

PROJECT REQUIREMENTS

SECTIONS

- A. General Bid Document Information.
- B. Time line
- C. Meetings / Site Visits
- D. Submittal Requirements
- E. Design Reviews – Document Review Procedures
- F. Type C services (Construction: 600-700)
- G. Track Required / Proposed
- H. Commissioning
- I. As-Built Record Drawings
- J. General Overall CAD Standards
- K. Phase Submittal Requirements
- L. Site Investigation Report (NGR 415-5)

ENCLOSURES:

- I. Violation inventory log, project backlog list
- II. DMVA Charrette Documentation @ Pre-Proposal
- III. IT Infrastructure Standards and Requirements
- IV. Controls Specification / Drawing (@ Pre-Proposal)
- V. CAD Layer and Title Sheet (@ Pre-Proposal)

SECTION A

GENERAL BID DOCUMENT INFORMATION

- a. The requirements of the AE are to develop 100% plans and specifications within the guidelines of this document, industry standards, and State/Federal/Military codes, regulations and design guides, and be able to justify the design.
- b. Not Applicable
- c. Not Applicable.
- d. Not Applicable
- e. Required items for documents and correspondence:
 - Drawings and the cover page of bound documents shall have items 1-5 below located on the bottom right hand corner.
 - All paper correspondence shall have items 1-3 below.
 - All EMAIL shall have items 1-2 below as the beginning of the subject line and followed by purpose of the email
 - 1. Project name
 - 2. DMVA project number and State project number if applicable,
 - 3. Submittal date
 - 4. Engineer Castle / State of Michigan Seal
 - 5. Submittal phase (identify by percent and interim, initial or resubmittal)
- f. Construction drawings and specifications shall be 'hand' numbered
- g. The AE must pay special attention to the following areas: (1) Ventilation for Acceptable Indoor Quality ANSI/ASHRE 62-2001 (2) Energy Standard for Building Except Low-Rise Residential Buildings ANSI/ASHRE 90.1-2001 (3) ASHRE A-46.25, Table 34 (use Gymnasium for Drill Halls and Work Bays) (4) Utilizing energy efficient equipment with an approximate payback of 12years (examples are T8 lights and occupancy sensors in individual areas).
- h. LEED: NA, this project except as shown above.
- i. Definition:
 - AE = Architect/Engineer and various sub-disciplines. The party responsible for design, specifications and coordination of all design documents.
 - Professional Service Provider (PSC): As above
 - Owner = State of Michigan: Dept of Management and Budget ? Department of Military and Veterans Affairs
 - Contractor = The party responsible for implementing the design documents and coordinating all construction trades.

SECTION B

TIME LINE

The intent is to receive construction bids no later than **26 MAY 2010** in order to execute the contract in the first week of June. The below dates and design times are approximate. Reviews times by agencies by those outside of DMVA's control may require the design acceleration to meet the **26 MAY 2010 100%** completion time.

- Concept (10% - Charrette))	Jan 2010
- Preliminary (35%)	Feb 2010
- Pre-Final (65%)	March 2010
- Final 95%	April 2010
- Revised Final (100%).	April 2010

For 35%, 65% and 95% submittals a minimum of 10 review days are required by the DMVA. AE will manage design time to allow DELEG (State Code) review comments incorporation into the bid documents prior to the bid date.

- This section was crossed out so it will conflict with the updated timeline schedule since we are passed January now.

SECTION C

MEETINGS/SITE VISITS

A. Design Meetings:

- a. **Two days** prior to regularly scheduled meetings the AE will furnish the Owner with an agenda. As a minimum, the agenda will address the following: meeting purpose, estimated versus current schedule; items causing delays; actions to correct schedule delays; current work; work to be completed in the next two weeks; outstanding issues with responsible person, action, and action date; new items with responsible person, action and action date; review task status; and corrective actions; other significant events; Change Order/Bulletin status; time and place of the next scheduled meeting; and time and place of special meeting (s).
- b. AE will meet with the end users as required in order to understand their purpose and intent for the facility. In addition, the AE will develop the equipment and furniture layouts. The intent for the layouts is to design the facility so that it will accept government-furnished equipment and furnishings. It is not the intent for the AE to fully develop an equipment and furniture bid document (example of design effort - drill press requires single phase, 120v, xy connection, and occupy 2ft X 3ft X 9ft).
- c. AE will schedule meetings with the Owner to develop the bid documents' final intent and intermediate milestones for each phase. It should be the AE's understanding that each phase will be the foundation for follow-on submittals.
- d. At no additional cost to the Owner, the AE shall meet with the Owner when the intent, milestones and/or progress are not being accomplished. The Owner will indicate in writing when this shall occur.
- e. AE will have the appropriate design disciplines at meetings to ensure the full understanding of guidance and intent are understood by the Owner and the AE Design Team.
- f. AE shall have available for Owner review specified manufacturer's literature and samples.
- g. **Five days** after the meeting the AE shall provide comprehensive, organized notes of the meeting to the Owner and General Contractor. The AE shall be the note taker, creator and maintainer.
- h. Concept and Preliminary design meetings will occur at each of the sites listed Subsequent design meeting will be held at the Lansing Engineering Office.

B. Construction Meetings/Site Visits:

- a. **Two days** prior to regularly scheduled meetings, the AE shall furnish a meeting agenda to the Owner and Contractor. If there are new items that need to be addressed, then the AE will furnish to the meeting participants a new meeting agenda at the beginning of the meeting.
- b. The meeting agenda shall address the following items: safety issues; estimated versus current work schedule; items causing delays, including administrative, technical (plans and specification), construction work force; materials, Gov't and weather; actions to correct schedule delays; current work; work to be completed in the next two weeks; Submittal Log review; RFI's Log review; major commissioning requirements; outstanding issues with responsible person, action and action date; new items, responsible person, action and action date; other significant events; Change Order/Bulletin Log review; time and place of the next scheduled meeting; time and place of the special meeting (s); as-built review; site review notes. Once a month the Construction Contractor's pay request will be reviewed at the end of the meeting.
- c. **Two days** prior to the meeting, the AE shall provide an up to date Submittal Log to the Owner and General Contractor. The Submittal Log shall show the date of submittal, date of approval/approval with exception/disapproval, date returned to Contractor, date of re-submittal and date re-submittal was returned. Submittals that affect the Contractor's critical path will be noted.
- d. **Two days** prior to the meeting, the AE shall provide an up to date RFI Log to the Owner and General Contractor. The RFI Log submittal date, date response furnished or date a response will be furnished. RFI's that affect the Contractor's critical path will be noted.
- e. **Two days** prior to the meeting, the AE shall provide an up-to-date Change Order/Bulletin Log to the Owner and General. It shall show the general description, amount and date the Contractor quoted, approved/disapproved and who/what/when actions are required.
- f. **Five days** after the meeting the AE shall provide comprehensive, organized notes of the meeting to the Owner and General Contractor. The AE shall be the note taker, creator and maintainer.
- g. For each site the AE shall create, maintain and furnish to the Owner and Contractor notes to include – date, time, weather, name and position of the person, decisions reached including background information, significant events, trades onsite, items impacting, construction occurring, work progress, verbal RFI's, and safety issues.

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- h. AE should anticipate special meetings to resolve onsite problems, complex construction task, and multiple trade construction tasks that may cause difficulties in the execution of the construction process.
- i. Special meetings to resolve conflicts that are bid document created will be at no additional charge to the Owner and will not count towards AE programmed meeting hours.
- j. Program one progress meetings a month. This does not include meetings addressed in item " h " above or Commissioning meetings.

SECTION D

SUBMITTAL REQUIREMENTS

This section defines submittal requirements, to include Bid Documents, Estimates, TABS A, B and C and color charts. Section K shows the submittal phase requirements. TABS A, B, and C will be submitted separately from other submittal items. Each submittal will furnish the required number of hardcopy documents and an electronic copy. *The electronic copy will be in the same format as the As-Built Record Drawings. See Section I & J for AUTOCAD requirements.*

TAB A:

This tab provides a *description of the proposed facilities.* It contains a general overview of the work to be performed at the facility and detailed description of each room in the facility. Required paragraphs follow:

- a. Project Title -Provide a brief overview of the functions performed at the facility. It will contain DMVA's project number.
- b. Scope - This summary, together with the narrative required under Tab B paragraphs a and b, is intended to provide a concise and accurate description of full project requirements
- c. Maximum Construction Cost (Construction Budget and its calculation).
- d. Floor Plan - Attach two different simple, single line floor plans with room numbers, titles, and area proposed and programmed. The spatial relationship between functions is the most important of this floor plan and should receive input from facility users. If known, include on the same plan a phantom layout of furniture, equipment and/or utilities. These items serve to further highlight the special requirement of various room functions (this section can reference the bid documents).
- e. Number of Occupants- Provide weekday total and unit training assembly total for building.
- f. Hours of Operation - Provide weekday, weekend and night hours.
- g. Room number, title, functions, and special requirements. This paragraph and all subsequent paragraphs are used describe each room in the facility. For example, Room 100: classroom , seating for 40, overhead power point projector connection, 8 computer drops and dimmable lights.
. List room number and title, ensuring that number and title are coordinated with the number and title on the definitive floor plan. Room titles will reflect room function. Provide a brief functional description of each room. Subparagraphs (1) through (8) for each room are used to list special room requirements as follows:
 - (1) Architectural: Ceiling and floor heights; fenestration; door sizes; wall and roof treatments; and security requirements.
 - (2) Structural: Special floor loadings; wall thickness; vaults (include class); hoist; and lifts.
 - (3) Mechanical: List requirements for heating, ventilating, air conditioning, design temperature and humidity; compressed air; lavatories, urinals, sinks; showers, water closets; hoods/fans; eye wash/showers; floor drains; oil interceptors, neutralizers, process tanks, dust collectors, hazardous wastes.
 - (4) Electrical: Special receptacles or power sources, 28vDC, 240 v, 480v 400hertz; Special lighting; grounding; lighting protection; security alarms, standby power, transfer switches, etc..
 - (5) Communications: Voice, Data, image communication, intercom, etc.
 - (6) Fire Protection: Fire alarm systems; manual and/or automatic detection; suppression; automatic closing doors; and fire safety plan.
 - (7) Government furnished / Contractor installed and Government furnished /Government installed: Provide size, weight and utility requirements.
 - (8) Special Requirements:
 - (9) Exceptions to criteria and data processing equipment.

TAB B:

This tab provides a *description of the project site*. It contains information on all *exterior* work items needed to provide a complete and usable facility. Each paragraph of Tab B is described as follow:

- a. Project Title:
- b. Provide a brief summary of the major exterior work items needed and paragraphs subsequently described in further detail. This summary, together with the narrative required under Tab A paragraphs a and b, is intended to provide a concise and accurate description of the full project requirements.
- c. Vicinity Sketch and Location Map.
- d. Site Plan: Describe the immediate area of the project site. Attach a simple site plan showing building outline, driveways, parking, paved storage, fencing, and items to be demolished and existing rough ground contours, if known. The site plan is intended to show the nature and approximate extent of exterior work items.
- e. Utility Plan: Describe what is known about each of the existing utilities that are needed service the facility. Attach a simple utility plan and the location of all existing and proposed utilities including water, sanitary sewer, storm drain, gas lines, electric and electric communication and fire hydrants (size, location, pressure, owner, etc.).
- f. Architectural Treatment: Describe the architectural treatment and types of construction of surrounding existing facilities. Proposed exterior finish should be discussed. Where compatibility to an existing architectural treatment is desired, recommend compatibility to that style to be used in design of the facility.
- g. Environmental requirements: It is the responsibility of the AE to investigate the need for locally required documentation and construction features to satisfy environmental consideration. (1) The State will report to NGB on the status of environmental problems at the Preliminary and Final Design stages. (2) Other Environmental Requirements: Environmental related items previously described in the facility description should not be covered again. This subparagraph is used to describe other environmental considerations that may impact on the design of the facility. Examples are: water quality, solid waste disposal criteria (Federal, State or local), disposal method and sewage system capacity, project site location relative to flood plains, design for outside noise level reduction. Also include required items such as neutralizers, oil/water separators, sound attenuation, etc.

TAB C:

This section will be submitted as a separate document that contains (4) sections.

- a. List *design criteria* used for developing the project. Indicate documents that are Owner furnished, Owner furnished in part, industry standards and local, state, or federal requirements.
- b. Design calculations to include but not limited to the following disciplines civil, architectural, structural, plumbing, fire protection, mechanical, electrical, and energy conservation (passive and active). This data should be in a clear, readily understandable manner and in sufficient detail to assure a uniform interpretation of the project scope. Follow-on submittals will have supporting design data and new and/or changed assumptions chronologically added by phase (An example of this is a 10% assumption of a truss roof would require analysis for the trusses; at 35% design a new assumption of a precast roof will be used, therefore new structural calculations must occur).
- c. Assumptions for this submittal shall have the following disciplines: civil, architectural, structural, plumbing, fire protection, mechanical electrical, and energy conservation (passive and active). This data should be in a clear, readily understandable manner and in sufficient detail to assure a uniform interpretation of the project scope. Reference to applicable codes and/or supplemental information should be provided to support project intentions.
- d. Easements, including who they are granted to, restrictions and requirements for both DMVA and grantee

PLANS:

Graphical representation of the project that shows the project scope. Sheets shall be coordinated with themselves, the specification, and all other submittals. They shall be submitted in hardcopy and electronic format.

SPECIFICATIONS:

Written representation of the project that defines quality, methods of installation, quality control. State of Michigan front-end section will be incorporated into the Concept Specification.

Upon request the AE shall provide manufacture's information of items specified.

CODE ANALYSIS:

Use a spreadsheet format to perform a code analysis for each building/room type, use, material utilized, special electrical, and all safety features. At no additional cost to the Owner and at the appropriate design time, the AE will prepare documents for and meet with State of Michigan Consumer and Industry Services, Bureau of Construction Codes as required for code compliance review. The AE will prepare responses to code compliance comments and correct Bid Documents as required. Their current policy is each building on a project will be submitted for individual review and permits

- c. **CONCEPT ESTIMATE:** An estimate of construction cost is to be prepared based on the design of the project. The cost of various building features and outside supporting facilities are to be listed separately for verification of the accuracy of the programming cost estimate and design control cost of the total project (the estimate should be by discipline). If the preliminary cost estimate exceeds the design control cost by more than **5 percent**, the items contribution to the additional costs or the reasons for the increase are to be identified for special review and resolution of any potential funding problem. All items in the project that exceed the general construction standards authorized for Federal support, as outlined in NGR 415-10, will be identified and listed as bid alternates to be supported with other than Federal funds. The AE shall maximize the use of construction funds through bid alternates.

PRELIMINARY DOCUMENTS (35%)

This submittal shall include documents that communicate in narrative or drawing format responses to all review comments.

BID DOCUMENTS

Owner approval, guidance and comments should be obtained prior to incurring any expenses for the preparation of Pre-Final Documents (65%). These documents should expand and amplify the concept submittal and incorporate guidance from DMVA. The intent for these documents is to act as the foundation for building, expanding and amplifying follow-on submittals, which rely on direction and assumptions of this submittal, and lead to 100% Design Documents that meet DMVA's intent and they are clear, concise and coordinated. Beyond the minimum requirements, the AE shall use his professional judgment in determining document needs to ensure intent, clarity, conciseness and coordination. Review of the Preliminary Document by the Owner will occur in conjunction with the

- a. **Site Investigation Report: The Site Survey Report must be received prior to, or simultaneously with the 35% submission of the project's Preliminary submittal.**
- b. **b. Estimate:** An estimate of construction cost is to be prepared because of the proposed project design. The cost of the various building features and outside supporting facilities are to be listed separately for verification of the accuracy of the Programming cost estimate and design control cost of the total project (the estimate should be by discipline). If the preliminary cost estimate exceeds the design control cost by more than 5 percent, the items contributing to the additional costs or the reason for the increase are to be identified for special review and resolution of any potential funding problem. All items in the project that exceed the general construction standards authorized Federal support, as outlined in NGB 415-10, will be identified and listed as a bid alternate to be supported with other than Federal funds. The AE shall present proposals to the Owner to adjust the budget while staying within the project requirements.
- c. **Plan Sheets:** These should be submitted with sufficient data that adequately depict the basic design features being proposed for the project.
- (1) **Cover-**At a minimum the following items will be included on this sheet: project name; standard abbreviations; symbols and architectural materials legends; vicinity and location maps; submittal phase and date; and sheet index. The sheet index shall list all sheets to be in the 100% design. The sheet index will have sheets submitted for this submittal in bold text and sheets for future submittals will be in normal text.
- (2) **Civil / Site -** At a minimum the following items will be included:
- (i) *One sheet:* Existing utilities with sizes, pressures, rim elevations, invert elevations and volumes; existing walks, roads, parking areas, and fencing; vegetation within the limits of construction grouped by size and/or type; existing contours; property boundaries; streets; general area surrounding the site to include streams, rivers, lakes, wetlands, flood plains, adjacent property buildings or environmentally sensitive areas; location and finish floor elevation of proposed building using phantom lines; and existing buildings within the limits of construction.
- (ii) *Another sheet:* Existing and proposed utilities with sizes, pressures, rim elevations, invert elevations and volumes; location and finish floor elevation of proposed building; and walks, roads, parking areas, and fencing existing not being demolished

(3) Facilities:- At a minimum the following items will be included: (1) Electrical illumination systems showing the number and types (schedule) of lighting fixtures proposed, the required lighting intensity, and a reflective ceiling plan showing their positions. Include the lighting intensity in foot-candles for each area and the locations of electrical, data, telephone and intercom outlets and fixtures. (2) Plumbing (sewer, storm, water) fixture schedule and location to be used on the plans. A single line drawing and initial schedule showing location and types.

d. SPECIFICATIONS: These should be submitted with sufficient data to adequately depict the basic design and standard for features being proposed for the project.

(1) A specification brief is to be prepared outlining the technical sections that are to be included in the Final Specifications. Each section should include a brief description of each system or piece of equipment to be used. Any substitutions of items or finishes authorized of items for Federal support will be listed as proposed alternates in the brief. The use of proprietary equipment or materials that would limit the number of bidders or require payment for permits, royalties, etc., are generally not authorized Federal funding support. Any Proposed use item must be specifically identified in the preliminary specifications with reasons and justifications presented in sufficient detail to support the items unique project requirements

(2) Submittals that are requested within the specification shall be made available by the AE to the Owner throughout the design stages at no additional charge upon request.

PRE-FINAL DOCUMENTS - (65%)

These documents shall include documents that communicate in a narrative or drawing format responses to Preliminary Submittal review comments.

PLANS AND SPECIFICATIONS:

Owner approval and/or guidance should be obtained prior to incurring any expenses for the preparation of Final Documents (95%). These documents should expand and amplify the Preliminary submittal and incorporate guidance from DMVA. Include direct digital controls drawings and specifications. The intent of the pre-final documents is to form the foundation to build, expand and amplify follow-on submittals that rely on direction and assumptions of this submittal, and lead to Revised Final Documents (100%) and meet DMVA's project intent. They must be clear, concise and coordinated. The AE shall use his professional judgment to determining document needs for ensuring the intent, clarity, conciseness and coordination. All sheets listed on the Preliminary Drawing index sheet and Specification sheet shall be part of these documents and expanded upon.

FINAL DOCUMENTS - (95%)

This submittal shall include documents that communicate in a narrative or drawing format responses to Pre-Final review comments.

- a. Final Documents will be prepared upon DMVA's approval of the Pre-Final (65%) and authorization to proceed with the development of the project. The purpose of these documents is to explicitly describe the quantity and quality of work to be performed by the construction contractor the will result in a complete and usable facility suited for the purpose intended without recourse to subsequent contract modifications or changes.
- b. The Final Project Design should be in conformance with comments provided DMVA on the review of Pre-Final (65%), construction standards, authorized Federal local, State and Federal requirements and supported items outlined in NGB 415-10.
- c. Prior to this submission, the using personnel at the operating level (State, Environmental, Safety, Occupational Health and other State staff personnel) and the FMO for the State should check the Final Documents for completeness with special attention given to possible omissions of authorized items, environmental protection, and safety (OSHA/MIOSHA) regulatory requirements. If any omissions are noted, they may be marked in free-hand pencil on the documents being submitted for review and/or a narrative document clarifying comments and referencing requirements. These can be incorporated into the design later in conjunction with adjustments normally required to conform to NGB criteria and standards
- d. Final Bid Documents must be stamped by an AE licensed to practice within the State.

FINAL PLANS

Final Bid Documents will include the necessary plans, elevations, sections, schedules and notes prepared in sufficient detail to assure: (1) Complete construction of all elements of the project building and exterior supporting facilities. (2) Coordination of drawings and specifications to eliminate omissions, conflicts, or ambiguities. (3) Completion of all details referenced in specifications. (4) Clear and uniform interpretation of project scope and complexity by all qualified bidders. (5) Delineate between Owner furnished/Contractor installed and all other items (6) Complete delineation of any alternate bid items, and substitutes designated as "Contractor Options"; (7) On the plans a table showing proposed and programmed quantities for interior and exterior items.

FINAL SPECIFICATIONS

For convenience of reference, the technical specifications are to be separated into titled sections by trade of specialty and in conjunction with the plans, must include a complete identification of materials and equipment to be used and description of the methods of construction, installation, or application, as appropriate, for each type of work. Final Specifications must incorporate a clear and accurate description of the technical requirements of the material or product required in the completed project. Such product descriptions will not unduly restrict competition. The description may include a statement of the qualitative nature of the material or project specified or when necessary, may set forth those minimum essential characteristics and standards to which it must conform, if it is to satisfy its intended use. When it is impractical or uneconomical to develop a clear and accurate description of the technical requirements, a 'brand name or equal' description may be used as a means to define the performance of other salient requirements of specified item. In addition, a single manufacturer can be defined as a "Quality Condition", if a statement is added to the specifications allowing manufacturers with a similar degree of quality be acceptable. In all cases when a brand name is specified, the specific features of the named branch must be met by the contractor and clearly stated in the completed specifications. **Quality control portions of each section will clearly define testing responsibilities as either the Owner or Contractor. In addition, the final specification will include a submittal log showing all required contractor submittals.**

REVISED FINAL DOCUMENTS - (100%)

This submittal shall include documents that communicate in a narrative or drawing format responses to Final review comments.

- a. The Revised Final Documents (100%) should be documents with the incorporation of DMVA Review comments into the Final Document (95%), in order to reduce the prebid and post bid addenda. If items have been designated as being in excess of authorized still remain in the project, but have not been listed or adequately identified for separate bidding.
- b. Revised Final Bid Documents must be stamped by an Architect/Engineer licensed to practice within the State of Michigan.
- c. The Revised Final Documents should incorporate Code Review Comments in order to reduce pre-bid and post-bid addenda.
- d. The AE shall assist the Owner in the bidding process by responding to verbal and written Contractor and Owner questions and coordinating and issuing addenda as required to execute the Construction contract. There will be no additional cost associated for time issuing addenda, answering questions because of incomplete bid documents, poor coordination and document clarity, or missing requirements. In addition, the AE should anticipate some design effort; feedback to the Owner and issuance of addenda to ensure the Owner gets maximum use of construction funds. As required the AE shall assist the Owner to evaluate bids and for completeness, accuracy and cost. The AE shall assist the Owner to determine the best qualified bidder.

BID DOCUMENTS

The State of Michigan utilizes an electronic website, Bid4Michigan, to advertise, distribute and track construction projects. The AE shall be responsible for posting bid documents, plans and specs, on this site. The AE will also be responsible for posting any addendum that may occur.

SECTION E
DESIGN REVIEWS – DOCUMENT REVIEW PROCEDURES

a Owner Review:

- i. The Owner will review the following submittals: 10%, 35%, 65%, 95% and 100%.
- ii. Owner comments will be combination of narrative and marked-up drawings. Narrative . Marked-up drawings will be returned to the Owner with the next submittal, signed and dated by the Contractor. Each comment on the drawings must indicate that it has been addressed and/or a narrative must be generated for the comments.

b. other Agencies:

- i. The following submittals will be forwarded to Agencies for their review: 100%. Bid, to DLEG.

c. Document submittal times will be negotiated in conjunction with Section B.

SECTION F

TYPE C SERVICES (600/700 SERVICES)

These are the AE's responsibility during construction in addition to the other contract requirements during Type C Services.

- a. **Shop Drawings/Submittals:** Throughout the construction phase, the AE shall be responsible for reviewing and approving/disapproving shop drawings and submittals for bid document compliance. **The turn-around date for this process will be established prior to the AE contract execution.** Distribution shall be the AE's responsibility.
- b. **Inspections:** In conjunction with the scheduled and special meetings, the AE shall visit the construction site to become familiar with construction quantity compared to the submitted work schedule and the quality compared to bid documents, industry standards, approved shop drawings/submittals and approved sample construction. **AE should be present for initial item placement to ensure the project standards are initial met (window, paint, overhead door, etc.). The AE will break the areas down for these types of visits in the Commissioning Section.** If it is part of the scheduled or special meetings then minimum cost should be associated with it. During peak periods of construction, the AE should visit the site to ensure compliance. The AE shall record all site visits as required by Section C, for Construction Meetings/Site Visits.
- c. **Contractor Close Out:** The AE will conduct a Pre-punch List inspection and a Substantial Completion/Punch-List inspection in conjunction with the Owner and Contractor.
 - (1) The **Pre-Punch List** will occur when the Contractor notifies in writing that the project is ready for a pre-punch list inspection. The AE and Owner will perform a cursory project review to ensure that level of completion is worth the effort to perform the pre-punch list inspection. . If the project status is not at a level of completion that warrants completing a Pre-punchlist, then the AE shall inform the Owner and the Contractor in writing. The document produced from this inspection will locate and identify non-conforming contract requirements that are communicated to the parties with a narrative, digital pictures and references to bid documents, codes and industry standards. The AE may demonstrate conforming/non-conforming areas using examples or preapproved sample construction. This demonstration must be documented in the communication document. The intent of the pre-punch list is to narrow the amount of items on the punch list that are non-conforming and shall not be used to change acceptable standards
 - (2) The **Substantial Completion/Punch List** will occur when the Contractor notifies in writing that the project is ready for a punch list inspection. The AE and Owner will perform a cursory project review to ensure that level of completion is worth the effort to perform the punch list inspection. . If the project status is not at a level of completion that warrants completing a Punchlist, then the AE shall inform the Owner and the Contractor in writing. The document produced from this inspection will locate and identify non-conforming contract requirements that are communicated to the parties with a narrative, digital pictures and references to bid documents, codes and industry standards. The AE may demonstrate conforming/non-conforming areas using examples or preapproved sample construction. This demonstration must be documented in the communication document. In addition to non-conforming construction the punch list will include all close-out requirements (warranties, permits, demonstrations, etc.), including any DMVA requirements.

SECTION H

COMMISSIONING

Design Documents shall incorporate Building Commissioning. The goal is to formalize milestones and ensure coordination prior to installation. This will include, but is not limited to, installation submittals, pre-installation meetings, functionality test, installation checklist, and Construction Contractor and Sub-Contractor commissioning meeting attendance. The AE will act as the 'Commissioning Agent'. The Owner or AE will not direct Contractor work method or means. The AE will work with the Owner to make the documents project specific and ensure plans and other specification sections coordinate with these documents.

SECTION I

AS-BUILT RECORD DOCUMENTS

As-Built Drawings will be submitted in both electronic and hard copy format (the electronic format is the format for all submittal phases).

a. DRAWING ELECTRONIC FORMAT:

- (1) Follow the 'General Overall CAD Standards' Section for submission of the electronic format.
- (2) Provide a list of software used for creating drawings. At no additional cost, the AE will furnish the Owner licensed network capable programs to make the submitted documents useable with the programs listed in 'General Overall CAD Standards' Section.
- (3) All drawings shall have "As-Built" Stamped and corresponding "Completion Date" on them, as well as being marked, "FINAL RECORD."
- (4) These computer drawings shall be coordinated with the hard copy set submitted (referenced below).

b. DRAWING HARDCOPY FORMAT:

- (1) Submit a full size hard copy set of As-Built black-line drawings. All drawings shall have "As-Built" Stamped on them.
- (2) Each drawing shall have the corresponding Completion Date on them, as well as being marked, "FINAL RECORD".
- (3) These hard copy drawings shall be coordinated with the electronic set submitted (referenced above).

c. SPECIFICATION ELECTRONIC FORMAT:

Electronic As-Built Specifications compatible with Microsoft Office 2003 format and not include features exclusive to higher Office versions or other programs. At no additional cost, the AE will furnish the Owner licensed network capable programs to make the submitted documents useable with Microsoft Word 2003.

d. SPECIFICATION HARDCOPY FORMAT:

Submit a bound copy on 8 1/2 X 11-inch sheets. The cover shall be dated and marked with "As-Built" and "FINAL RECORD".

SECTION J

GENERAL AUTOCAD STANDARDS

(version 1.0, 14 OCT 2009)

This Standard will provide guidance and procedures for preparing computer-aided design and drafting (CAD) products for the Department of Military and Veterans Affairs. These standards must be concise and are not intended to be all-inclusive and amendments shall be provided. *The Purpose of this Guide is to set a basic CAD Standard to ensure a consistent electronic deliverable product to DMVA. All drawings shall be produced according to the DMVA standard guidelines..*

The terminology or use of certain AutoDesk terms or phases within this scope are to be assumed the user is aware of, and understands the meaning of the term.

Objectives

1. Create uniform CAD (.dwg) drawings.
2. Create uniform design, presentation and construction information and establish a clear and precise method of communication.

Software Guidelines

All Software must follow the guidelines of the DMVA approved software list:

1. AutoCAD 2009
2. Autodesk Architectural Desktop 2009
3. Autodesk Building Systems 2009
4. Autodesk Civil 3D 2009

Only Autodesk software will be accepted in the design and drafting of projects for the DMVA. If any Autodesk software other than what is listed above is used, a licensed network copy must be furnished.

Drawings in General

Drawings produced under the guidance of these standards should demonstrate a professional and quality appearance. The technical competence and aesthetic judgment of DMVA should be appropriately demonstrated at every level, to the point that a Contractor should never find cause to question. Construction drawings should demonstrate at least as much refinement as the design they illustrate.

1. All drawing files (.dwg) must be purged of all unneeded blocks, fonts, layers, etc.
2. All contract document drawings files (.dwg) shall be saved in Paper Space and at "ZOOM EXTENTS".
3. All Model drawings (.dwg) shall be saved in Model Space and at "ZOOM EXTENTS".
4. The Leader command will be used for all leaders and associated text.
5. All text for Drawings shall be Arial. Use of bold or Italic fonts where desired is acceptable.
6. All text in title block shall be Arial.

7. Do not use unique shape files or font styles.
8. For any text that consists of more than one line, the MTEXT option shall be used.
9. All items put on the drawings shall be positioned in a manner to prevent a "crowded" drawing.
10. Use text masking when appropriate for clean appearance.
11. All graphics will be created "By Layer".

General Overall CAD Standards continued

Drawing Setup

1. Units: All work is to be produced in "real world" units, Architectural (feet and inches) to 1/32" precision and Engineering (feet and tenths) to 0.000" precision.
2. Origin: The Origin is the position within every electronic drawing file. Standardizing the location of the origin of a drawing is important because it serves as the point of reference from which all other elements are located. The global origin will be 0,0,0.
3. Survey: All electronic Survey's will be furnished in an original electronic file and will *not* be exploded or bound. All Survey's will be provided in a separate usable cad (.dwg) file.
4. Be sure all files are located in the correct location and the proper xrefs are attached.

Model Drawing Files

1. Model drawing files are created for the use of "xrefing" them into contract document drawings files. A Model file will contain the physical components of a building and/or the civil/topographic information used to create the sheet files.
2. The Model file shall be drawn at full scale.
3. The general rule is that anything at the site after construction will be placed in this type of drawing. No text entities will be created in the Model file.

Contract Document Drawings Files

1. These files are synonymous with a plotted Cad drawing file (.dwg) and will be used to generate plots, one plot per drawing file.
2. These files are a selected view or portion of the Model file(s) within a title block.
3. These files are plotted one to one with scaled viewports.
4. Each file will represent only one contract drawing. There will be no multiple generations of plots or tabs from one contract document drawing file. For example, you cannot plot the Architectural Floor Plan and the reflected Ceiling Plan from the same drawing file.
5. These files shall reference (xrefs) files in Model space where applicable.
6. These files shall contain the DMVA Title Block in Paper space.
7. All Title Blocks are inserted at 0,0.

External Reference Drawings Files

1. All External References (xrefs) shall be OVERLAYED and not ATTACHED.
2. All External Reference files shall be provided in their own separate file (.dwg).
3. Never xref one plotted drawing into another or across other disciplines folders.
4. All xref files' naming convention will begin with an "X".
5. All Engineering drawings that reference the architectural facility plans must change the back ground to color 254 so it will be plotted at a gray shade.

6. No deliverables shall be bound. Overall CAD Standards

General Overall CAD Standards

Layers

1. All Layer names must follow the latest *AIA* or *National CAD Standards* naming convention, all upper case.
2. All graphics will be created "by Layer".

Details/Blocks

1. Only Details pertaining to the project shall be on the final contract document drawings.
2. All Details must follow to the standards, including layer names, text font, etc.

Title Blocks

1. All contract document drawings shall use DMVA's furnished Title Blocks.
2. Title blocks are always to be inserted as a block using the insert command and inserted in Paper Space with an insert point of 0,0.
3. Title blocks shall be inserted on layer "0."
4. Title block layers shall keep the original layer colors.

General Overall CAD Standards continued

5. All Title information needs to be Upper and Lower case (Title Case).

Drawing Title/ Detail Title

All drawings/details will include a TITLE, positioned in the lower section of the drawing/detail. All title annotation shall be placed in paper space on the individual drawing sheets. The block for the title information is located on the "Call outs" or "Annotations" tab of any of the pallets with in any AutoDesk software product.

Examples of title:



Examples of titles:

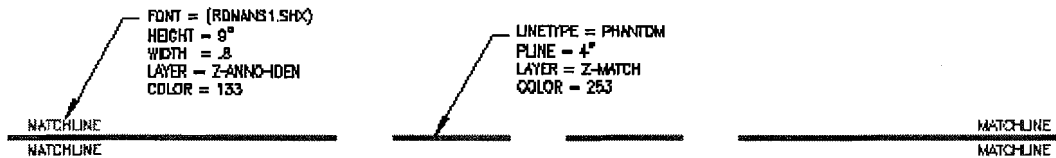
1. *Foundation Floor Plan*
2. *Framing Floor Plan*
3. *HVAC Floor Plan*
4. *Fire Protection Floor Plan*
5. *Plumbing Floor Plan*
6. *Electrical Floor Plan*

North Arrow / Site map

1. A North Arrow shall be located near the title used for that detail and inserted in the lower right corner of the detail.
2. Site Map (NTS) shall be located near the title used for that detail and inserted in the lower right corner of the detail.

Match lines

1. All drawings that consist of partial floor plans per sheet shall include a match line.
2. This match line will be placed on individual drawings so that they can be adjusted accordingly.
3. The match line and text will stay the same for all divisions for consistency.



Section and Elevation Marks

All Section and Elevation Marks are to be clear and consistent and well coordinated within the drawing set.

Dimensions

1. Dimensions will be placed in Model Space of the Contract Drawing file.
2. *No dimensions or dimension text is allowed in the model file which is xref ed.*
3. Dimension line terminators shall be either Architectural Ticks or Closed Filled Arrowheads.
4. Be consistent through out the project. Only one style can be used.
5. Associated Dimensions and Associated text shall be used.

Final Product

1. To produce Contract Drawings used as construction bidding documents.
2. To produce these drawings in such a manner that they are usable electronic files (.dwg) that the Design Section of DMVA can use at a later date and be incorporated into future projects.
3. Upon completion of said construction project and prior to final payment, the following shall be turned over to DMVA
4. Electronic Drawing files (Bidding Contract Documents as well as As-Built) in the format that this Guide Outlines.
5. These files shall be AutoCAD (.dwg) files.
6. Overall CAD Standards

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General Overall CAD Standards continued

SCALING FACTORS

<u>Architecture</u>						
<u>Drawing Scale</u>	<u>Insertion Scale Factor</u>	<u>Scale Factor</u>	<u>Text Size</u>			
Full	1	1	3/32	1/8	3/16	1/4
3" = 1'-0"	0.25	4	3/8	1/2	3/4	1
1-1/2" = 1'-0"	0.125	8	3/4	1	1-1/2	2
1" = 1'-0"	0.08333	12	1-1/8	1-1/2	2-1/4	3
3/4" = 1'-0"	0.0625	16	1-1/2	2	3	4
1/2" = 1'-0"	0.041666	24	2-1/4	3	4 1/2	6
3/8" = 1'-0"	0.03125	32	3	4	6	8
1/4" = 1'-0"	0.0208333	48	4-1/2	6	9	12
1/8" = 1'-0"	0.0104166	96	9	12	18	24
1/16" = 1'-0"	0.0052083	192	18	24	36	48
<u>Engineering</u>						
1" = 20'	0.0041666	240	22-1/2	30	45	60
1" = 30'	0.0027777	360	33-3/4	45	67-1/2	90
1" = 40'	0.00208333	480	45	60	90	120
1" = 50'	0.00166667	600	56-1/4	75	112-1/2	150
1" = 60'	0.00138889	720	67-1/2	90	135	180
1" = 100'	0.0008333	1200	112-1/2	150	225	300
1" = 200'	0.0004166	2400	225	300	450	600

SECTION K
PHASE SUBMITTAL REQUIREMENTS

	PERCENT	Tab - A	Tab - B	Tab - C	Hard copy Plans	Hard Copy Specifications	Electronic Plans	Electronic Specifications	Estimate	Spreadsheet RM Req.	Code Analysis	Color Charts	Comment Responses: Owner, Agencies	Contractor Submittal List	
Concept	10	X	X	X	X	*	X	*	*	*	*	*	-	-	
Preliminary	35	X	X	X	X	*	X	*	*	*	*	*	X		
Pre-Final	65	*	*	X	X	X	X	X	X	X	*	*	X	*	
Final	95	*	*	X	X	X	X	X	X	X	X	X2	X	*	
Bid	100	*	*	X	X	X	X	X	X	*	X	*	X	X	

X = REQUIRED
* = NOT REQUIRED
X2 =REQUIRED 2 SETS



SECTION L
SITE INVESTIGATION REPORTS
For Additions or cold storage buildings

In conjunction with the Concept and Preliminary design efforts the AE shall ensure a Survey and Soil Investigation are completed. Site Investigation Report shall be submitted prior to or concurrently with the **Preliminary Submittal (35%)**. **Preliminary Review will not occur without the Site Investigation Reports being submitted.**

The following items will be included

- a. A site survey with topography, utilities and any other structures.
- b. Description of existing ground surface conditions -vegetation, approximate ground slope, surface material.
- c. Layout plan of a sufficient number of soil borings to determine adequately the general subsoil conditions existing at the site in the areas of proposed improvements. The plans should indicate the location of the borings reference to the site boundaries and the ground surface elevation at the borings together with a log of the soil types and characteristics and encountered ground water levels.
- d. Laboratory test results as necessary, to determine classification, grading characteristics, CBR and strength of the surface land sub-soils in regards to support building and pavement construction.
- e. A **Declaration of Soil Bearing Capacity Declaration** in conformance with the wording of the declaration provided is required (document verbiage cannot be altered).
- f. A **Uniformity of Soil Declaration** in conformance with the wording of the declaration provided is required (document verbiage cannot be altered).
- g. Discussion and summary of the site investigation with special attention given to any features of the site that may either affect its suitability for construction or have a significant impact on project costs.
- h. Not Applicable
- i. Any Owner provided survey data is for job pricing only. All items shall be verified to their correctness and accuracy and be incorporated into the bidding documents. Cost for errors or omissions related to the survey shall be the responsibility of the AE at no additional cost to the Owner.
- j. Any Owner provided Soil Boring data is for job pricing only. It is the Owner's intent that these borings provide insight into the soil make-up and characteristics, but the AE shall make a professional decision as to the number s, depth and location of borings. All items shall be verified to their correctness and accuracy and be incorporated into the bidding documents. Cost for errors or omissions related to the borings shall be the responsibility of the AE at no additional cost to the Owner.

UNIFORMITY OF AREA SOIL CONDITIONS

**31 July 2003
Appendix G
Soils Declarations**

NG Pam 415-5

**DECLARATION ON
UNIFORMITY OF AREA SOIL CONDITIONS**

State:

Date:

Site Location:

Address:

Project:

I hereby declare, on the basis of my knowledge of soil conditions within this area and in conjunction with review of published geological data for this region, that the soil conditions and characteristics existing at the subject site for the proposed project are not peculiar to the site but are, in my judgement, the same type and nature of soils that are prevalent throughout the area within at least a 5-mile radius of the subject site to such an extent that it would not be reasonable to expect that the requirements for special foundation work needed for the proposed facilities at this site could be avoided by relocation of the project to another area within the 5-mile radius.

(Signature of Soils Engineer)

(Soils Engineer Name)

(Title)

(Firm Name)

SOIL BEARING CAPACITY

NG Pam 415-5

31 July 2003

DECLARATION
OF
SOIL BEARING CAPACITY

State:

Date:

Site Location:

Address:

Project:

On the basis of our surface and subsurface investigation, and on generally accepted practices and procedures of the geotechnical engineering profession, I hereby declare to the best of my professional opinion, that the existing soil conditions at the site for this project are of a nature and classification which determine that the undisturbed soils at elevation _____ feet (elevation of the bottom of the proposed footing) when considered in conjunction with the supporting capability of the underlying soils strata, are rated at an allowable design bearing capacity of not less than _____ pounds per square foot for a spread footing type of building foundation.

(Signature of Soils Engineer)

(Soils Engineer Name)

(Title)

(Firm Name)

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Design CHARRETTE

The A&E will be responsible for conducting a design Charrette at each of the facilities listed for this project. The Charrette will be held at the initial design meeting and is designed to determine the scope of work to be completed at each location. This meeting will be conducted with facility users, construction and facilities management staff, DMB representative and A&E.

The 35% meeting will also be held at each project location. This meeting is to firm up project scope for the location and to apprise users of scope and schedule.

Additional reviews required by this document will be by paper copy to the Construction and Facilities Management office.

ENCLOSURE III **IT STANDARDS**

VERSION 3.0
14 August 2009
Previous Editions are superseded

Information Technology Infrastructure Standards and Requirements

1. Data Network Requirements:

- A) Blue Category 6 (Cat 6), plenum-rated riser cable will be used to connect all data jacks at customer interface (wall plate or in-furniture base using proper furniture modules).
- B) The data jack at the customer interface will be Orange.
- C) All data jacks and cable connection systems will be certified Cat 6.
- D) All terminations will follow ANSI/TIA/EIT 568-B standard pin-out configurations.
- E) All cable construction, suspension, presentation and termination will follow Building Industry Consulting Services International (BICSI) standards verified by a Registered Communications Distribution Designer (RCDD).
- F) A minimum of two data jacks will be provided at each customer interface.
- G) A minimum of 12-inches of excess cable will be left after termination, coiled neatly inside the 4"x4" wall box, and the minimum bend radius for the coil will be observed.
- H) Minimum bend radius is defined as a radius of curvature no less than 4 times the outside diameter of the cable.
- I) IDF (Intermediate Distribution Frame, secondary closet) data terminations will be constructed using Cat6 patch panels mounted in 19" free-standing racks using ANSI/TIA/EIA 568-B termination pattern.
- J) A service loop of no less than six feet of excess cable will be neatly coiled above the equipment rack while ensuring that minimum bend radius is observed.
- K) A standard labeling and marking system will be used to label each end of the IDF connections with permanent markings to identify the source or destination of the connection. See Appendix A.
- L) 100% of the connections from the IDF to the customer interface will be scanned and tested using industry standard equipment for a minimum of length, pin-out and attenuation. These results will be produced in electronic and original documentation copies and provided to the DOIM Network Engineer in MS Excel format.
- M) 100% of the connections from the IDF to the customer interface will be documented in an MS Excel spreadsheet to show the patch panel-to-customer interface connections as connected and labeled. These results will be produced in electronic and hard-copy documentation and provided to the DOIM Network Engineer prior to completion. See Appendix B, Figure 1.

2. Telephone Systems Requirements

- A) Yellow Category 6, plenum-rated riser cable will be used to connect all telephone jacks at customer interface (wall plate or in-furniture base using proper furniture modules).
- B) The telephone jack at the customer interface will be White.

- C) All telephone jacks will be Cat 6.
- D) All terminations will follow ANSI/TIA/EIT 568-B standard pin-out configurations. All pairs of the Cat 6 cable will be terminated.
- E) A minimum of one telephone jack will be provided at each customer interface.
- F) A minimum of 12-inches of excess cable will be left after termination at the customer interface, coiled neatly inside a standard 4"x4" wall box, and the minimum bend radius for the coil will be observed.
- G) Minimum bend radius is defined as a radius of curvature no less than 4 times the outside diameter of the cable.
- H) IDF (Intermediate Distribution Frame, secondary closet) telephone terminations will be constructed using Cat6 patch panels mounted in 19" free-standing racks using ANSI/TIA/EIA 568-B termination pattern.
- I) A service loop of no less than six feet of excess cable will be neatly coiled above the equipment rack while ensuring that minimum bend radius is observed.
- J) A standard labeling and marking system will be used to label each end of the IDF connections with permanent markings to identify the source or destination of the connection. See Appendix A.
- K) 100% of the connections from the IDF to the customer interface will be scanned and tested using industry standard equipment for a minimum of length, pin-out, and attenuation. These results will be produced in electronic and hard-copy documentation and provided to the DOIM Network Engineer in MS Excel format.
- L) 100% of the connections from the IDF to the customer interface will be documented in an MS Excel spreadsheet to show the patch panel-to-customer interface connections as connected and labeled. These results will be produced in electronic and hard-copy documentation and provided to the DOIM Network Engineer prior to completion.

3. Intermediate Distribution Frame Area, Environment and Construction

- A) IDF racks will be open, two-post, 19"w x 72"h standard, pre-drilled and tapped equipment racks.
- B) Ladder systems mounted above the rack will be provided to support cable installation from above, and be securely mounted to the wall on at least one end to provide stability and continuous support for all incoming overhead cable systems.
- C) IDF racks will be grounded per NEC standards
- D) IDF Racks will present NEMA 5-20R, 120-V, 20A, commercial AC power to the equipment on the rack. These power sources will be mounted to the rack in such a way as to not interfere with mounting surfaces, positioned no less than 12" from the base and no more than 24" from the base of the rack.
- E) IDFs containing multiple racks will have no less than 18" linear spacing between the rack positions.
- F) Each rack in a multiple-rack IDF will be separately powered for energy as defined above.
- G) Each IDF will be constantly cooled with independent commercial grade, service-rated HVAC systems to maintain an ambient average temperature of no more than 72-deg F.
- H) Environmental monitors will be included in all IDF closets and alerts programmed to warn key personnel when temperature or humidity thresholds are exceeded.
- I) Maximum alert temperature will be 82-degrees F and maxim humidity alert will be 60%.

4. Data network interconnections between Main Distribution Frame (MDF) and Intermediate Distribution Frame (IDF)

- A) Data connections between MDF and IDF will be provided using Plenum-rated, Single-Mode (SM) fiber-optic cable contained inside orange interduct from end-to-end.
- B) Fiber optic terminations at each end will be SC-type UPC connectors placed within standard fiber optic distribution trays positioned at the top of the IDF/MDF racks.
- C) No fewer than six-pairs (12-strands) of fiber optic cables will be provided as means of connection between the IDF and MDF.

- D) A service loop of no less than 12-feet coiled neatly above the installation frame will be provided at each end for reconstruction. The minimum bend radius for cable of this type is no less than 1.5 feet (3' diameter loops.) This service loop will exist at both ends of the IDF-MDF interconnection.
- E) A standard labeling and marking system will be used to label each end of the IDF connections with permanent markings to identify the source or destination of the connection. See Appendix A.
- F) 100% of the connections from the IDF to the MDF will be scanned and tested using industry standard equipment for a minimum of length, pin-out and attenuation. These results will be produced in electronic and hard-copy documentation and provided to the DOIM Network Engineer prior to completion.
- G) 100% of the connections from the MDF to the IDF and from the MDF/IDF to customer interfaces will be documented in an MS Excel spreadsheet to show the patch panel-to-customer interface connections as connected and labeled. These results will be produced in electronic and hard-copy documentation and provided to the DOIM Network Engineer prior to completion.

5. Telephone network interconnections between Main Distribution Frame (MDF) and Intermediate Distribution Frame (IDF)

- A) Category 6 multi-pair backbone cable will be used to connect the telephone system at the MDF to the IDF with 25% excess capacity over the quantity of lines feeding from the IDF to the Customer Interfaces.
- B) The largest pair-count cable possible will be used to perform this connection with a maximum of 100-pr. Pair-count cables come in 25-pair, 50-pair, 100-pair. Example: An IDF subscribing 75 incoming lines will use a single, 100-pair cable to feed from the IDF.
- C) The IDF termination of the Multipair will be done on CAT6 patch panels with one pair per port, skipping every 25th pair (violet), which will not be terminated and will have a neatly coiled lead remaining no less than three feet long. Each pair will be terminated on the blue termination block of each port on the Cat 6 patch panel on pins 4 & 5.
- D) The MDF termination of the Multipair will be done on 110-blocks unless called for on patch panels. When using 110-blocks they will be mounted on fire-proof plywood boards on the wall no more than six feet from the mounting position of the telephone PBX unit.
- E) A service loop of no less than 12-feet coiled neatly above the installation frame will be provided at each end for reconstruction. The minimum bend radius for cable of this type is no less than 1.5 feet (3' diameter loops.) This service loop will exist at both ends of the IDF-MDF interconnection.

6. Main Distribution Frame Specifications

- A) The Main Distribution Frame (MDF) area will be sized appropriately to allow for large equipment entry to include oversized entry doors, 10' ceilings, plenty of space all around installed equipment racks and systems to allow for proper equipment handling, entry and operation from both sides and both ends.
- B) The MDF will be sufficiently cooled with HVAC to maintain an ambient temperature of 72-degrees F and a maximum humidity of 45%.
- C) Environmental monitoring systems will be installed that will allow monitoring and automatic notification of out-of-bounds conditions. Automated alerting will trigger at a maximum temperature of 82-degrees F and a maximum humidity of 60%.
- D) MDF distribution frame racks will be open, two-post, 19" w x 72" h standard, pre-drilled and tapped equipment racks.
- E) Ladder systems mounted above the rack will be provided to support cable installation from above, and be securely mounted to the wall on at least one end to provide stability and continuous support for all incoming overhead cable systems.
- F) MDF racks will be grounded per NEC standards
- G) MDF distribution racks will present NEMA 5-20R, 120-V, 20A, commercial AC power to the equipment on the rack. These power sources will be mounted to the rack in such a way as to not interfere with

mounting surfaces, positioned no less than 12" from the base and no more than 24" from the base of the rack.

- H) IDFs containing multiple racks will have no less than 18" linear spacing between the rack positions.
- I) Each rack in a multiple-rack MDF will be separately powered for energy as defined above.
- J) In addition to the distribution frame racks the MDF will include at least one standard server rack made by Dell, model 4210 with appropriate accessories to complete the rack system (fans, power distribution strips, rack screws and hardware). Specific part numbers are included from a previous quote and will be attached to this document as a PDF.
- K) The server rack will be provided with AC power from underneath or above and presented to the inside of the cabinet at a level no lower than 12" from the base and no more than 24" from the base of the cabinet.
- L) AC power will be minimum of 4 x NEMA 5-20R, 120V, 20A commercial outlets, 1 x NEMA L5-30R, 120V, 30A locking connectors on a drop-in cable from the top suspended 24" from the base of each computer enclosure.
- M) Additional power requirements should be reviewed based on the application and size of the MDF area.
- N) All racks in the MDF will be grounded with #6 gauge copper wire in series and then terminated to the main building ground.

7. Telephone PBX facilities and installation within the MDF

- A) The MDF will present an area for the telephone switch installation that is no more than 6 feet from the outgoing feeds to the Multipair cables connecting to the IDFs.
- B) A set of 110-blocks will be provided adjacent to and between the IDF feeds and the phone switch for connection of the 'pig tails' from the switch.
- C) These 110-blocks will be mounted to fireproof plywood backing boards.
- D) The phone switch will be provided with an isolated ground that feeds directly to the main electrical panel of #6 copper bonding. No other equipment will share this bond and this will be a continuous wire from the phone switch ground to the electrical panel.
- E) The phone switch will be provided with 4 x NEMA 5-20R, 120V, 20A commercial outlets.

8. CATV Cabling and Distribution Systems

- A) CATV system backbones will be constructed with no less than RG-11 to feed to taps that run to individual distribution points on RG-6 coaxial cable. The Cable TV Backbone will need to be determined PRIOR to the specification being written and put out to bid. The backbone will be determined by the number of cable TV drops required in the structure and/or the distances from the MDF to IDF and cable TV drops.
- B) Sufficient amplification devices and AC power will be provided at junctions throughout the facility to ensure that attenuation is minimal and that all customer interfaces have sufficient power to be used simultaneously.

9. Video display systems

- A) Ceiling mounted projection equipment will be utilized wherever possible.
- B) Ceiling mounts will be standard equipment that provide a mounting point for projection equipment and all interfaces will be supplied in a ceiling mounted plate including VGA, S-video, HDMI, Ethernet, Composite RCA connections.
- C) An instructor station will be provided where the interfaces from the projection equipment plate will be terminated with the same connections available to the projector.
- D) The instructor station will be provided with 4 x NEMA 5-20R, 120V, 20A electrical outlets, guest connections for computer overhead display, 1xRCAS data and 1xTelephone connection.

APPENDIX A:

SERVICE CONNECTION, MARKING AND LABELING STANDARDS

I) Common Areas & Office Marking Standard

- A. The connection boxes placed on walls or in the bases of cubical furniture shall be labeled clockwise from the main entrance door A, B, C, around the outside wall, then to interior walls and cubical connections until all interfaces are designated.
- B. A two-letter system can be used in rooms where more than 26 interfaces exist, AA, AB, AC, etc.
- C. Each jack position on the interface will be numbered 1, 2, 3, etc, from right to left, top to bottom on that jack below the connector with a label. The label will include the room number, interface designation, and port number as in this example: RM145DA01 on the top line. On the second line of the same label or separated with a ' / ' the patch panel designation as defined below and shown in this example: 01R01DA32. This would indicate IDF 01, Rack 01, Panel DA, port 32.

II) Main Distribution Frame (MDF)

1. MDF Data Systems Rack Identification and Interconnection

- A. The primary service entry facility room shall be designated as MDF.
- B. The MDF area is designated as Area 00 and is typically on the ground floor of the facility.
- C. All racks enclosures are labeled in the MDF in consecutive order starting with R01.
- D. All Fiber optic patch panels will be located at the topmost position in R01.
- E. Fiber optic patch panels will be labeled from the top down as FA, FB, etc.
- F. Each strand of fiber connecting to the panel shall be designated 1, 2, 3, 4 in grouped pairs and from right to left, top to bottom of each module, then each module from left to right.
- G. Each side of the fiber will be labeled on the patch panel clearly with label tape. For example, 2 strands of fiber from the MDF to IDF 1 would be labeled on the MDF 00R1FA panel as 01R01FA1 and 01R01FA2 respectively; 2 strands of fiber from the MDF to IDF 2 would be labeled on the MDF 00R1FA panel as 02R01FA1 and 02R01FA2 respectively, and so on.
- H. Two rack units will be left open between the fiber optic patch panels and the array of Cat 6 patch panels mounted below.
- I. Patch panels that terminate multi-pair telephone cable will be designated with the marking MA, MB, MC, etc and be ordered from top to bottom.
- J. Patch panels that terminate telephone station cables to work area interfaces will use yellow CAT 6 wire and will be designated with the marking VA, VB, VC, etc and be ordered from top to bottom.
- K. Patch panels that terminate computer/data station cables to work area interfaces will use blue CAT 6 wire and will be designated with the marking DA, DB, DC, etc and be ordered from top to bottom.
- L. Patch panels that terminate interconnecting panels for adjacent racks in the same room (horizontal wiring) will use blue CAT 6 wire and will be designated with the marking IA, IB, IC, etc and be ordered from top to bottom.
- M. A patch panel can have from 24 – 48 ports. Do not use patch panels with more than 48 ports per panel.
- N. Each port on the Cat 6 patch panel will be designated by its actual port number.
- O. The first port on the first Cat 6 patch panel in rack R01 shall be referred to as 00R01DA01 (data port in this example). Each consecutive port, patch panel, rack shall be then determined from this point.
- P. A minimum 24-port Cat 6 patch panel located in R01 shall be designated as panel 00R01DA and will be the point for termination of all incoming service systems including but not limited to:
 - i. Primary routing and switching equipment
 - ii. Central Office Smart Jacks
 - iii. CSU/DSU for incoming and outgoing services.

- iv. DSL/Cable data network interfaces
- Q. Upon completion of initial construction Panel 00R01DA will have a minimum of 12 open, un-terminated ports reserved for future expansion.
- R. Horizontal wiring between adjacent racks in the MDF will be provided as a patch panel in R01 connected to a patch panel in the adjacent rack with a minimum of 12 lines connected between them and a minimum of 12 lines un-terminated and open for future construction.
- S. A distribution frame with multiple racks will have a rack designated as the primary switch rack. All other racks in the room will have interconnection panels to the primary switch rack using horizontal wiring systems described.
- T. The primary switch rack will contain the fiber optic connections to other distribution frames and it will be at the top of that rack.
- U. A customer interface data jack connected to a port on a patch panel located in the MDF originating from another room or area will be labeled on that jack cover with the Area, Rack, Patch Panel and Port number of the connected patch panel as in example shown here: 00R02DA15.
- V. A patch panel port connected to a data jack originating in another room shall show the Room Number, Box Number and Port number on the box as in the example shown here: RM145DA04.
- W. Space for at least one additional 48-port patch panel will be left at the bottom of the initial construction in each enclosure in the MDF or a spare panel may be mounted for future construction.
- X. In large construction areas this construction of R01 may overflow into R02 which must be immediately adjacent to R01 and be horizontally connected with a minimum of 48 port Cat 6 patch panel with a minimum of 24-ports interconnected and a minimum of 24-ports un-terminated in each rack. This interconnect panel will be Panel B in R01 and Panel A in R02. Primary routing and switching equipment will move to R02 along with their electrical requirements.

2. MDF Telephone Systems Rack Identification and Interconnection

- A. Telephone systems use a standard marking convention that will be implemented on the 110-blocks in the MDF connected to the PBX.
- B. For termination marking of Multipair on CAT 6 patch panels in the MDF the label will indicate the Terminal Number (TN) will be used to match the port on the patch panel to the connected port at the 110-blocks in the MDF located on the backboard near the PBX.
- C. Cat 6 patch panel terminations from the 110-block to the distribution frame will be labeled with the connected TN designator.
- D. Telephone connections from the MDF telephone rack to customer interfaces are constructed on Cat 6 patch panels and labeled in the same manner as Data Systems interfaces as defined elsewhere in this appendix (ex: RM145VA01).
- E. Customer telephone interfaces in rooms are labeled with the area, rack, patch panel and port number (ex: 00R2VA12)
- F. The terminated Multipair cable interface from the PBX will be in the same rack frame as the terminated connections to customer interfaces.
- G. These two interfaces will use Cat 6 standard patch cables to interconnect.

III) Intermediate Distribution Frame (IDF)

1. IDF Data Systems Rack Identification and Interconnection

- A. The IDF on the ground floor or same floor as the MDF will be labeled 01, 02, etc.
- B. The IDF areas on each floor above the ground floor will be labeled 11, 12, 21, 22 where the first digit is the number of floors above ground floor and the second is the IDF number on that floor.
- C. Each rack in each IDF will be labeled R01, R02, etc
- D. R01 of an IDF will be connected to R01 of the MDF using no less than 12-strand single-mode fiber optic cable.

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- E. All Fiber optic patch panels will be located at the topmost position in R01 of the IDF.
- F. Fiber optic patch panels in the IDF will be labeled from the top down as FA, FB, etc.
- G. Each strand of fiber connecting to the panel shall be designated 1, 2, 3, 4 in grouped pairs and from left to right, top to bottom of each module, then each module from left to right.
- H. Each side of the fiber will be labeled. For example, 2 strands of fiber from the IDF 01 connecting to MDF would be labeled on the IDF 01R1FA panel as 00R01FA1 and 00R01FA2 respectively.
- I. Two rack units will be left open between the fiber optic patch panels and the array of Cat 6 patch panels mounted directly below.
- J. Each Cat 6 patch panel within an enclosure will be labeled from top down A, B, C, etc. A patch panel can have from 24 – 48 ports. Do not use patch panels with more than 48 ports per FRU.
- K. Each port on the Cat 6 patch panel will be designated by its actual port number.
- L. The first data port on the first Cat 6 patch panel in rack R01 of IDF 01 shall be referred to as 01R01DA01. Each consecutive port, patch panel, rack shall be then determined from this point.
- M. Horizontal wiring between adjacent racks in the IDF will be provided as a patch panel in R01 connected to a patch panel in the adjacent rack with a minimum of 12 lines connected between them and a minimum of 12 lines un-terminated and open for future construction.
- N. Additional racks located in the IDF will all incorporate horizontal wiring to R01 as defined above.
- O. A data jack connected to a port on a patch panel located in the IDF originating from another room will be labeled on that jack cover with the Area, Rack, Patch Panel and Port number of the connected patch panel as in example shown here: 01R01DA15.
- P. A patch panel port in the IDF connected to a data jack originating in another room shall show the Room Number, Box Number and Port number on the box as in the example shown here: RM145DA04.
- Q. Space for at least one additional 48-port patch panel will be left at the bottom of the initial construction in each enclosure in the IDF or a spare panel may be mounted for future construction.

2. IDF Telephone Systems Rack Identification and Interconnection

- A. Telephone systems use a standard marking convention that will be implemented on the 110-blocks in the MDF connected to the PBX.
- B. For termination marking of Multipair on CAT 6 patch panels in the IDF the label will indicate the TN will be used to match the port on the patch panel to the connected port at the 110-blocks in the MDF located on the backboard near the PBX.
- C. Cat 6 patch panel terminations from the 110-block to the distribution frame will be labeled with the connected TN designator.
- D. Telephone connections from the MDF telephone rack to customer interfaces are constructed on Cat 6 patch panels and labeled in the same manner as Data Systems interfaces as defined elsewhere in this appendix (ex: RM145VA1).
- E. Customer telephone interfaces in rooms are labeled with the area, rack, patch panel and port number (ex: 00R2VA12)
- F. The terminated Multipair cable interface from the PBX will be in the same rack frame as the terminated connections to customer interfaces.
- G. These two interfaces will use Cat 6 standard patch cables to interconnect.

IV) Telephone Systems Multipair Marking and Labeling System

- A. Multipair direct connections (pigtails) from the PBX to the 110-blocks will be labeled with the TN descriptor.
- B. Multipair connections on the 110-block leading to other IDFs for termination on Cat 6 patch panels will be labeled on the 110-block with the patch panel description in the format 00R2VA01.

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ENCLOSURE V
CONTROLS SPECIFICATION / CONTROL DRAWINGS @ Pre-proposal

ENCLOSURE VI
CAD LAYER AND TITLE SHEET (@ Pre-Proposal)