FEA

March 26, 2013

Office of the First Selectman
7 Fan Hill Road
Monroe, CT 06468

SUBJECT: Town of Monroe, CT Request for Qualifications and Proposals
Facilities and Demographic Assessment
RFQ #2-2013

Mr. Vavrek,

Facility Engineering Associates, P.C. (FEA) is a certified Small Business. We appreciate this opportunity to provide this proposal to the Town of Monroe in accordance with RFQ #2-2013 dated March 28, 2013. This proposal addresses the requested components identified in the RFQ and its enclosures and references. Additionally, we acknowledge the additional information distributed during and after last week's walk through. Specifically, we acknowledge the two changes in time and the removal of the bid bond requirement.

The insurance requirements include a provision for not more than $75,000 deductible per claim on the professional liability insurance coverage. FEA has made a business decision to maintain a higher deductible ($125,000) to reduce the annual premium. FEA has the necessary financial strength to maintain the higher deductible and is willing to produce financial information to substantiate our decision.

We recognize that the Towne of Monroe has an important decision to make in selecting a team to provide these consulting and assessment services. It is obvious that town has a responsibility of national emotional interest. The scope of services for this project is aligned with our core skills and experience. With the additional specialized resources that we have brought into our effort, we are confident that we can meet your expectations. We trust that you will find FEA fully qualified to provide your services and we are confident that we have the knowledge and expertise to deliver.

FEA is the international leader in facilities management which includes total facility life management. In our twenty years of existence, **we have done over 200 million square feet of facility condition assessments**. Our leaders serve on the board of directors of the top international facilities management associations such as the International Facilities Management Association (IFMA), the association of higher education officials (APPA) and the Global Facilities Management association (Global FM).

Attached you will find just a few examples of our many condition assessment projects. Additionally, we consult extensively with the GSA, the State Department Office of Overseas Building, the Smithsonian Institute, the National Park Service, and **are just finishing the assessment of all the public schools in the State of Wyoming**.

Additionally, FEA is very experienced working with historic structures and in historic districts. The National Park Service is the custodian of many of the nation's historic structures and our ongoing support of the facilities management efforts include conducting condition assessments. FEA is also the primary consultant for exterior issues on the Waldorf Astoria property in New York City.

Assisting FEA in this effort will be the national leader in demographic studies, ProximityOne, employing former Census Bureau experts. As the economy and demographics change, so does the importance of having the most relevant, accurate, and useable decision-making information to achieve visions for performance and goals. Disparate, wide-ranging, and unconnected data, requires knowledge, methodology, and tools that can transform these data into decision-making information solutions. These are among factors that led to the establishment of ProximityOne and foundation for its operation.

Their geographic-demographic-economic data and analytical tools can help you knit together and use diverse data in a decision-making and analytical framework. Our demographic-economic estimates and projections can help you better understand the current situation/area characteristics and how areas of interest might change in the future. They offer geocoding tools and services to geocode address data that can then be visually analyzed in maps and otherwise to facilitate impact and geospatial analyses.

Their clientele include private and public sector organizations located worldwide. Due to the nature of much of the ProximityOne data, most clients are focused on geographic-demographic-economic applications focused on the U.S. they work with consultants, developers, academia, Federal government, state government, local government, small and large businesses with wide-ranging products, services and operations.

Their primary product/service areas are the Situation & Outlook (S&O) integrated data access and analytical system and the CVXE geographic information system tools for visual and geospatial analysis. Demographic-economic estimates and projections that the developed are housed within the S&O system. Use/access S&O information via the Web interactively, S&O Desktop, S&O Server, S&O datasets.

The unique qualities that our team offers are:

- ✓ The key personnel on this project have extensive and unique experience in facility condition assessments for schools, government organizations and agencies.
- ✓ FEA has performed facility commissioning, condition assessments, asset inventories, quality assurance assessments for hundreds of institutional, government, health care, and commercial facilities.
- ✓ As a nation firm, we can mobilize sufficient qualified staff to augment our local representatives.

Respectfully,
FACILITY ENGINEERING ASSOCIATES, P.C.

PE

Scott K. Higgins, PE
Government Business Development Manager

Teena Shouse, CFM, IFMA Fellow
Associate

Table of Contents

Company Information:

1. Name of company: **Facility Engineering Associates, PC**

   Description: FEA was founded in 1992 to provide technical support to owners and managers of existing facilities. Since then, we have grown to a national engineering and facility management consulting firm whose education and experience as a thought leader in our industry allows us to deliver the solutions you need. Our primary and corporate office is located near Washington, DC, with additional major offices located in Dallas, TX, Denver, CO, and San Francisco, CA. Additional support from satellite offices and contract employees can be found in Richmond, VA, Greenville, SC, Kansas City, MO, and Austin, TX. This national presence allows us to provide services to our clients at a personal and local level. For this contract, FEA will be handling all aspects of the scope of work except the demographics.

   Name of sub-consultant: **ProximityOne**

   Description: Their geographic-demographic-economic data and analytical tools can help you knit together and use diverse data in a decision-making and analytical framework. Our demographic-economic estimates and projections can help you better understand the current situation/area characteristics and how areas of interest might change in the future. They offer geocoding tools and services to geocode address data that can then be visually analyzed in maps and otherwise to facilitate impact and geospatial analyses.

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2. Associate in Charge: Bill Small (also Chief Operating Officer) Authorized to negotiate
   Project Manager: Les ZumBrennan Authorized to negotiate
   Quality Assurance: Paul Swanson (principal) Authorized to negotiate
   Project Engineer: Jim Justus

Resumes for these individuals are included in Tab 7.

3. Address of principal office and office from which Projects will be managed:

   12701 Fair Lakes Circle
   Fairfax, VA 22033

4. Name, address, telephone number and email address of the principal contact person to receive notifications and to reply to inquiries from the Finance Department.

   Scott K. Higgins, PE
   12701 Fair Lakes Circle
   Fairfax, VA 22033
   703-667-1017
   Scott.Higgins@FEApc.com

5. Legal form of ownership. Privately employee owned S Corporation in the Commonwealth of Virginia.

6. Years engaged in above services under your present name: 20 years

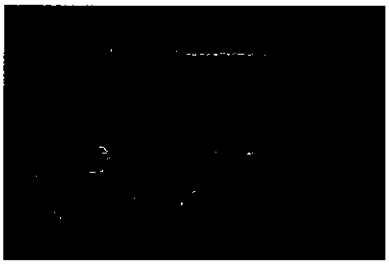
7. Litigation - Describe any litigation, including arbitration proceedings: none

8. Default - Have you ever failed to complete any work awarded to you? No
   - Have you ever defaulted on a contract or been notified of a default by your client? No

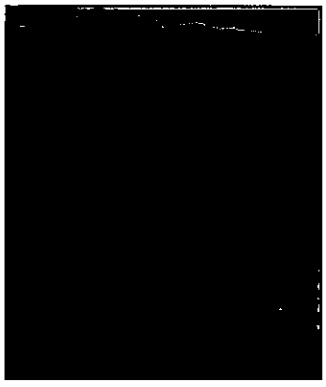
National Park Service
Comprehensive Condition Assessment
Nationwide, United States

Working with the Washington Service Office of the National Park Service (NPS) Facility Management Division, FEA completed comprehensive condition assessments at 44 national parks throughout the National Park Service's Northeast, Midwest, and Intermountain Regions. FEA was selected due to our expertise in the assessment of building systems and infrastructure and our ability to respond in a timely manner on a nation-wide basis.

Almost 600 buildings, over 330 residences, and 170 utilities were assessed in our first year. Assessments included architectural systems, structural systems, mechanical systems, electrical systems, plumbing systems, and conveying systems. The data collected included an inventory of park-maintained equipment, identification of critical equipment attributes, and an assessment of the equipment.



Based on the feedback from the NPS, the data provided will allow the NPS to look at service-wide budgeting in a more programmatic sense and allocate resources more sensibly. This is the first phase of the assessment program, which is intend to continue in the future by revisiting the park assets on a regular basis to update the inventory, condition, and needs of each NPS-maintained asset.



Since our initial assessment, FEA has been engaged to perform various assessments in other park facilities, including a utility distribution assessment and sewer line inspections.

In 2010, FEA re-competed for this blanket purchase agreement and was awarded as one of the contractors.

PRIMARY CLIENT REFERENCE
Cheryl Drake
Contracting Officer
12795 West Alameda Parkway
Denver, CO 80225-0287
(303) 987-6719
Cheryl_a_drake@nps.gov

START DATE: October 6, 2004
COMPLETION DATE: On-Going

VALUE OF CONTRACT: $7,846,639

CLIENT BENEFITS
- Professional assessment of the current condition of NPS facilities
- Accounting of deferred maintenance backlog
- Forecast of on-going recurring maintenance and equipment replacement schedules
- Data to allow the NPS to improve their method of budgeting facility needs based on actual condition
- Ability to establish benchmarking metrics across the entire NPS inventory

SCOPE ITEMS
- Comprehensive condition assessment of NPS-maintained facilities
- Asset and equipment inventory and data collection
- Deferred maintenance (deficiency) identification
- Recurring maintenance and life-cycle replacement identification
- Collected data and costs populated directly into NPS database

Wyoming School District
Condition Assessment
Statewide, Wyoming

The Wyoming Schools Facilities Commission required the creation and implementation of a training program to assess all schools in the state of Wyoming (23 million square feet). In conjunction with the assessment, they required the development of a prioritization asset management program that would be defensible under a court order from the Supreme Court of Wyoming and could be put in place in less than six months. The commission also required that commission personnel be used for the field assessments.

The project was divided into three phases. During Phase 1, FEA researched various published assessment methodologies and resolved to use the Backlog of Maintenance and Repair (BMAR) approach to facility condition assessment. First, focusing at the system level allowed the assessment to be completed within the desired timeframe and secondly, the level of detail required for the assessment was consistent with the experience levels of the assigned commission personnel.

During Phase 2 of the project, FEA worked with commission staff to develop facility condition assessment standards and forms for use by commission staff assessors. FEA trained the commission staff in condition assessment by performing assessments of approximately 500,000 GSF of school facilities in Cheyenne. These facilities included schools at the elementary, junior high and high school levels. FEA instructors and state assessors performed assessments together and compared rankings of individual systems assessed to calibrate the assessors.

Phase 3 of the project is currently ongoing. FEA has performed a verification assessment of selected facilities assessed by commission staff to document consistency and adherence to the established evaluation standards. FEA has also testified to the select committee of the Wyoming State Legislature as to the credibility and repeatability of the assessment data.

Client Accolades:

"We are extremely satisfied with FEA's performance and are continuing to use them for all of our on-going needs associated with the conditions assessment program. Their staff is professional, well-trained, and a pleasure to work with. We would highly recommend them to any organization looking to establish a meaningful asset management program."

Ms Nancy Nuttbrock, Deputy Director, Design & Construction

PRIMARY CLIENT REFERENCE

State of Wyoming School Facilities Commission
Nancy Nuttbrock
Deputy Director of Design and Construction
1103 Old Town Lane, Suite 1
Cheyenne, WY 82002
nnuttb@wyo.gov
(307) 777-8536

START DATE: June 2006
COMPLETION DATE: On-Going

VALUE OF CONTRACT: $181,000+
PROJECT SIZE: 23 Million GSF

CLIENT BENEFITS

- A defensible prioritization asset management program for Wyoming school facilities
- System level assessment completed within the desired timeframe
- Staff was trained to perform condition assessments school facilities
- Final deliverable will be a dynamic system, easily updated and verified
- Data will be credible and able to withstand scrutiny from the Wyoming State Legislature and a Supreme Court review

SCOPE ITEMS

- Assess the condition of school facilities statewide using commission personnel
- Prioritize needs in an objective, consistent, and transparent fashion that is linked to industry best practices
- Capture that data into a robust software application that will facilitate developing and tracking a capital expenditure program

U.S. Department of the Interior Holocaust Memorial Museum
Facilities Inspection and Assessment
Washington, DC

Facility Engineering Associates, P.C. (FEA) provided Facilities Inspection and Assessment services at the United States Holocaust Memorial Museum (Museum) and adjacent Ross Administration Building (RAB).

The Museum consisted of a 7-story, 258,000 square foot building constructed in 1993. The primary function of the building was to house exhibit space and historical artifacts for public viewing. The RAB consisted of a historically-significant, 4-story, 46,000 square foot building constructed in 1905. The primary function of the building was to house office, administrative, and storage space, in support of the Museum.

The primary purpose of the assessment was to identify deficiencies at the buildings, develop building component renewal lifecycles, and to identify code compliance and functional inadequacies. FEA also prepared Facility Condition Indexes (FCIs) for each building, and performed benchmarking against similar facilities to provide classification on the FCI rating scale. As part of the benchmarking, Current Replacement Values (CRVs) were prepared for each building.

FEA also performed a cursory-level Energy Review, assessing the feasibility of each building to meet current Energy Star, LEED, and Federal Environmental Executive Order goals and requirements.

The results of the assessment were used by the Museum's Division of Operations in their capital planning efforts.

FEA was selected due to our broad expertise and experience in performing facility condition assessments and developing facility capital investment plans.

PRIMARY CLIENT REFERENCE
Alex Butterfield
Facilities Management Operations
100 Raoul Wallenberg Place, SW
Washington, DC 20024
abutterfield@ushmm.org
(202) 479-9736

START DATE: March 2010
COMPLETION DATE: July 2010

VALUE OF CONTRACT: $42,396

SUBCONSULTANTS
- Rolf Jensen & Associates, Inc.
- SAI Engineering, Inc.

CLIENT BENEFITS
- Thorough independent third party reporting of present building conditions
- Identification of capital and deferred maintenance projects over a 20 year period
- Recommendations for future expenditures to extend the expected service lives of existing assets
- Feasibility of buildings to meet current energy standards
- Benchmarking of existing buildings against similar facilities nationwide

SCOPE ITEMS
- Facility condition assessment
- Cost estimates & capital expenditure prioritization
- Deferred maintenance identification
- Identification of critical facility asset needs
- Preliminary energy review
- Detailed system assessments performed by specialty subconsultants: mechanical, plumbing, electrical, and fire & life-safety systems

Weld County School
Facility Maintenance Plan
Weld County, Colorado

Facility Engineering Associates (FEA) performed facility condition assessments of over 500,000 square feet across the entire Weld County RE-8 school district. The challenge facing the school district was how to reach their primary goal of improving student achievement with limited available funding in a demographic area of shrinking enrollment. The purpose of the assessments was to create a Facility Management and Maintenance Plan (FMMP); the FMMP was intended assist in the achievement of the goal by creating and maintaining facilities that are productive learning environments.

FEA was engaged to perform a detailed visual assessment of the district's schools and ancillary buildings to forecast 10-year capital renewal and maintenance budgets. The assessment included site and grounds features, exterior building envelope, Mechanical/Electrical/Plumbing services (MEP), security and safety, interior finishes, equipment, and hazardous materials for all of the facilities. At the completion of the assessment, FEA presented the resulting budget forecast for maintenance and capital renewal to the District Board. FEA also provided training sessions in English and Spanish to maintenance personnel concerning the handling and maintenance of lead-based paint and asbestos.

The relationship established throughout the condition assessment project presented the opportunity for FEA to complete addition services for the Weld County School District. For example, FEA was able to provide a more detailed structural review of a deteriorated concrete roof structure in the pool building. FEA then furnished design documents for the structural repairs.

PRIMARY CLIENT REFERENCE
Mr. Richard Hawley
Director of Support Services
Operations and Maintenance
301 Reynolds Street
Ft. Lupton, CO 80621
rhawley@ftlupton.k12.co.us
(303) 857-3200

START DATE: March 2007
COMPLETION DATE: July 2007

VALUE OF CONTRACT: $46,200
PROJECT SIZE: 512,611 Sq Ft

SUBCONSULTANTS:
Aerotek, Inc.
Rolf Jensen & Associates, Inc

CLIENT BENEFITS
- Provided 10-year capital renewal and maintenance expenditure forecast
- In-depth study of current conditions for facilities and services
- Operational options for reuse of facilities

SCOPE ITEMS
- Detailed facility condition assessment
- Equipment inventory
- Capital renewal and maintenance budget forecast
- Hazardous materials training for maintenance personnel

American University Dining Facilities Condition Assessment

Washington, DC

Facility Engineering Associates. P.C. (FEA) conducted a condition assessment and life-cycle analysis of American University's dining service areas in order to prepare a 10-year forecast of anticipated capital renewal expenditures for budgeting purposes. The capital expenditure forecasts were based on observed conditions, reported performance, industry standard useful life data, maintenance history reviews, and use and performance adjustment factors.

FEA's team consisted of both experienced energy engineers and facility management consultants who understand building systems and facility maintenance and management issues. Finding deficiencies was only the beginning - being able to design practical solutions and standing ready to assist in their implementation resulted in timely and cost-effective corrections. Our first hand knowledge of facilities management and the challenges have lead to meaningful solutions which have addressed both the day-to-day management opportunities and the on-going planning and budgeting challenges.

FEA assisted in prioritizing capital expenditures as well as listing them by expected useful life. FEA's understanding of restrictive budgets in an ever-tightening financial environment and their prioritization helped AU to focus on the deficiencies that could lead to business disruption, escalating cost or rapid deterioration.

Scope Items:

- Conduct condition assessment and life-cycle analysis
- Assess kitchen equipment based on observed conditions and reported performance
- Create industry standard useful life data
- Conduct maintenance history reviews
- Conduct use and performance adjustment factors
- Assessment of refrigerant types for upgrading refrigeration equipment

PRIMARY CLIENT REFERENCE
Holly Mussatti
Assistant Director
4400 Massachusetts Avenue, NW
Washington, DC 20016-8020
(202) 885-2321

START DATE: July 2009
COMPLETION DATE: February 2010

VALUE OF CONTRACT: $17,950

CLIENT BENEFITS

- Developed, prioritized, and justified maintenance and repair budgets to aid in AU's budget planning process
- Delivered an accurate inventory of existing kitchen equipment and infrastructure components
- Provided a professional assessment of current equipment condition and support base building systems
- The 10 year capital expenditure forecast provided an objective experience-based forecast of equipment renewal needs based on a number of factors and variables
- Created an EUL life-cycle analyses based on best benchmark practices
- Prioritized expenditures based on criticality of equipment

FEA FACILITY ENGINEERING ASSOCIATES

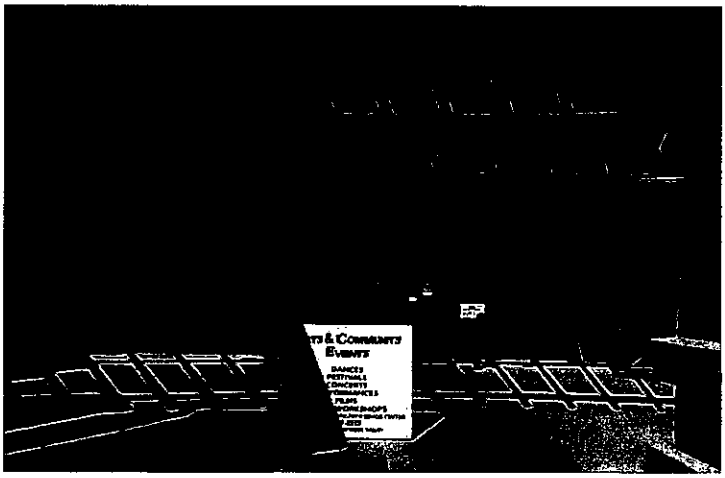
City of Las Vegas
Facility Condition Assessment Services
Las Vegas, Nevada

Facility Engineering Associates, P.C. (FEA) has assessed approximately 188,800 s.f. in this ongoing project with the City of Las Vegas. In performing the facility condition assessment, FEA completed a baseline analysis to document the current state of facilities in terms of the architectural, mechanical, electrical, plumbing, fire protection, security, and elevator systems. All collected data from the field was input into our capital expenditure planning software program (ENVISAGE).

ENVISAGE is the capital expenditure planning software program developed by FEA in support of our facility management and condition assessment services. ENVISAGE is a practical, cost-effective software solution based on FEA's broad experience with facility condition assessments, facility maintenance, facility management, and financial planning processes.

ENVISAGE is designed to produce short- and long-term capital expenditure forecasts that can incorporate inflation, A/E fees, project management fees, and contingencies where appropriate. ENVISAGE analyses are based on expected useful lives and remaining useful lives of the systems, which are part of the initial data input.

These tools provide efficient prioritization and ranking of capital projects through the use of importance factors developed in concert with the City of Las Vegas.



PRIMARY CLIENT REFERENCE
Pamela Lynn, CPM
Contracts Specialist
Purchasing and Contracts Division,
Office of City Clerk
400 Stewart Avenue
City Hall, First Floor
Las Vegas, NV 89101-2986
(702) 229-6006
plynn@lasvegasnevada.gov

START DATE: September 10, 2009
COMPLETION DATE: October 30, 2009

PROJECT SIZE: 188,800 SQFT
VALUE OF CONTRACT: $36,304

CLIENT BENEFITS
- Capital Repair projections over a 10-year period
- Recommendations for replacement, repairs, upgrades, or further investigation
- Access to and training for our ENVISAGE database software

SCOPE ITEMS
FCA, Software, Training components

1. Exterior systems
2. Interior systems
3. Health/fire/life safety
4. ADA
5. Elevators
6. HVAC

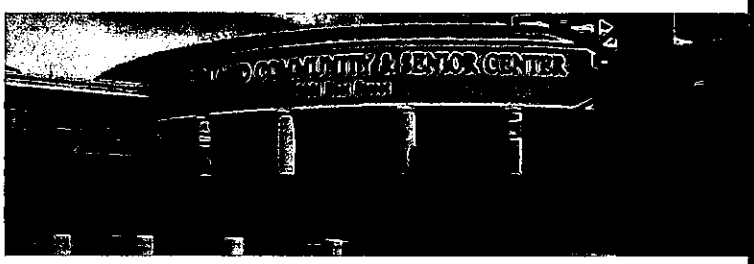
FEA FACILITY ENGINEERING ASSOCIATES

City of Woodland Condition Assessment & Facilities Maintenance Plan

Woodland, California

Facility Engineering Associates, P.C. (FEA) assessed the condition and estimated repair and renovation costs for ten buildings totaling approximately in the City of Woodland, California. The buildings included City Hall, Library, Police, Fire Stations and Community Centers. Components evaluated included site systems, structural systems, exterior building envelopes, roof systems, interior finishes, security systems, mechanical and electrical systems, and fire and life safety systems.

In addition, FEA performed an organizational assessment including a labor needs analysis that compared the facility management operating environment with other governmental facility management operations to determine gaps in skill types and levels of effort required to maintain the City of Woodland's facilities in accordance with budget and needs. The facility condition assessment data allowed the City of Woodland to more effectively manage their facilities for the life cycle of the buildings with unbiased information that reflected the internal operational and funding priorities of the City of Woodland.



City of Woodland

PRIMARY CLIENT REFERENCE
Michael Karoly, PE
Senior Civil Engineer
300 First Street
Woodland, CA 95695
(530) 661-5963
Michael.Karoly@CityofWoodland.org

START DATE: March 2009
COMPLETION DATE: On-going

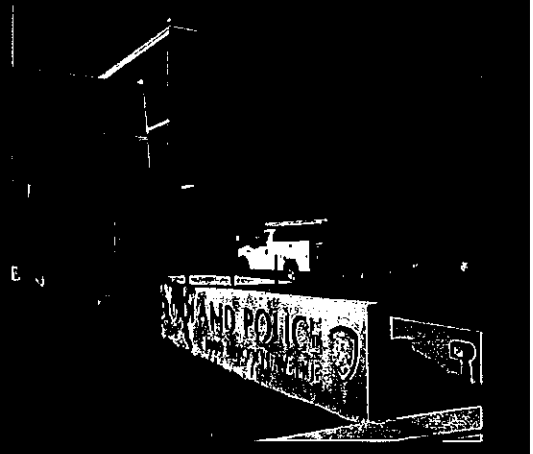
VALUE OF CONTRACT: $96,700

CLIENT BENEFITS

- Capital Repair projections over a 10-year period
- Recommendations for replacement, repairs, upgrades, or further investigation
- An unbiased review of existing processes, job descriptions, and organizational structure
- Specific recommendations for number and scope of employees and contracted resources

SCOPE ITEMS

- Facility Condition Assessment
- Organizational Assessment
- Labor Needs Analysis
- Facility Operations Plan



FEA FACILITY ENGINEERING ASSOCIATES

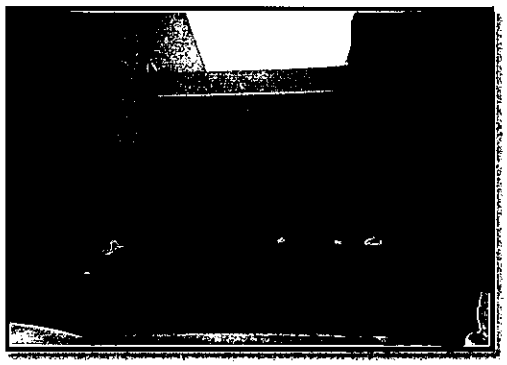
Covance Laboratories Condition Assessments & CMMS Implemented

Nationwide

Facility Engineering Associates, P.C. (FEA) performed condition assessments and implemented a preventive and predictive maintenance program at the Covance Laboratories in two states. Covance had selected and installed TMS Pro as its computerized maintenance management system (CMMS) for use across their facilities, but had limited use of the system and it was in need of upgrades at the time of the project. FEA populated the database with asset and equipment inventories for about 600,000 s.f. of building space on 150 acres. Equipment included all mechanical, electrical, plumbing, fire and life safety, kitchen and other specialty equipment.

FEA developed a preventive and predictive maintenance program for the various equipment categories and types for Covance. PM procedures and schedules were tagged to all of the equipment inventoried in the multiple buildings. TMS Pro was installed on a network to allow the generation of work orders and provide a computerized preventive maintenance tracking system.

The condition assessments and CMMS implementation were implemented in two phases across the various facilities. Once completed, FEA provided training on the use of the new TMS system to Covance facilities staff.



COVANCE.
THE DEVELOPMENT SERVICES COMPANY

PRIMARY CLIENT REFERENCE
Gary Broersma
Director, Global Facility Management
445 Hemmingwood Court
DeBary, FL 32713-4926
(703) 989-0864

START DATE: 1998
COMPLETION DATE: 1998

VALUE OF CONTRACT: $70,000

CLIENT BENEFITS

- Restored effective use of the CMMS by updating inventory and linking the inventory to PM's
- Gained a better understanding of their asset inventory and physical condition for future planning and budgeting
- Covance can now better manage their assets and organize work orders from what was an underutilized CMMS
- By learning better how to utilize the CMMS it will optimize the facility equipment investment and create a more productive FM workforce

SCOPE ITEMS

- Facility Condition Assessments
- Equipment & Asset Inventory
- Cost Estimates
- Capital Expenditure Forecasts
- Multi-Building Facilities
- Conformance to Schedule
- CMMS
- Preventive Maintenance Services

FEA FACILITY ENGINEERING ASSOCIATES

Honolulu International Airport
FM System Implementation
Honolulu, Hawaii

Facility Engineering Associates (FEA) in conjunction with Asset Evolution was contracted by the Airports Division of the Hawaii Department of Transportation to provide comprehensive inventories and assessments of airport facility assets at Honolulu International Airport (HNL) for entry into Asset Evolution's total life cycle management system, providing a detailed multi-year overview of existing and future capital renewal requirements. FEA's responsibilities under the contract included assessment of the condition of the facilities and their related assets. Assets included in the assessment are as follows:

- Landside & Airside Pavements
- Parking Lots
- Airfield Ramps & Aprons
- Site Fencing
- Roofs
- Primary & Secondary HVAC
- Electrical Equipment
- Emergency Power Systems
- Fire Protection Systems
- Airfield Lighting Control
- Passenger Loading Bridges
- Baggage Handling Systems
- Conveying Systems
- Interior Flooring
- Security Systems
- Flight Information Display Systems
- Other Various Specialty Systems (Supervisory Control & Data Acquisition, Energy Monitoring, Public Address, Water Monitoring, Noise Monitoring

Representative facilities evaluated and incorporated into the comprehensive inventory and condition assessment included: terminals and concourses; air cargo facilities; corporate office space; maintenance facilities; rental car agency areas; parking garages; hangar lines; fuel farm and hydrant fueling systems; airport operational support structures and associated facilities.

PRIMARY CLIENT REFERENCE
Manuel Lanuevo, PE
Head Facilities Maintenance Engineer
400 Rodgers Boulevard
Suite 700
Honolulu, HI 96819-1898
(808) 838-8804

START DATE: October 6, 2006
COMPLETION DATE: December 14, 2007

PROJECT SIZE: 3,000,000 SQFT
VALUE OF CONTRACT: $173,514

CLIENT BENEFITS
- FEA offered valuable and broad expertise in various building types, uses and systems
- Early detection of issues that could require significant capital to address
- Assessment data organized to assist in capital planning and budget justification

SCOPE ITEMS
- Visual inspection of all architectural, civil, structural, mechanical and electrical systems at each facility
- Collection of asset information tied to airport specific location codes (PropWorks)
- Prioritize replacement schedules for existing equipment
- Development of long-term capital investment plans

FEA FACILITY ENGINEERING ASSOCIATES

Howard County Public School System
Facility Condition Assessments
Howard County, Maryland

Facility Engineering Associates (FEA) was contracted through Gilbert Architects to provide consulting services to accomplish condition assessments for Howard County Public Schools. Work included field assessments of major building components and the development of 20 year capital renewal plans. The work was completed in three phases over 1.5 years.

Twelve large high schools, nineteen middle schools, two special schools comprising over 7.4 million square feet were addressed within this project. Individual buildings ranged in size from 50,000 sf to 250,000 sf.

The assessment results provided comparative data to program future projects that will result in an equitable level of condition and performance between schools, and to develop and justify maintenance and repair budgets.

HOWARD COUNTY
PUBLIC SCHOOL SYSTEM

PRIMARY CLIENT REFERENCE
Kenneth Roey
Executive Director, Facilities Planning and Management
10910 State Route 108
Ellicott City, MD 21042
(410) 313-1527
ken_roey@hcpss.org

START DATE: July 2007
COMPLETION DATE: August 2009

PROJECT SIZE: 4,500,000 SQFT
VALUE OF CONTRACT: $783,800

SUBCONSULTANTS:
The Protection Engineering Group
Atlantic Consulting, Inc.

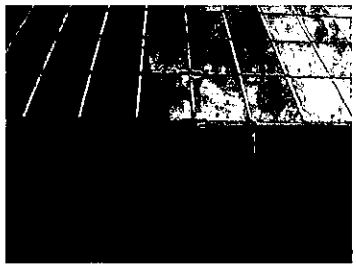
CLIENT BENEFITS
- Thorough independent third party reporting of present building conditions
- Consistent school system wide approach to condition assessments
- Identification of capital and deferred maintenance projects over a 20 year cycle
- Recommendations for future expenditures to extend the expected service lives of existing assets

SCOPE ITEMS
- Facility Condition Assessments
- Cost estimates & capital expenditure prioritization
- Identification of critical facility asset needs
- Comparison data between schools

Intelsat
Facility Condition Assessment
Washington, DC; Ellenwood, GA; Long Beach, CA

Facility Engineering Associates, P.C. (FEA) performed a comprehensive Facility Condition Assessment and Capital Improvement Forecasting services for Intelsat facilities in Washington, DC, Ellenwood, GA, and Long Beach, CA. The building comprised over 1 million square feet of area. FEA previously conducted an assessment of the Washington, DC facility in 2003.

The assessment results provided data to program future projects that will result in an equitable level of condition and performance between facilities, and to develop and justify maintenance and repair budgets. Intelsat uses the data from the facility assessments to plan capital and operations budgets.



PRIMARY CLIENT REFERENCE
Nancy Lumb
Manager, Facilities Operations and Maintenance
3400 International Drive, NW
Washington, DC 20008-3006
(202) 944-7410
nancy.lumb@intelsat.com

START DATE: June 1, 2009
COMPLETION DATE: July 31, 2009

PROJECT SIZE: 1,080,000 SQFT
VALUE OF CONTRACT: $52,000

SUBCONSULTANTS:
Atlantic Consulting, Inc.
Capitol FPE

CLIENT BENEFITS

- Thorough independent third party reporting of present building conditions
- Consistent corporate wide approach to condition assessments
- Identification of capital and deferred maintenance projects over a 10 year cycle
- Recommendations for future expenditures to extend the expected service lives of existing assets
- Nationwide presence allowed cost-effective response to multiple building sites

SCOPE ITEMS

- Facility condition assessments
- Cost estimates & capital expenditure prioritization
- Identification of critical facility asset needs
- Detailed system assessments performed by specialty subconsultants: electrical, elevators, and fire & life-safety systems

FEA FACILITY ENGINEERING ASSOCIATES

Minnesota Department of Admin Development of a Facility Condition Assessment Process

St. Paul, Minnesota

The State of Minnesota required assistance to develop standard, self-maintained, Facility Condition Assessment (FCA) processes, including reporting and measurement, that will result in consistent, accurate, and real-time information regarding the condition of real property in the State of Minnesota. Specific goals included definition of cost effective processes for collecting FCA data, including best practices, definition of standard data elements and reports, and definition of minimum qualifications for persons performing FCAs. The State of Minnesota also desired that the data collected as part of the FCA process either be directly entered or formatted in such a way that it could be uploaded into their Archibus database.

FEA performed the following general tasks:

- Developed an objective methodology and recommend industry standard tools for conducting FCAs
- Provided options for accomplishing FCAs internally
- Developed and provided qualifications of assessors
- Provided training material on recommended FCA process
- Currently working on final deliverables, including a written report that includes analyses, methodologies, options, process flow diagrams, recommendations, and training materials

FEA researched various published assessment methodologies and resolved to use the Backlog of Maintenance and Repair (BMAR) approach to facility condition assessment. The next step in the program will be to train assessors and to calibrate assessments through a pilot program that will enable the State to have a standardized process that they can readily defend.

Admin Minnesota
DEPARTMENT OF ADMINISTRATION

PRIMARY CLIENT REFERENCE
Fred Anderson
Real Property Archibus Support
Department of Administration
Real Estate and Construction Services
50 Sherburne Avenue, Room 309
St. Paul, MN 55155
(651) 201-2391

START DATE: November 15, 2012
COMPLETION DATE: On-going

VALUE OF CONTRACT: $64,600

CLIENT BENEFITS

- Experienced team provided not only condition assessments, but in developing standard processes for other clients
- Standardized FCA process will result in objective, repeatable, and verifiable results
- Field assessors were equipped with checklists and forms that will ensure standard results
- Data entry forms can be mapped to be uploaded with any CAFM system

SCOPE ITEMS

- Establish Standards & Level of Assessment
- Identify Assessor Qualifications and Training Requirements
- Develop a Facility Condition Assessment Process
- Develop FCA Process Training

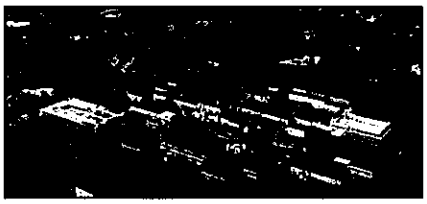
MIT Lincoln Laboratory
Facility Condition Assessment
Lexington, Massachusetts

The Massachusetts Institute of Technology (MIT) Lincoln Laboratory (LL) engaged Facility Engineering Associates, P.C. (FEA) to perform facility condition assessments for 26 buildings and site systems located on the MIT LL campus, located in Lexington, Massachusetts. Work included field assessments of major building components and site features, and the development of 20-year capital renewal forecasts. The assessments encompassed more than 1.8 million square feet of office, laboratory, and special use space.

FEA was also requested to perform Preliminary Energy Audits of the 26 buildings. The audits were performed in general accordance with the ASHRAE "Procedures for Commercial Building Energy Audits", 'Level I – Walk-Through Analysis'. Our Level I analysis provided preliminary energy audits that identified low-cost and no-cost measures and provided a list of potential capital improvements that merit further consideration.

The assessment results provided comparative data to program immediate and future projects that will result in an equitable level of condition and performance between buildings. The information will also be used to develop, prioritize, and justify maintenance and repair budgets, as well as aid in the strategic planning of the facility's future.

Assessment data provided to MIT LL will aid in the organization's master plan for the future of their facilities, and receiving requested budgets, while also having the knowledge prioritize facility needs and funding expenses, which will be key steps for MIT LL to understand the total cost of ownership of their facilities.



LINCOLN LABORATORY
MASSACHUSETTS INSTITUTE OF TECHNOLOGY

PRIMARY CLIENT REFERENCE
MIT Lincoln Laboratory
Ted Litchfield
Project Manger
244 Wood Street
Lexington, MA 02420-9108
(781) 981-3296
Litchfield@ll.mit.edu

START DATE: May 2008
COMPLETION DATE: October 2008

PROJECT SIZE: 2,000,000 SQFT
VALUE OF CONTRACT: $236,990

SUBCONSULTANTS
Rolf Jensen and Associates, Inc.
Lerch Bates, Inc.
Natioinal Property Consulting Group, LLC

CLIENT BENEFITS
- Improve facility management practices and assistance with organizational decisions
- Data to aid MIT LL with prioritization and justification of budgeting facility needs
- Objective baseline of the current condition of MIT LL facilities
- Accurate accounting of assets and deferred maintenance backlog
- Forecast of on-going recurring maintenance and equipment replacement schedules
- Forecast of recommended capital renewal projects for long-term facility management decisions

SCOPE ITEMS
- Condition assessment of facilities and site systems
- Identification of critical facility asset needs
- Deferred maintenance (deficiency) identification
- Capital renewal expenditures for the next 20 years
- Preliminary energy audits of facilities to identify no-to-low-cost recommendations and capital improvements

FEA FACILITY ENGINEERING ASSOCIATES

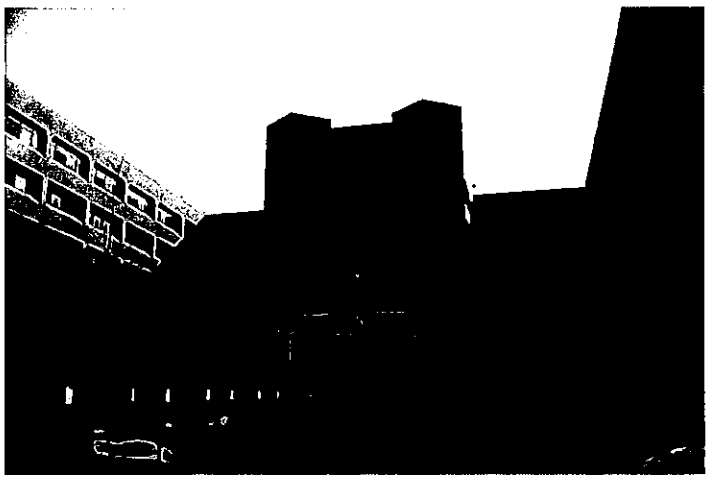
MITRE Building Infrastructure Assessment and Capital Improvement Program

Mclean, Virginia and Bedford, Massachusetts

MITRE is an independent, not-for-profit corporation that provides scientific research and development support to the Government. MITRE manages three Federally Funded Research and Development Centers (FFRDC) that perform system R&D work for the Department of Defense, the Federal Aviation Administration, the Internal Revenue Service and other civil aviation authorities. MITRE currently operates two main campuses in Bedford, Massachusetts and McLean, Virginia, fifty domestic site locations, and twelve foreign site locations. MITRE has approximately 6,000 employees with more than 800 employees located at domestic and international sites.

FEA performed comprehensive Building & Infrastructure Assessment and Capital Improvement Forecasting services for the MITRE Corporation Facilities and Campus Infrastructures. These services were in support of the Bedford, MA and McLean, VA campuses and include fifteen facilities with over 2.5 million square feet of area.

The assessment results are providing data to program future projects that will result in an equitable level of condition and performance between facilities, and to develop and justify maintenance and repair budgets. MITRE has used the data from the facility assessments to plan capital and operations budgets.



MITRE

PRIMARY CLIENT REFERENCE
Frank Ringel
Subcontracts Lead
7515 Colshire Boulevard
McLean, VA 22102-3481
(703) 983-6979
fringel@mitre.org

START DATE: November 2007
COMPLETION DATE: January 2008

PROJECT SIZE: 2,500,000 SQFT
VALUE OF CONTRACT: $350,000

SUBCONSULTANTS
- Atlantic Consulting, Inc.
- Rolf Jensen & Associates, Inc.
- SAI Engineering, Inc.

CLIENT BENEFITS
- Thorough independent third party reporting of present building conditions
- Consistent corporate wide approach to condition assessments
- Identification of capital and deferred maintenance projects over a 20 year cycle
- Recommendations for future expenditures to extend the expected service lives of existing assets
- Nationwide presence allowed cost-effective response to multiple building sites

SCOPE ITEMS
- Facility condition assessments
- Cost estimates & capital expenditure prioritization
- Identification of critical facility asset needs
- Detailed system assessments performed by specialty subconsultants: electrical, elevators, and fire & life-safety systems
- Preliminary LEED® review

FEA FACILITY ENGINEERING ASSOCIATES

Montgomery County Parks Condition Assessment

Montgomery County, Maryland

The Maryland-National Capital Park and Planning Commission (M-NCPPC) engaged Facility Engineering Associates, P.C. (FEA) to help improve their overall management and stewardship of their Parks. The objectives were to enhance the accuracy of their real property inventory, provide understanding of the conditions and needs of the park facilities, and improve overall budgeting and facility management processes. To accomplish this, FEA performed an equipment inventory and condition assessment of 31 recreational buildings, 10 ancillary buildings, 247 playgrounds, and 72 miles of hard surface trail, throughout Montgomery County. A Business Process review of M-NCCPC has been implemented. FEA helped M-NCPPC recognize their current organizational structure, including difficulties and barriers in their current facility management process. Key goals in the review were to establish a preventive maintenance program as it related to the desired level of service for the park facilities, and develop metrics for measuring success in the organization. By reaching these goals, M-NCPPC will hold the appropriate information for receiving requested budgets, while also having the knowledge to prioritize facility needs and funding expenses, which will be key steps for M-NCPPC to understand the total cost of ownership of their facilities.

THE MARYLAND-NATIONAL CAPITAL PARK AND PLANNING COMMISSION

PRIMARY CLIENT REFERENCE

Mary Ellen Venzke
Capital Improvements Manager
Montgomery County Department of Parks
9500 Brunett Avenue
Room B107
Silver Spring, MD 20901
(301) 495-2477
MaryEllen.Douglas@mncppc-mc.org

START DATE: July 14, 2006

VALUE OF CONTRACT: $725,116

CLIENT BENEFITS

- Improve facility management practices and assistance with organizational decisions
- Data to aid M-NCPPC with prioritization and justification of budgeting facility needs
- Professional assessment of the current condition of M-NCPPC facilities
- Accounting of assets and deferred maintenance backlog
- Forecast of on-going recurring maintenance and equipment replacement schedules

SCOPE ITEMS

- Comprehensive condition assessment of facilities
- Asset and equipment inventory and data collection
- Deferred maintenance (deficiency) identification
- Recurring maintenance and life-cycle replacement identification
- Collect data and costs organized for upload to CMMS
- Facility management consulting and analysis M-NCPPC organization
- Development of measuring metrics for organizational success

FEA FACILITY ENGINEERING ASSOCIATES

Washington Dulles International Airport Facility Management and Condition Assessment Services (Dulles)

Dulles, Virginia

Facility Engineering Associates, P.C. (FEA) was engaged by the Engineering & Maintenance Division of the Metropolitan Washington Airports Authority (MWAA) at Washington Dulles International Airport to conduct a variety of facility management consulting services. The project required a team with extensive knowledge not only of building systems and the operations and maintenance of those systems, but also experience with specific airport systems and MWAA's Computerized Maintenance Management System (CMMS).

FEA performed Facility Condition Assessments (FCA) of the airport facilities including, terminals, concourses, hangars, and other support facilities. The roughly 70 buildings total about 5 million square feet. Based on the condition assessment, FEA made recommendations for the airport's capital renewal and preventive maintenance programs to management for funding and implementation. FEA also structured over $28 million in deferred maintenance of an aging concourse into a Capital Construction Project to position and sell to airline tenants.

In addition to the condition assessments, FEA completed HVAC designs, asset and equipment inventories, developed preventive and predictive maintenance programs, conducted facility labor needs analysis based on equipment and recommended Preventative Maintenance (PM) programs, evaluated existing maintenance management processes and the existing computerized maintenance management system, prepared statements of work for baggage handling systems, and is currently involved in the design, specification, and construction management of the existing expansion joints at the main terminal.

METROPOLITAN WASHINGTON AIRPORTS AUTHORITY

PRIMARY CLIENT REFERENCE
MWAA
Paul Michaels
1 Aviation Circle
Washington, DC 20001-6000
(703) 572-2800

SUBCONTRACTORS:
Gage Babcock & Associates –
Fire and Life Safety Consultants
SAI Engineering –
Mechanical Consultants
Atlantic Consulting –
Elevator Consultants

PROJECT SIZE: 5,000,000 SQFT
VALUE OF CONTRACT: $345,500

CLIENT BENEFITS

- Established baseline building services and scheduled consistent predictive maintenance procedures
- Created plan which identified resources needed to optimize maintenance of the airport
- Developed a reasonable and functional long range funding plan
- Provided an effective facility management planning tool

SCOPE ITEMS

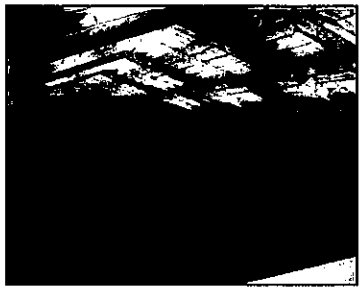
- Facility Condition Assessment
- Preventative Maintenance (PM) programs development
- Life Cycle Analyses and Maintenance Staffing Analyses
- Baggage Handling System Maintenance evaluation
- Service contract development

FEA FACILITY ENGINEERING ASSOCIATES

Sea Colony Recreational Association Facility Condition Assessment

Bethany Beach, Delaware

Facility Engineering Associates, P.C. (FEA) performed a facility condition assessment for the Sea Colony Recreational Association (SCRA); Sea Colony a family beach and tennis resort community located in Bethany Beach, Delaware. The assessment provided the owner with the current condition of all common recreational components, estimating the remaining useful life, and making recommendations for repairs or replacements for the components over the next 20 years. The Sea Colony Recreational Association is responsible for a half-mile private beach; an elevated Promenade; five ocean front swimming pools with associated bathhouses; an indoor pool in the Edgewater Building with locker rooms, weight room, and office/retail space; a Fitness Center with indoor and outdoor pools; a four-court indoor Tennis Center with 14 outdoor Har-Tru and 8 outdoor hard courts; several additional hard-surface courts throughout the community; four outdoor pools located in the West Tennis Community; two playgrounds; a beach at West Lake; a Maintenance Storage Facility; Westway Drive that ran through the community; and various parking areas.



Sea Colony
The Premier Family Beach & Tennis Resort Community

PRIMARY CLIENT REFERENCE
David Creighton
Director of Operations
P.O. Box 480,
Bethany Beach, DE 19930
(302) 537-8888 x6021

START DATE: January 8, 2008
COMPLETION DATE: June 24, 2008

VALUE OF CONTRACT: $28,100

CLIENT BENEFITS

- Provided client with tool to plan and budget capital expenditure needs
- Improve decision making
- Quick completion of assessment and deliverance of report

SCOPE ITEMS

- Condition assessment
- Provided recommendations for replacements and repairs of common elements
- Developed a 20-year capital expenditure forecast

"FEA provided a great report – our reviewers loved it!"
David Crieghton, ResortQuest

FEA FACILITY ENGINEERING ASSOCIATES

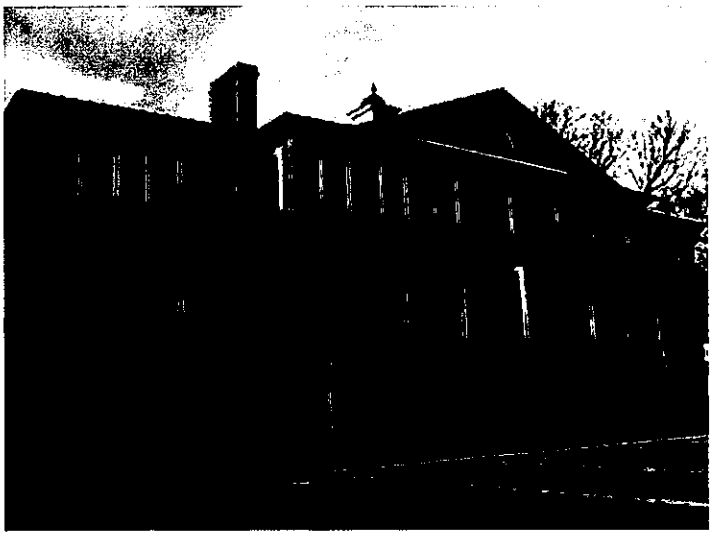
Tennessee Board of Regents
Facility Condition Assessment
Various Locations, Tennessee

Facility Engineering Associates (FEA) provided a third party condition assessment evaluation and update survey of facilities under the care of the Tennessee Board of Regents (TBR). The survey focused on validating and expanding existing survey data, and ensuring a statewide uniform rating of all buildings for planning capital expenditures.

The TBR is in charge of 6 university and 13 community college campuses with over 19 million square feet under its direction. Buildings evaluated included academic buildings, science labs, auditoriums, gymnasiums, and other campus support buildings and facilities dating back to the early 1900's. Components evaluated included exterior building envelopes, framing systems, interior finishes, mechanical, electrical, and plumbing systems, fire and life safety systems, and elevator systems as well as build suitability and adequacy.

Surveyed buildings and equipment systems were updated using the TBR's web database. Buildings conditions were all given a score relating to current conditions.

FEA completed the fieldwork in approximately four weeks. This was accomplished through very close coordination with TBR, the university and college staff and using a multi-discipline team approach. Specialists for each discipline focused on their specific tasks at each building and then compiled their data.



PRIMARY CLIENT REFERENCE
Carl Manka
Senior Director of Planning and Research
Office of Facilities Development
1415 Murfreesboro Road
Suite 664
Nashville, TN 37217-2833
(615) 366-3908
Carl.Manka@tbr.edu

START DATE: May 2006
COMPLETION DATE: November 2006

VALUE OF CONTRACT: $225,000
PROJECT SIZE: 3.0 million sq ft
19 campuses

CLIENT BENEFITS

- Reporting of present building conditions
- Identification and rating of systemic and functional adequacy
- Consistent state-wide rating for each building
- Identification of capital and deferred maintenance projects
- Recommendations for future expenditures to extend the expected service life of existing components

SCOPE ITEMS

- Facility Maintenance Inspection Survey
- Update existing building information
- Identify problems and recommend solution
- Operate within existing web-based software

The World Bank Long Term Facility Condition Assessment

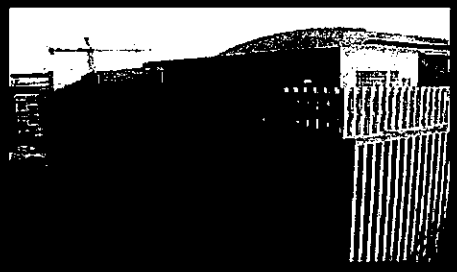
Washington, DC

Facility Engineering Associates, P.C. (FEA) assessed the condition and estimated future repair and replacement needs for seven buildings at The World Bank headquarters in Washington, DC. The headquarters buildings included approximately 3.8 million square feet of building space. Components evaluated included site systems, structural systems, exterior building envelopes, roof systems, interior finishes, security systems, mechanical and electrical systems, fire and life safety systems, and elevators.

Capital expenditure forecasts and financial plans were developed by building and rolled up into a summary for the entire campus. This allows The World Bank to store information and manage capital projects in a usable format. FEA used an Integrated Facility Management Information System (IFMIS) software to capture, store, and organize the data. This tool allows facility managers to track, modify, and update actual repair and replacement projects overtime; thereby adjusting plans to fit available funding.

The centralization of facility information into a single database allows management at The World Bank to instantly view information relating to all buildings in the headquarters. More powerfully, it allows tracking of project needs and costs so that reliable, unbiased information can be presented to financial managers to justify facility expenditures.

The facility condition assessment data allowed The World Bank to more effectively manage their facilities for the life-cycle of the buildings with unbiased information that reflected the internal operational and funding priorities of the bank.



PRIMARY CLIENT REFERENCE
Gregory Oliver
Accounts Payable Unit
Administrative Expense Division
1818 H Street, NW
Washington, DC 20433
(202) 458-5314

START DATE: February 21, 2005
COMPLETION DATE: September 22, 2005

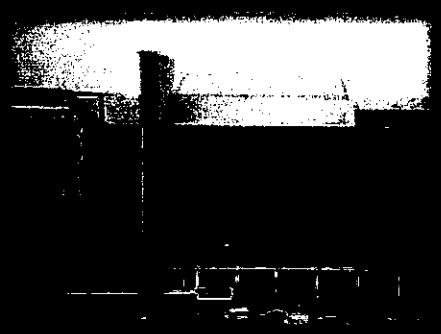
VALUE OF CONTRACT: $224,868

CLIENT BENEFITS

- Thorough reporting of present building conditions
- Identification of capital and deferred maintenance projects
- Centralization of facility information
- Credible data to justify capital funding requests

SCOPE ITEMS

- Facility condition assessments
- Cost estimates
- Capital expenditure forecasts



Travis County Healthcare District
Facility Condition Assessment
Austin, Texas

The Travis County Healthcare District (TCHD) is responsible for providing, or arranging for the provision of, healthcare services to indigent Travis County residents. The District has responsibility for Brackenridge Hospital, Austin Women's Hospital, and 14 Community Health Centers (CHCs), currently operated by the City of Austin's Community Care Services Department (CCSD) through an interlocal contractual arrangement.

In March 2009, the CCSD transitioned from the City into a new organizational structure developed by the District. At the time of transition, the District will need to assume operational control of the facilities and the facility-related services currently provided by the City or Travis County or make arrangements to continue current services. As part of its facilities planning process, the District wanted to assess the condition of the existing building systems and major site components at selected locations and to develop a capital expenditure plan.

The District chose FEA to provide their expertise in the assessment of building systems to determine the physical condition of the existing building systems and major site components at 15 locations throughout the city of Austin. Part of the assessment was to identify summary replacement costs based on the condition of the existing facilities; and to develop a 10-year capital expenditure plan. The components of major systems (architectural, mechanical, electrical, plumbing (MEP), and fire protection, security, elevators and parking) was evaluated for condition, life expectancy, and replacement and/or repair costs.

PRIMARY CLIENT REFERENCE
Donna Scarbrough
Project Manager
1111 East Cesar Chavez, Suite B
Austin, TX 78702
(512) 978-8162
Donna.Scarbrough@traviscountyhd.org

START DATE: January 14, 2008
COMPLETION DATE: April 1, 2008

PROJECT SIZE: 98,000 SQFT
VALUE OF CONTRACT: $41,400

CLIENT BENEFITS

- Professional assessment of the current conditions of TCHD facilities
- Forecast of on-going recurring equipment replacement schedules
- Data to allow TCHD to improve their method of budgeting facility needs based on actual conditions
- Ability to negotiate purchase of facilities from current owners

SCOPE ITEMS

- Comprehensive facility condition assessment of 14 buildings throughout the city of Austin
- Asses existing equipment inventory and data collection
- Recurring life-cycle replacement identification
- Collected data and costs and populated to simplified report format

WYOMING SCHOOL FACILITIES COMMISSION

KEN DARAIE, Director

1920 Thomes Avenue, Suite 200
Cheyenne, Wyoming 82002
Office (307)777-8670
Fax (307)777-8674
http://sfc.state.wy.us

October 16, 2008

Mr. Leslie ZumBrunnen, P.E.
Facility Engineering Associates, P.C.
445 Union Boulevard, Suite 120
Lakewood, Colorado 80228

SUBJECT: Letter of Recommendation

To Whom It May Concern:

In 2006, the Wyoming School Facility Commission (SFC) retained Facility Engineering Associates, P.C. (FEA) to assist us with the development of a new asset management program that would allow us to evaluate our school facilities internally as well as capture that data in a robust software application. Previous facility condition assessments of our schools had been judged to be too complex and lacking clarity, transparency, and justification in their methodology. The goal of our new asset management program was to conduct facility condition assessments and create a facility asset management plan that was rational, repeatable, recognizable, and credible.

FEA assisted us in selecting the backlog of maintenance and repair (BMAR) facility condition assessment approach to overcome the challenges of cost-effectively, consistently, and accurately assessing the conditions of our schools. A number of enhancements were made to the approach to make it more accurate and credible for the specific application to school facilities. FEA then developed field collection forms, field assessor handbooks, and the overall training program to teach SFC project managers, and qualified District personnel to use the system. Follow-up quality control site visits and annual re-calibration training sessions have been performed by FEA to provide an independent, on-going evaluation to confirm that the program meets our stated goals. While we currently use three different evaluation components to independently validate funding requests for school facility projects, this component is considered the most reliable and justifiable part of our process.

We are extremely satisfied with FEA's performance and are continuing to use them for all of our on-going needs associated with the conditions assessment program. Their staff is professional, well-trained, and a pleasure to work with. We would highly recommend them to any organization looking to establish a meaningful asset management program.

Sincerely,

Ken Daraie
Director, Wyoming School Facilities Commission

PERFORMANCE EVALUATION FORM
(Check appropriate box)

Performance Elements	Excellent	Good	Acceptable	Poor	Unacceptable
Quality of Services/ Work	X				
Timeliness of Performance	X				
Cost Control	X				
Business Relations	X				
Customer Satisfaction	X				

1. NAME & TITLE OF EVALUATOR: Colleen Coleman, Due Diligence Coordinator
2. SIGNATURE OF EVALUATOR: Colleen Coleman
3. NAME OF ORGANIZATION: LaSalle Investment Management, Inc.
4. TELEPHONE NUMBER OF EVALUATOR: 410-347-0600
5. Remarks on Excellent Performance: Provide data supporting this observation. (Continue on separate sheet if needed)
6. Remarks on unacceptable performance: Provide data supporting this observation. (Continue on separate sheet if needed)

Smithsonian Institution

Office of Facilities Management and Reliability

September 25, 2012

To Whom It May Concern:

It is my pleasure to recommend the services of Facility Engineering Associates (FEA) to you. During the past seven years, the Smithsonian's facilities team has worked directly with FEA on numerous projects. The company offers top-notch quality, service and rates. Across the board, we are always pleased with their work.

One project in particular illustrates their attention to detail and concern for quality. The Smithsonian Institution Office of Facilities Management and Reliability (SI OFMR) was in the process of implementing an automated system used to track facilities related work. A huge part of this implementation was capturing all building asset data; i.e. chillers, electrical panels. The SI OFMR did not have the in-house resources necessary to accomplish this task and decided to contract for this service. FEA was the successful bidder and could not have performed the task more professionally. They developed the documents and process for collecting the data, sent teams out to collect all of the data and worked closely with the folks in our information technology group to get the information into our system. Additionally, they developed the preventive maintenance tasks and schedules for each piece of equipment and performed a staffing analysis that matched the man-hours required to accomplish the tasks with the existing SI OFMR staff. We believe their professionalism and expansive knowledge of facilities led to the successful completion of this project.

I can confidently recommend Facility Engineering Associates as a solid and reliable company, and experts in their field.

Sincerely,

Sherell Vucci

Sherell Vucci
Associate Director, Smithsonian Institution
Office of Facilities Management and Reliability
vuccish@si.edu

National Museum of Natural History
10th & Constitution Avenue, NW
Rm. 11M – MRC 103
Washington DC 20560
202-.633-1569 Telephone
202- 633-4491 Fax

3T International, Inc.
A Management and Technology Consulting Company
www.3ti.com

Subject: Letter of Recommendation
Date: October 1, 2012

To Whom it May Concern:

In 2011, 3T International Inc. (3TI), engaged the services of Facility Engineering Associates (FEA) to assist us in the General Services Administration's (GSA) effort to standardize asset management processes throughout all GSA regions. FEA's task originally consisted of providing support to the quality assurance (QA) process of instituting a national CMMS by validating a statistical sample of the operation and maintenance contractor (O&M) provided maintainable asset inventory. It became apparent very quickly that the National CMMS Team needed more than validation services, but that they needed guidance on instituting this national asset management program. As such, FEA was tasked with providing GSA's National Core Team with their engineering and facility management expertise on: asset management, data standards, standard naming conventions, and recommendation for an asset classification system (i.e. Omniclass vs. Uniformat) for both operational and capital repair and maintenance aspects.

FEA provided the National Core Team with a recommendation for the establishment of nomenclature standards for asset management and use within a National CMMS system. The data and process standards were based on industry accepted best practices for facilities asset management. The overall objectives of the efforts are to enhance the stewardship of federal facilities. The results of this effort have prompted us to seek further assistance from FEA to provide the Core Team with professional guidance on reliability centered maintenance (RCM), preventative maintenance, and failure mode & effects analysis (FMEA).

FEA is still engaged with the QA/QC effort of GSA's asset inventory. To date, our experience with FEA's level of service is excellent. We are within budget and have met our milestones and commitments despite many obstacles.

Sincerely,

William Caver
Sr. Project Manager
3T International, Inc
william.caver@gsa.gov
213-422-0864

3T International, Inc.
A Management and Technology Consulting Company
www.3ti.com

Subject: Letter of Recommendation
Date: October 1, 2012

To Whom it May Concern:

In 2011, 3T International Inc. (3TI), engaged the services of Facility Engineering Associates (FEA) to assist us in the General Services Administration's (GSA) effort to standardize asset management processes throughout all GSA regions. FEA's task originally consisted of providing support to the quality assurance (QA) process of instituting a national CMMS by validating a statistical sample of the operation and maintenance contractor (O&M) provided maintainable asset inventory. It became apparent very quickly that the National CMMS Team needed more than validation services, but that they needed guidance on instituting this national asset management program. As such, FEA was tasked with providing GSA's National Core Team with their engineering and facility management expertise on: asset management, data standards, standard naming conventions, and recommendation for an asset classification system (i.e. Omniclass vs. Uniformat) for both operational and capital repair and maintenance aspects.

FEA provided the National Core Team with a recommendation for the establishment of nomenclature standards for asset management and use within a National CMMS system. The data and process standards were based on industry accepted best practices for facilities asset management. The overall objectives of the efforts are to enhance the stewardship of federal facilities. The results of this effort have prompted us to seek further assistance from FEA to provide the Core Team with professional guidance on reliability centered maintenance (RCM), preventative maintenance, and failure mode & effects analysis (FMEA).

FEA is still engaged with the QA/QC effort of GSA's asset inventory. To date, our experience with FEA's level of service is excellent. We are within budget and have met our milestones and commitments despite many obstacles.

Sincerely,

William Caver
Sr. Project Manager
3T International, Inc
william.caver@gsa.gov
213-422-0864

AFFIRMATIVE ACTION STATEMENT

- 1 of 4 pages -

REQUIREMENT: Any bidder or respondent to an RFQ seeking to do business with the Town of Monroe must upon request supply the Town with any information concerning the Affirmative Action/Equal Employment Practices of the respondent/bidder. Failure to supply such information, when requested, will result in the termination of any further transactions between the respondent/bidder and the Town of Monroe.

Note: All respondent/bidders with more than ten (10) employees shall be required to complete the Affirmative Action/Equal Opportunity Employment Requirements Statement on an annual basis, except as note below:

All respondents or bidders with less than ten (10) employees are exempt from this requirement;

All respondents/bidders that have completed this form within the last year;

If either of the above applies, please indicate the:

_____ number of employees
completed this form within one year
[ ]Yes [ ]No

Date completed: _____

FOR SEALED BIDS AND RFQS: All bidders submitting a sealed bid and all respondents to RFQs will be required to complete the Affirmative Action Statement. If the form has been completed in the past year, please include a copy of the initial form included with your bid. If significant changes have taken place in the past year, please update the changes on this form.

COMPANY ADDRESS: Facility Engineering Associates
12701 Fair Lakes Circle, St. 101
Fairfax, VA 22033

BUSINESS: Facility Engineering Associates

Type of Organization:
(Please check) [X] Corporation [ ] Partnership [ ] Individual

AFFIRMATIVE ACTION STATEMENT
- 2 of 4 pages -

If respondent/bidder filing this application is not the above named company, please provide the name, address, telephone and fax numbers of the reporting unit, branch agent, and representative.

EQUAL EMPLOYMENT OPPORTUNITY:
The respondent/bidder is instructed to complete the following:

Does the company have a written policy statement regarding equal employment opportunity?

[X]Yes [ ]No

(If yes, attach a copy)

In recruiting employees are all sources of recruitment notified that all qualified applicants will receive equitable consideration?

[X]Yes [ ]No

If yes, provide brief description of what methods were employed:

Verbal + written communication

3. Do all recruitment advertisements state that you are an Equal Opportunity Employer?

[X]Yes [ ]No

4. Please list by name and contact person, any local community agency or other group providing minority and female placement service, which you have contacted in the last twelve (12) months. If none, please state:

None

AFFIRMATIVE ACTION STATEMENT
- 3 of 4 pages -

If additional means are employed to advertise or solicit minority and female applicants for employment opportunities within your company, please indicate:

AFFIRMATIVE ACTION:

Does your company maintain a written Affirmative Action Plan for the employment of females and minorities?

[X]Yes [ ]No

(If yes, attach a copy)

Please indicate the name and address of the company official(s) responsible for carrying out the Equal Opportunity/Affirmative Action Program for your company:

Patty Small | Kevin O'Brien
12701 Fair Lake Circle, St. 101
Fairfax, VA 22033

8. If a written Affirmative Action for your company is not in place, please estimate the number of vacancies expected during the next twelve (12) months and indicate the numerical or percentage goals you have set for employment of minority people and females to make your labor force reflective of the labor market in which you operate.

N/A

The vendor is hereby notified that failure to complete the above form in a satisfactory manner will preclude such vendor from being actively considered to contract with the Town of Monroe. The vendor is further advised the Affirmative Action Statement included with the bid document will become part of the contract and that any breach of such statements will constitute a breach of contract subject to such remedies as provided by law.

AFFIRMATIVE ACTION STATEMENT
- 4 of 4 pages -

I certify that there are no misrepresentations, omissions or falsifications in the foregoing statements and answers and that all entries above are true, complete and correct, to the best of my knowledge and belief.

Government Business Manager

Date Signature of Agent Title

Subscribed and sworn before me at Facility Engineering Associates PC

County of Fairfax, ~~Connecticut~~, Virginia

This 25th day of March, 2013.

Notary Public

My commission expires: May 31, 2015
Date

Kevin Anthony O'Brien
NOTARY PUBLIC
Commonwealth of Virginia
Reg. #7509735
My Commission Expires
May 31, 2015

103 Equal Employment Opportunity and Affirmative Action

Facility Engineering Associates (FEA) is committed to providing equal employment opportunity to all qualified persons regardless of race, color, religion, sex (except where sex is a bona fida occupational qualification within the meaning of federal law), national origin, physical or mental disability, or status as a Vietnam era or qualified special disabled veteran or any other status or category protected by local, state, or federal law. All employment and personnel policies and practices -- from recruiting, to hiring, promotions, reassignments, transfers, Company-sponsored training, compensation, benefits, leave, layoffs and recalls, terminations, social and recreation programs, and tuition assistance – will be administered according to these EEO principles.

As a government contractor, FEA is also committed to complying with all federal requirements with respect to affirmative action, including, but not limited to, recruiting, employing, and advancing women, minorities, qualified individuals with physical and mental impairments, and Vietnam era and qualified special disabled veterans.

Effective implementation and continuing administration of this policy will be the direct responsibility of this office. FEA's Payroll and Benefits Administrator, has been designated to administer FEA's affirmative action program. The Payroll and Benefits Administrator will monitor the program and make reports on a periodic and continuing basis to senior management. The Payroll and Benefits Administrator will also ensure that the coordination, direction, and review of equal employment policies, practices, and programs are accomplished.

All supervisory personnel should make special efforts to assure that all employees reporting to them understand and effectively implement this policy. Supervisory employees will be evaluated on their adherence and commitment to this policy.

FEA does not condone and will not tolerate harassment of any employee placed through our affirmative action efforts. In addition, it is a violation of this policy for any employee to engage in sexual harassment. Complaints of harassment should be brought to the Payroll and Benefits Administrator's attention, without fear of reprisal or retaliation, so that an internal investigation may be undertaken. FEA prohibits its employee from retaliating against any employee who brings a complaint or participates in the investigation of a complaint. Employees who have committed harassment or retaliation in violation of this policy shall be subject to discipline, which can include immediate termination.

It is the responsibility of each and every FEA employee to give full force and effect to FEA's EEO/Affirmative Action Policy.

Equal Employment Opportunity

In order to provide equal employment and advancement opportunities to all individuals, employment decisions at FEA will be based on merit, qualifications, and abilities. FEA does not discriminate in employment opportunities or practices on the basis of race, color, religion, sex, national origin, age, disability, or any other characteristic protected by law.

This policy governs all aspects of employment, including selection, job assignment, compensation, discipline, termination, and access to benefits and training.

Any employees with questions or concerns about any type of discrimination in the workplace are encouraged to bring these issues to the attention of their supervisor, an Associate, a Principal, or HR. Employees can raise concerns and make reports without fear of reprisal. Anyone found to be engaging in any type of unlawful discrimination will be subject to disciplinary action, up to and including termination of employment.

AFFIRMATIVE ACTION PLAN

FOR MINORITIES & WOMEN

Facility Engineering Associates, P.C.

Fairfax, VA

July 1, 2012 through June 30, 2013

Kevin A. O'Brien
Treasurer

Patricia L. Small
Affirmative Action Officer

AFFIRMATIVE ACTION PLAN

FOR VETERANS AND

INDIVIDUALS WITH DISABILITIES

Facility Engineering Associates, P.C.

Fairfax, VA

July 1, 2012 through June 30, 2013

Kevin A. O'Brien
Treasurer

Patricia L. Small
Affirmative Action Officer

Statement of Policy

41 C.F.R. 60-741.44(a), - 300.44(a)

It is the policy of Facility Engineering Associates, P.C. not to discriminate on the basis of a physical or mental disability or an individual's status as a Covered Veteran with regard to recruitment or recruitment advertising, hiring, training, promotion, and other terms and conditions of employment, provided the individual is qualified, with or without reasonable accommodations, to perform the essential functions of the job. The Company does and will take affirmative action to employ, advance in employment, and otherwise treat qualified individuals with disabilities and Covered Veterans without discrimination based upon their physical or mental disability, or veterans' status, in all employment practices as follows:

Employment decisions at the Company are based only on job-related criteria. All personnel actions or programs that affect qualified individuals with disabilities or Covered Veterans, such as employment, upgrading, demotion or transfer, recruitment, advertising, termination, rate of pay or other forms of compensation, and selection for training, will be made without discrimination based upon the individual's physical or mental disability or veterans' status.

The Company makes, and will continue to make, reasonable accommodations to promote the employment of qualified individuals with disabilities and disabled veterans, unless such accommodations would impose an undue hardship on the Company's business.

Patricia L. Small, Affirmative Action Officer for the Company, will manage Facility Engineering Associates, P.C.'s AAP for individuals with disabilities and Covered Veterans. The AAP includes an audit and reporting system, which, among other things, measures the effectiveness of the AAP. All managers and supervisors will take an active part in the Company's AAP to ensure that all qualified employees with disabilities and Covered Veterans and prospective employees are considered and treated in a non-discriminatory manner with respect to all employment decisions. Furthermore, Facility Engineering Associates, P.C. will solicit the cooperation and support of all employees for the Company's policy and AAP. The Affirmative Action Officer has been assigned responsibility for periodically reviewing progress in the compliance and implementation of the policy of affirmative action for individuals with disabilities and Covered Veterans. In accordance with public law, the Company's plan of affirmative action for individuals with disabilities and Covered Veterans is available for inspection in the Human Resources Department Monday through Friday, 9:00 AM to 5:00 PM, upon request.

In addition, employees and applicants will not be subjected to harassment, intimidation, threats, coercion, or discrimination because they have engaged in, or may have engaged in, activities such as filing a complaint, assisting or participating in an investigation, compliance review or hearing, or opposing any act or practice made unlawful, or exercising any other right protected by Section 503 of the Rehabilitation Act of 1973, as amended or the Vietnam Era Veterans Readjustment Assistance Act of 1974, as amended.

Kevin A. O'Brien,
Treasurer

July 01, 2012

Responsibility for Implementation

41 C.F.R. 60-741.44(i), 41 C.F.R. 60-300.44(i)

.ffirmative action for individuals with disabilities and Covered Veterans is the responsibility of every employee at Facility Engineering Associates, P.C.. Patricia L. Small, the Company's Affirmative Action Officer, is responsible for the implementation and monitoring of this AAP at the Company. Patricia L. Small, has the support and staff to manage the implementation of this Plan. In carrying out this responsibility, the Affirmative Action Officer and designated staff will:

- Develop policy statements, AAPs, and internal and external modes of communication,
- Oversee regular discussions with local managers, supervisors, and employees to ensure that the Company's policies are being followed;
- Advise supervisors that their work performance is being evaluated on the basis of their affirmative action efforts and results, as well as other criteria, and that the Company is obligated to prevent harassment of employees placed through affirmative action efforts;
- Identify, in conjunction with line management, known employees with disabilities and Covered Veterans and any problem areas in implementing the AAP, and develop solutions, including possible modes of accommodation;
- Design and implement internal audit and reporting systems that will measure the effectiveness of the Company's Plan, indicate the need for remedial action, determine the degree to which the Company's objectives have been attained, determine whether known employees with disabilities and Covered Veterans have had the opportunity to participate in all Company-sponsored educational, training, recreational, and social activities, and ensure that each Company location is in compliance with applicable laws and regulations;
- Serve as liaison between the Company and enforcement agencies, and between the Company and organizations of and for persons with disabilities, and encourage active involvement by Company representatives in the community service programs of local organizations of and for individuals with disabilities and Covered Veterans,
- Keep management informed of the latest developments in the entire affirmative action area,
- Arrange for career counseling for known employees with disabilities and Covered Veterans, where appropriate.

VII. AFFIDAVITS AND FEE PROPOSAL FORM

NON-COLLUSIVE / NON-CONFLICT AFFIDAVIT OF RESPONDENTS

FOR: RFQ #2-2013-FACILITIES CONDITION ASSESSMENT

The undersigned Respondent, having fully informed themselves regarding the accuracy of the statements made herein certifies that;

1. The statement of qualifications has been submitted without collusion with, and without any agreement, understanding, or planned common course of action with any other respondent designed to limit independent responses or competition, and
2. If the undersigned is one of the Respondents selected to be interviewed and to submit a written proposal, the contents of such proposal will not be communicated by the Respondent and its employees or agents to any person not an employee or agent of the respondent prior to submission to the ADFC.
3. No Selectman, ADFC member or other employee or person whose salary is payable in whole or in part from the Town of Monroe OR Board of Education, nor any immediate family member thereof, is directly or indirectly interested in the Bid/Proposal, or in the supplies, materials, equipment, work or labor to which it relates, or in any profits thereof.
4. He/she has read the Monroe Code of Ethics set forth in the Town Code , which is accessible on the Town website and he/she agrees for himself/herself and on behalf of the company/LLC to comply with the same.

The undersigned further certifies that this statement is executed for the purpose of inducing the Town of Monroe to consider the statement of qualifications submitted herein.

Legal Name of Respondent: Scott Higgins

Business Name: Facility Engineering Associates

Business Address: 12701 Fair Lakes Circle, St. 101
Fairfax, VA 22033

PE

Signature and Title of Person

State of ~~Connecticut~~ Virginia S.S. County of Fairfax

Subscribed and sworn before me this 25th day of March, 2013.

My Commission Expires May 31, 2015

Notary Public Date

Kevin Anthony O'Brien
NOTARY PUBLIC
Commonwealth of Virginia
Reg. #7509735
My Commission Expires
May 31, 2015

Management Plan

For this project, FEA has assembled a uniquely qualified team of facilities experts who can thoroughly analyze the condition of existing facilities and then suggest and manage the repair, maintenance and even the replacement of facilities.

Unless organizations periodically renew and upgrade their assets, their ability to provide services declines. The underlying forces driving this need for renewal and improvement include:

- A Changing World. There is a continuing need to adapt buildings to properly support new social norms, programs, standards of living, a growing community and technologies.
- Building Component and Equipment Obsolescence. The average age of a square foot of facilities are quickly reaching the end of their originally intended life. While proper maintenance minimizes the rate of deterioration, sooner or later everything wears out, and deteriorated assets must be renewed or replaced.
- New Fire Safety, Security and Health Codes. Over the past few decades, a number of regulatory requirements have been promulgated to reduce or eliminate risk hazards and safeguard the public welfare.

To better manage this increasingly complex puzzle, we recommend that the Town of Monroe adopt a Facility Condition Assessment (FCA) Program, the objective of which is to compile a comprehensive database on the physical condition of the building portfolio. The survey and database address the condition of most major building components and systems, including architectural, structural, civil, mechanical, electrical, life safety and fire protection, environmental health, and building accessibility.

Deficiencies and anticipated needs should be listed in a database as independent projects and assigned a priority, budget, and classification. Hidden costs related to the presence of environmental hazards (asbestos and lead-based paint) should also be considered. We recommend also including the cost of reconfiguring existing facilities rather than just repair by replacement.

The building condition and cost data are intended to serve the town by: (1) identifying near-term needs to maintain standards and assure the service integrity of aging systems and building components, and (2) providing an information base to support the growth of the town as it supports a growing community.

We recommend adopting a FCA program to identify deferred maintenance backlog and develop tools for prioritization. We will conduct surveys of your buildings and build a database to compile projects that address every identified deficiency. Our program will be a powerful tool utilized by the town employees. Our applications include tools for:

- Maintenance and operations decisions regarding repairs & replacements,
- Prioritizing our deferred maintenance backlog & setting short & long term goals,
- Long term planning of major building component replacements,
- Capital planning of major renovations,
- Five-year budget models to match funding levels with established goals.

Users of these tools can include operations & maintenance staff, architects, engineers & planners, safety, health & risk management departments, and city administrators.

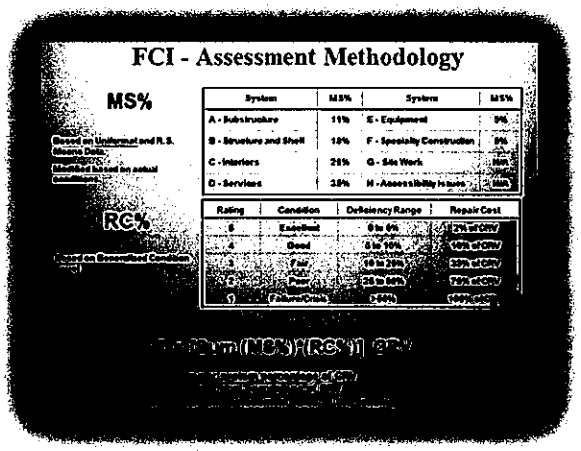
Facility Engineering Associates (FEA) provides an array of services to assist building owners, managers, and tenants manage their facilities more efficiently. Our services range from management and technology consulting services to condition assessments, real estate due diligence evaluations, asset management services, and capital needs analyses. FEA's staff consists of registered professional engineers, facility and infrastructure management professionals, and professionals versed in engineering and management disciplines. FEA draws on the experience of several senior staff members who have built a career in civil design and maintenance, managed facilities and coordinated facility organizational assessments. FEA's senior FM consultants are also leaders in the industry, teaching facility management courses for, IFMA, APPA, and in the FM certification program at George Mason University. We work with clients ranging from commercial real estate owners and managers to homeowners associations and residential property managers; federal, state, and local government agencies; schools and universities, both private and public; and specialized facilities such as airports and research laboratories.

FEA has provided facility asset management and condition assessment consulting services to higher education, government, commercial, and healthcare clients nationwide. The following table illustrates the range of our experience not only in facility condition assessment but also many other consulting activities that intersect and affect assessment methodologies. Facility condition assessment (FCA) methodologies are only as useful as their application. These methods can serve vastly different purposes; from identifying specific projects and replacements or providing a resource allocation protocol at a high level. The former method is very granular and detailed enough to formulate replacement projects for specific components. The latter method provides a general condition rating that can be suitable for planning and allocation of funding at the administration level without specifying individual projects.

Understanding the use of a FCA program requires a knowledge of who the stakeholders in the organization are and their needs relative to condition assessment information.

Project	Location	Project Year	Facility Condition Assessment	Asset Management Consulting	Asset Management Software	Facility Maintenance Planning	Organizational Assessment	Labor Needs Analysis	Facilities Operations Plan Development	Benchmarking	Training	Process Development
National Park Service Comprehensive Condition Assessments	Nationwide	2004-Present	✓	✓	✓	✓						
Smithsonian Facilities Management Integration Project	Washington, DC	2005 - Present	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
State of Minnesota	Statewide	2012-Present	✓	✓							✓	✓
American University: FM Consulting & Implementation	Washington, DC	2005		✓		✓	✓					✓
Mecklenburg County: Building Maintenance & Grounds Management Study	Mecklenburg County, NC	2005		✓		✓	✓					✓
City of Winston Salem Maintenance & Operations Asset Management	Winston-Salem, NC	2006		✓	✓			✓		✓		
Wyoming School Facilities Commission Process Development and QA	Statewide, Wyoming	2006-Present	✓	✓	✓						✓	✓
Berea College	Berea, KY	2003-2012	✓	✓	✓							
Howard County Public School Systems FCA and FM Asset Management	Howard County, MD	2007-2012	✓	✓	✓		✓			✓		
University of Tennessee	Knoxville, TN	2010		✓	✓		✓					✓
City of Woodland FCA & Facilities Maintenance Plan	Woodlawn, CA	2009	✓	✓			✓	✓	✓			
GSA CMMS & Asset Management Consulting	Nationwide	2011-Present		✓	✓	✓						✓
Department of State OBO - FMEAP Program	South America	2012	✓	✓			✓			✓		✓

FEA has performed condition assessment services for the National Park Service since 2004 and during that time, we have assessed assets in over 60 parks nationwide.



FEA recently completed a state-wide assessment of the K-12 public schools throughout the state of Wyoming. This is a relationship that began in 2004 when the state schools commission was court ordered to change their existing assessment system.

FEA is currently working for the state of Minnesota to develop an assessment methodology for their state-owned facilities.

FEA has worked with the Smithsonian Institution for many years in various capacities. Most recently FEA has completed six phases of a project to develop the training program and complete a pilot training program of senior leaders of OFMR. The goals of the training program were:

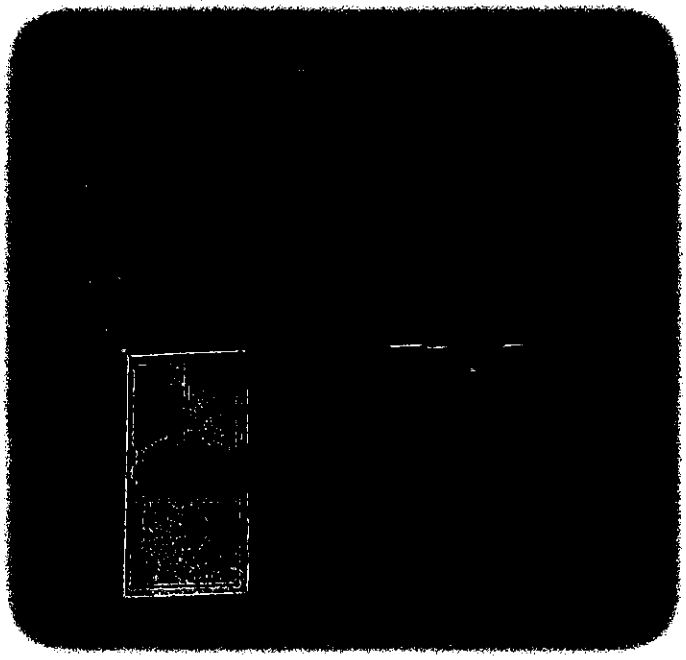
- Understanding the importance of OFMR processes.
- Generating consistent use of Facility Center.
- Providing accurate data to enhance facility decisions.
- Creating confidence in Facility Center generated performance metrics.

Various curricula were developed to train individuals:

- Craftsmen / USROs / SED Technicians
- Work Control Center Operators
- Supervisors, Building, and Assistant Building Managers
- Work Control Coordinators
- Administrative Staff and Customer Service Representatives

FEA's mission is to provide our clients with tools to help extend the service life of existing facilities and building systems. To us that means providing innovative solutions to complex problems. As an example of this, our building repair & restoration services have developed a method of using laser

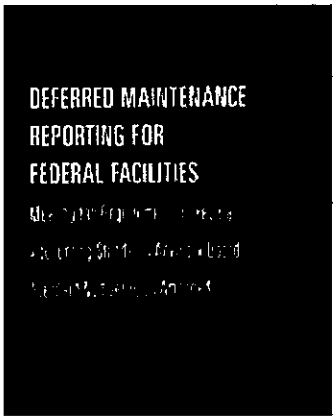
scanning as a technique to aid in the visual inspection of building facades. In many instances, the accuracy of visual inspections is dependent on the experience level of the personnel performing the work, access to the façade, the ability to get close, and even the time of day and lighting. Laser scanning offers a methodology for quantifying what can be seen and providing complete access to the façade with 3-dimensional positioning.



Shown is a point cloud coloration that represents deviation from a chosen vertical surface. The façade on the left is shown in both digital photography and point cloud representation. The "orange" color is depicting a portion of the façade just below the parapet wall that has detached from the structural frame of the building. This is an area not easily distinguished with a traditional visual survey.

Accurately depicting a problem of façade detachment using techniques such as laser scanning translates into savings to the facility owner related to fixing only what is needed when it is needed.

Available Assessment Methodologies



FASAB Standard Number 6, as amended, specifies two methods that can be used to calculate deferred maintenance for all classes of property, plant, and equipment (PP&E): ***condition assessment surveys*** or a ***total life-cycle cost method.*** The FCA method typically consists of performing periodic inspections of PP&E to determine current conditions and estimate costs to correct deficiencies. FCA surveys become an effective approach when standards and protocols are established to result in objective, repeatable and verifiable results. Life cycle analysis (LCA) is an approach that considers the acquisition/installation cost of an asset and evaluates future replacement costs based on its age in relation to a specified design life or expected useful service life. LCAs are typically used to calculate

capital renewal (recapitalization) costs.

Within the FCA methodologies, FEA has used both the objective approach methodologies which utilize software applications (proprietary or otherwise) that not only manage the inventory and condition data, but also evaluate and prioritize the data to provide decision-support information based upon mathematical algorithms, historic deterioration curves and institutional parameters. FEA has also used subjective methods which are based on field observation by discipline experts who evaluate and rate the conditions observed and estimate the remaining useful life. Database software applications are used to store and manage the data and generate reports.

FEA has also used LCA as a methodology for assessments. With life-cycle cost methods, organizations can project peaks and valleys of future maintenance needs and spending as well as an overall funding level required to sustain buildings through their life cycle. The data also allows managers to determine when to evaluate the optimal time to replace components. Cycles of replacements of components provide a long-term view of the needs and potential spending.

FEA's Experience with FCA/LCA Best Practices

FEA has experience not only conducting facility condition assessments on millions of square feet of facilities, but in evaluating, selecting and implementing the most appropriate FCA/LCA methodologies for specific facilities organizations. FCA/LCA methodologies vary with facility types and missions of the organizations that use them. Some of the key factors in the selection of the best approach include:

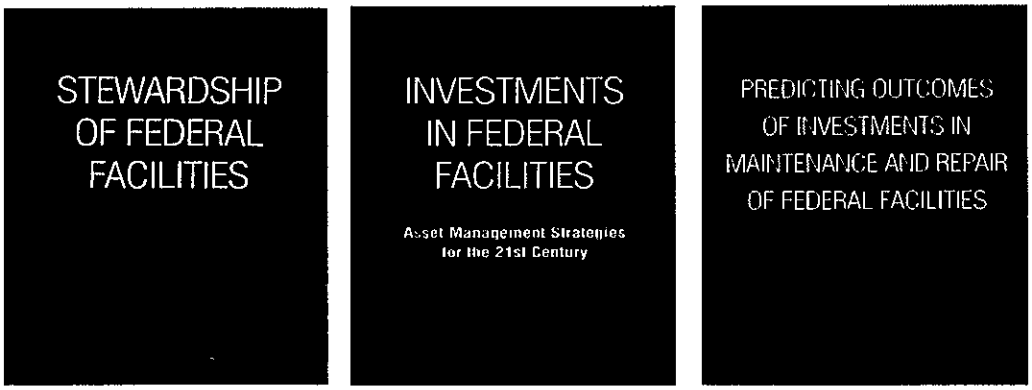
- Simple and rational algorithms used in the approach
- Widespread acceptance and use of the approach by public agencies
- Recognition of the approach as a best practice
- Cost effectiveness of the approach for the quantity of facilities
- Ease in tailoring the approach to meet the specific needs of the organization/agency
- Ability to generate accurate and repeatable results

FEA has worked with government agencies and institutions to evaluate methods to overcome the challenges of cost-effectively, consistently, and accurately assessing the conditions of varying complexities of facilities. The goal of our asset management programs is to conduct facility condition assessments and create a facility asset management plan that is:

- Rational
- Repeatable
- Recognizable
- Credible

Public agencies and private institutions have struggled to develop effective and efficient approaches to produce accurate facility condition assessments and estimates of deferred maintenance backlogs. Studies by the Federal Facilities Council (FFC) and others concluded that some comprehensive

methods were not cost-effective and described several efforts to devise alternative approaches. Alternative methods can provide cost-effective, auditable, consistent, and accurate results by providing assessments at the building system level using generalized condition ratings.



The National Research Council has provided comprehensive summaries of the best practices related to asset management of federal facilities that are applicable to institutes of higher education. There are specific key components in common to successful FCAs/LCAs independent of the approach selected. In our experience, best practices include using a rational approach based on accepted industry standards to generate repeatable and credible results. A summary of key components of adequate FCA/LCA methods and how they enable organizations to achieve its goals for assessing facilities is presented as follows:

- **Rational** – ***Reasonable, logical, sound, justifiable***
  - Streamlined systematic approach
  - Uses industry standards (e.g., RS Means)
  - Building systems (e.g., CSI Uniformat II)
  - Standard building assembly cost data
  - Based on Deferred Maintenance calculations
  - Meets GASB 34 Requirements
  - Calculates Facility Condition Index
  - Validates CIP Budgets
- **Repeatable** – ***Consistent, calibrated, reproducible***
  - Calibrated visual assessments
  - Use of calibrated life-cycle degradation curves
  - Standard condition ratings
  - Independent and trained assessors
  - Consistent algorithms by facility type
  - Industry standard FCI calculations
  - FCA Field Manuals

- **Recognizable – *Identifiable, industry standard, simple***
  - APPA/IFMA industry standard indexes
  - Accepted government DM Modeling
  - DM and PACES Modeling
  - Parametric Estimates
  - Simplified CRV extrapolation
  - NIST/ASTM Uniformat Standard Building System Classifications
  - RS Means Cost Data
- **Credible – *Believable, convincing, reliable, trustworthy***
  - GAO FRP assessment standards
  - Meets FASAB No. 6 requirements
  - Follows FFC DM Reporting Report #141 standards
  - Government accepted methodology
  - Independent and unbiased analyses
  - GASB 34 Requirements
  - Independent and unbiased Analyses

Project Approach

It appears that the Town of Monroe is seeking assistance from a consultant to aid in the development of a standard, self-maintained, facility condition assessment (FCA) process, including reporting and measurement that will result in a consistent, accurate, and real time information regarding the condition of real property.

The cost effective process for collecting FCA data must include best practices, definition of standard data elements and reporting, as well as the minimum qualifications for those performing FCAs. In addition, the process should be incorporated into the Town's FCA application either through direct entry or through direct upload into the database. It is FEA's goal to share assessment information with the existing maintenance management database without the use of proprietary assessment software.

In order to achieve the goal for a standardized process to conduct condition assessments, FEA would perform the following general tasks:

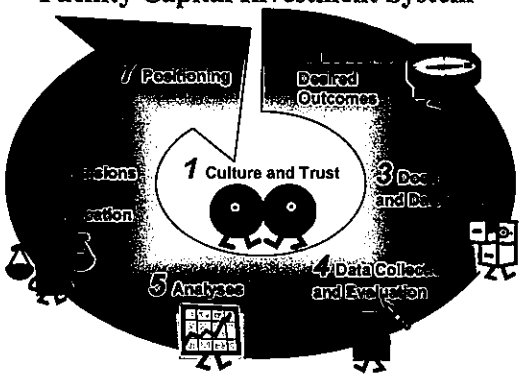
- Interview a representative cross section of key stakeholders currently utilizing FCA data to understand current processes, specific requirements, and best practices.
- Develop an objective methodology and recommend industry standard tools for conducting FCAs.
- Provide options for accomplishing FCA's internally or soliciting outside consultants.
- Develop and provide qualifications of assessors.
- Provide training material on recommended FCA process.

- Deliver final written report that includes analyses, methodologies, options, process flow diagrams, training materials, field assessment forms, and procedures for data upload.

Building the Business Case for Facility Capital Investment

One of the most daunting challenges a facility manager faces is to develop a credible and justifiable capital plan for their facilities. Whether it is an annual capital budget, 5-year plan or longer-term capital expenditure forecast, the process usually creates anxiety at the eleventh hour. Prioritizing the needs, justifying the funds and selling the plan to senior management is another story altogether. Even today, we frequently find that the most common practice is to ask internal facilities staff for a laundry list of deferred maintenance projects to be compiled into a "wish list", without consideration to several key factors. Facility investment decisions must consider organization culture, the potential for a change of mission at a facility, temporary displacement costs associated with renovations, desired outcomes, and take a holistic perspective (i.e., life cycle approach) to drive sound facility asset management decisions.

Facility Capital Investment System



Systems Approach to Facility Capital Investment Planning

The goal of the FEA approach is to help the Town of Monroe overcome the traditional stumbling blocks and implement a process to create a credible, justifiable and realistic assessment methodology that provides basis for facility capital needs planning, and to position the plan to acquire needed funding. The foundation of this approach requires understanding the culture and true needs of the organization, as well as establishing a level of trust.

The first and last two steps of this process are absolutely critical to success, yet almost never receive adequate attention. The value of the intermediate steps of conducting facility condition assessments, life cycle analyses, or internal facility audits is greatly diminished if you don't know where you need to go and how to get there. The systems approach forms the basis for all of our FCA approaches and foundation for asset management plans.

Methodology

We propose three goals for the project. The first goal is to develop a long-term assessment strategy that meets the needs of the various stakeholders. We have interpreted this to mean that the assessment strategy should not only define deferred maintenance expenditures but also incorporate enough flexibility to accommodate capital planning needs and assist with futue maintenance. The second goal is to develop standardized procedures that can be utilized by other assessors to obtain the required information and are compatible with data management software in use by the Town of Monroe. The third goal is to complete an initial round of assessments for the buildings specified in the RFP.

In the development of an appropriate methodology for the assessment of the Town's Facilities, FEA would suggest a parametric approach to identify deferred maintenance. This method was originally developed by the National Aeronautics and Space Administration (NASA). The method was called the Backlog of Maintenance and Repair (BMAR) method and is based on using parametric estimates to produce a macro-level of deferred maintenance. This approach requires a facility walk-through by personnel knowledgeable in evaluating building system conditions. Generalized condition levels of major systems, from new (5) to not operational or unsafe (1), are determined and repair costs developed based on a percentage of the current replacement value (CRV).

MS%

Based on Uniformat and R.S. Means Data. Modified based on actual conditions.

System	MS%	System	MS%
A Substructure	11%	E Equipment	5%
B Structure and Shell	18%	F Specialty Construction	5%
C Interiors	26%	G Site Work	N/A
D Services	35%	H Accessibility Issues	N/A

RC%

Based on Generalized Condition Level

Rating	Condition	Repair Cost
5	Excellent	2% of CRV
4	Good	10% of CRV
3	Fair	33% of CRV
2	Poor	75% of CRV
1	Failure/Crisis	100% of CRV

BMAR = [Sum (MS%)*(RC%)] CRV

- MS% = major system percentage of CRV
- RC% = repair cost percentage of CRV
- CRV = current replacement value of the building

When the assessments are complete, the ratings are entered into a database where the parametric model converts the assessed condition ratings to a set of key metrics. The key metrics include: Deferred Maintenance (DM) costs, System Condition Index (SCI), Facility Condition Needs Index (FCNI), and the Facility Condition Index (FCI).

The previous figure demonstrates a simple assessment algorithm. The cost of replacing each major system in a building is a percentage of the current replacement value (CRV) of the building. The major system replacement percentage (MS%) is based on R.S. Means Square Foot Assembly Cost Data categorized by UniFormat™ classification. Repair cost percentages (RC%) is estimated based on experience and historical data for repairing and replacing systems based on condition. The

Deferred Maintenance (DM) costs, System Condition Index (SCI), Facility Condition Needs Index (FCNI), and the Facility Condition Index (FCI).

The previous figure demonstrates a simple assessment algorithm. The cost of replacing each major system in a building is a percentage of the current replacement value (CRV) of the building. The major system replacement percentage (MS%) is based on R.S. Means Square Foot Assembly Cost Data categorized by UniFormat™ classification. Repair cost percentages (RC%) is estimated based on experience and historical data for repairing and replacing systems based on condition. The BMAR deferred maintenance cost estimate is equal to the product of the MS%, the RC%, and the CRV for each building.

The primary assumptions dictating the accuracy of the DM cost estimates include the actual costs of the building systems (or MS% times CRV) and the estimate of repair cost percentages (RC%). RC% is based on practical experience with objective life-cycle analyses and system degradation curves for use in engineered management systems. The values for MS% have typically been based on the Parametric Cost Estimating System (PACES) developed by the U. S. Army Corps of Engineers for 42 types of facilities. This is a reasonable approach when evaluating various types of facilities such as academic buildings with specific types of construction associated with the facility.

To increase consistency of the RC%, a detailed Field Guide would be developed for use by the assessors. The Field Guide would provide specific protocols for evaluating each system including criteria such as age, maintenance history, performance, etc. For an effort the size of this one, we will likely adapt an existing field guide created for a larger effort.

The field assessors will be trained in the use of the Field Guide. Field assessors could be university staff or outside building assessors. For this type of assessment, a general knowledge of buildings and building systems is required. In either case, strict adherence to the assessment protocols is essential. A trial assessment is conducted and assessment procedures and scores are discussed to develop a consistency among all the assessors. During the course of the assessment, quality assurance assessments should be performed to verify procedures and consistency of scoring.

Data management is a critical aspect of the success of the methodology. We will develop data standards and develop spreadsheets with mapping to the appropriate database locations. In the past, we have prepared electronic field assessment forms that force specific data input (scoring) into pre-determine fields for transfer to the database.

Comprehensive Facility Condition Assessment (FCA) methods typically consist of performing detailed inspections of property, plant and equipment to determine current conditions and estimate costs to correct deficiencies. Life-Cycle Analysis (LCA) is an approach that considers the acquisition/installation cost of an asset and evaluates future replacement costs based on its age in relation to a specified design life or expected useful service life. LCAs are typically used to calculate capital renewal (recapitalization) costs.

FCAs are generally more labor intensive and require more on-site evaluation of existing building and **system** conditions. LCAs are more data intensive, but require less field evaluation and can generally be accomplished more cost-effectively. Used together, as proposed here for the Town of Monroe, FCAs and LCAs can provide an accurate short- and long-term projection of anticipated capital expenditures. For larger facilities, parametric evaluations of an unbiased sample set of facilities can be used to accurately estimate facility capital investment requirements for a fraction of the cost of FCA/LCA methods. The only drawback of the parametric estimation methods is a lack of specific project needs for buildings and systems.

We have proposed a methodology for the Town of Monroe that uses a mixture of these methods to accommodate the need for identifying deferred maintenance and long-term capital planning.

Schedule

Based on our experience (several hundred schools), facility condition assessments should take about one day per school. As for the town buildings, we expect they will take about the same time per building (averaged) so we anticipate it will take about 2 weeks for the 16 buildings.

Overall, we anticipate it will take us three months for all the phases.

- Phase 1: Project Set-up, Kick-Off, and FCA Survey (1 Month)
- Phase 2: Draft Development, Analysis, Reporting (1 Month)
- Phases 3 – 4: Finalize Reports and Data (1 Month)

This also allows for interaction and feedback from the Town at each phase.

Data Management and Reports

In the sections above, we provided examples of our reports. It is worth mentioning, that FEA is not committed to one particular facility assessment software program and will not be providing one as a base requirement for this contract. Separate arrangements for the purchase of a specific software system may be made post award.. For example, we routinely manage our data submissions to integrate with Archibus and AiM. Additionally, we can support Builder and FCAP systems too (military applications). Example copies of data spreadsheets are included in Tab 8 and are in an Excel format.

Demographics

ProximityOne has provided a few notes based on an initial review of the 2010 Plan of Conservation and Development:

- Section 4, vicinity page 71-78 :
    - The projections referenced on pages 77-78 are from the CT SDC. Mr. Glimpse developed the Census Bureau SDC when he was with Census Bureau.

  - ProximityOne proposes that they would use thier own current estimates and projections rather than those developed by others; but reference others and why they might differ.
- Section 5 housing could benefit from census tract analyses, integrated model-wise, with sections 4, 6, and 7.
- Section 6 employment data also needs census tract level analyses and integrated modeling tied together with Sections 4, 5, and 7. He recommends using a holistic model simultaneously determining employment, establishments and earnings. Additionally, a revenue generation should also be model based and provide forecasts based on alternative scenarios. Our proposal provides the Town of Monroe with an option to use the modeler software and database on their computers (resulting in more than just a study).
- Section 7 & 8 could have a holistic model simultaneously all demographic-economic items.
- Section 11 schools could be a part of holistic system; examining how enrollment will change in K-12 and tied into the future; enabling assessment of how alternative policies and circumstances might affect education.

William W. Small, PE, PMP
Vice President

Years with FEA: 19
Total years of experience: 26

Education:
Bachelor of Science / Civil and Environmental Engineering

Registrations:
Professional Engineer / VA, NJ, PA
Project Management Professional

Qualifications and Experience:
Bill Small is a program manager for large projects at FEA and is experienced with the full range of building materials and systems. He has performed the field investigations, analyses and follow-up recommendations, and designs for various clients nationwide. Bill is an Associate of FEA and is currently FEA's Vice President of Operations. Prior to FEA, Bill was employed for over five years in the office of Andrew F. Anderson, Inc., Structural Engineer, and with Law Engineering in Chantilly, VA. His duties included testing, investigation, design, preparation of construction documents, and construction inspection. He has extensive experience evaluating the adequacy of structural decks and structural framing.

Bill's structural design responsibilities, for preliminary through final design, have included preparing plans, specifications, design notes and calculations, coordination of structural design drawing with architectural, MEP, civil and site drawings, shop drawing review, and field review of ongoing construction. Building structures ranged in size up to multi-story institutional facilities. Bill has spent a considerable amount of his career performing forensic studies of various facilities to determine modes of failure and applicable remedial measures.

Recent and Relevant Project Experience:
Virginia Tech Consulting, Steele's Tavern, VA
Associate-in-Charge. Assessment and stabilization of the McCormick Farm barn is one of the many efforts undertaken by FEA as part of the engineering term contract held with Virginia Tech University. This project involved an initial condition assessment with a report of findings and recommendations for repair and preservation of this historic structure. A major realignment and stabilization effort was initiated which incorporated the use of real-time data recovery during the preservation process. Bill worked with the client to develop an approach to allow the structure to be stabilized prior to restoration rather than it being destroyed. Bill also worked on the condition assessment of several other buildings, each exhibiting conditions requiring immediate follow-on design and repair. Some of the repairs included: supplemental framing and bracing of an wood roof structure in an altered historic building; masonry and precast repair and stabilization as a result of dislodged and fallen

façade elements; repair of deteriorated wood columns at an historic building entrance canopy.

Episcopal High School Condition Assessment, Alexandria, VA
Project Manager. Project included assessment of physical conditions of and accessibility issues for various academic, administration, and residential buildings on this private high school campus. Assessment data was input into FEA's IFMIS condition assessment software, which was installed on campus for their continued use for on-going project tracking and annual financial budget planning.

The Community College of Baltimore County Condition Assessment, Baltimore, MD
Associate-in-Charge. Project involved facility condition assessment of facilities located on various campuses of the Community College of Baltimore County. The project required documenting building system conditions and replacement costs, identifying deficiencies, and providing opinions of costs for addressing observed deficiencies.

National Park Service Comprehensive Condition Assessment (CAC), Nationwide, United States
Program Manager. Served as FEA's Program Manager for National Park Service work since 2004. In the first 5 years of this work, the project has involved facility condition assessment of buildings and utility systems owned and maintained by the National Park Service at over 60 national and historic parks, monuments, recreational areas, etc. located throughout the United States. The assessments have included over 900 building/residential assets and over 300 utility systems. The project required collecting real property inventory data, documenting building and equipment assets and their replacement costs, identifying deficiencies and estimating deficiency repair costs, and establishing routine maintenance activities and costs. Bill has also served as program manager for two CAC pilot study task orders for Underground Utilities and Unique assets. This work involved the full CAC scope in addition to reviewing and recommending changes/improvements to business practices, maintenance practices, inspection guidance, and CAC contracting methods related to these new asset types.

Wyoming School District Condition Assessment, Statewide, WY
Project Consultant. The Wyoming Schools Facilities Commission required the creation and implementation of a plan to assess all schools in the state of Wyoming (23 million square feet). In conjunction with the assessment, they required the development of a prioritization asset management program that would be defensible under court order from the Supreme Court of Wyoming and could be put in place in less than six months. The condition of school facilities was assessed statewide using commission personnel trained by FEA. Bill contributed to initial evaluation criteria and third-party review/validation of the commission's assessments.

Montgomery County Parks Condition Assessment, Montgomery County, MD
Program Manager. Project involved facility condition assessment of various facility groups owned, managed and maintained by the Montgomery County Department of Parks. The facility groups assessed have included buildings, playgrounds and trails throughout Montgomery County, Maryland. The project required collecting real property inventory data, documenting building and equipment assets and their replacement costs, identifying deficiencies and estimating deficiency repair costs, and establishing routine maintenance activities and costs.

Reserve Officers Association, Washington, DC
Associate-in-Charge. Project involved facility condition assessment of the Reserve Officers Association's office building located in Washington, DC. The project required documenting building system conditions and replacement costs, identifying deficiencies, and providing opinions of costs to address the deficiencies. Follow-on services included evaluation and design of structural reinforcement of lobby floor and design and monitoring of asbestos abatement program as part of a complete building renovation.

FEA FACILITY ENGINEERING ASSOCIATES

Laurie A. Gilmer, PE, CFM, SFP, LEED AP, CxA

Vice President and Associate

Years with FEA: 7
Total years of experience: 14

Education:
Bachelor of Science / Mechanical Engineering

Registrations:
Professional Engineer / CA, MA, VA, CO, IN, WI, TX, WA
Certified Commissioning Authority
Certified Facility Manager
LEED Accredited Professional

Qualifications and Experience:
Laurie Gilmer is an Associate at FEA and leads FEA's building energy management services. Laurie has assisted facility managers in improving building systems operations, creating and implementing energy management plans, identifying energy saving opportunities, and LEED certification for existing buildings. Her experience includes sustainability/LEED, systems analysis, energy audits, commissioning, building systems planning, and controls review. Laurie is a published author, and has presented on energy management, commissioning, sustainable solutions, and facility management for the International Facility Management Association (IFMA), Institute of Real Estate Management (IREM), the FM Collaborative, California Mayday, and several other public and private organizations. She currently serves as a member of IFMA's Sustainability Committee, and is a member of the IFMA Redwood Empire Chapter Board. Laurie is a certified commissioning authority (CxA) and LEED® Accredited Professional.

Recent and Relevant Project Experience:
Austin Convention Center LEED Consulting, Austin, TX
Commissioning Engineer/Agent. Laurie Gilmer served as the Commissioning Agent for this multi-service Leadership in Energy and Environmental Design (LEED) for Existing Buildings (EB) project. The project includes a LEED-EB Gap Analysis, a retro commissioning project and is aiding the City of Austin in certifying its building under the LEED-EB Rating System.

Medtronic Fountaingrove Server Room Consulting, Santa Rosa, CA
Project Manager. The current server room has redundant power, emergency power, and an FM-200 fire protection system which is backed up by conventional fire protection. The project is a review of the server room systems, particularly the HVAC system, to identify potential energy saving solutions.

Brickway Building HVAC Condition Assessment, Santa Rosa, CA
Project Manager. Medtronic Inc. leased two 60,000 square-foot two-story office buildings. In order to comply with the terms of the lease agreement, Medtronic requested Facility Engineering Associates' (FEA) assistance in providing a heating, ventilation, and air conditioning (HVAC) system condition assessment. Laurie prepared a report describing the condition of the HVAC equipment, the nature of any servicing, repair or replacement work performed over the past year, and 10-year capital expenditure forecast was prepared for each building.

National Park Service Energy and Water Audits and Sustainability Assessments, Nationwide
Associate-In-Charge. Laurie led a team of engineers who conducted energy and water audits and completed sustainability assessments in various NPS parks as the first step of a comprehensive plan to decrease greenhouse gas emissions, and power and water consumption throughout their parks. FEA assessed over 800 buildings and 2.3M SF at twenty-one national parks. As part of the audits, FEA analyzed the energy and water consumption across all types of buildings and use categories and recommended various energy conservation measures (ECMs) that included both capital projects and building operational measures and fleet management procedures.

VSP Vision Care Campus Threat/Risk Assessment, Rancho Cordova, CA
Project Manager. Project Manager for threat and risk assessment of VSP's headquarters campus. The campus consists of four buildings and a data center. FEA identified evaluated, quantified, and recommended improvements to mitigate the physical risks at these facilities. Laurie's responsibilities included review of the major building systems including electrical gear, computers, UPS, generators, water utilities, HVAC, and fire suppression systems. The system criticality and vulnerability was then evaluated under various potential scenarios such as earthquake, weather, terrorism, civil disturbance, neighbors, vehicular and air-traffic, dam inundation. Exposures related to existing building conditions and people operating in the building were also evaluated.

National Park Service Comprehensive Condition Assessment, Nationwide
Team Leader. Laurie provided condition assessment services for utility and building systems for the National Park Service. Utility systems evaluations included domestic water, non-potable water, sanitary sewer, and fire water systems. Building systems evaluations included HVAC, plumbing, electrical, and fire protection systems. She maintained a team of assessors and provided technical and quality assurance oversight as part of her involvement in various task orders.

International Monetary Fund - HQ1 and Concordia Condition Assessment Validation, Washington, DC
Associate-In-Charge. Laurie provided technical review for the mechanical, electrical, plumbing, elevators, and fire-and-life-safety disciplines of the condition assessment. She directed the technical staff and developed the assessment methodologies. Laurie reviewed the findings of the assessors and the capitol project recommendations.

Howard Hughes Medical Institute Commissioning, Chevy Chase, MD

Commissioning Engineer/Agent. Howard Hughes Medical Institute (HHMI) is adding a new facility to its main campus in Chevy Chase, Maryland. As part of the Owner's goal to pursue LEED® - NC Gold Certification for the new building, FEA is providing Commissioning services for a new structure. Laurie is acting as the Commissioning Agent. Responsibilities include preparing a commissioning plan and specifications to be incorporated with the contract documents, reviewing construction documents for general conformance with the Commissioning Plan during construction, review of the contractor's submittals for general conformance with the Owner's Design Intent and Commissioning Plan, and verification of installation and performance of systems to be commissioned.

Leslie G. ZumBrunnen, PE
Associate

Years with FEA: 10
Total years of experience: 21

Education:
Master of Science / Structures
Bachelor of Science / Civil Engineering (Construction)

Registrations:
Professional Engineer / CO, OK, TX, LA, WA, OR, FL, MN, WY

Qualifications and Experience:
Leslie ZumBrunnen is a registered structural engineer and currently manages the FEA Denver, Colorado office. Prior to joining FEA in 2002, Les previously worked at LAW Engineering and Environmental Services, where he served as a Principal Engineer and National Client Sponsor in the Facilities Group.

In his current position, Les routinely completes evaluations of existing building systems for both property transactions and facility condition assessments. Types of properties include multi-family apartments, medium and high-end hotel facilities, retail strip centers, retail malls, single-story and multi-story office buildings, K-12 school facilities, universities, courthouses, detention facilities, parking garages, stadiums, and light and heavy industry facilities. He has developed the evaluation procedures, taught both FEA and outside personnel how to complete assessments, and led the team to develop software applications to capture the data. During assessments, Les typically focuses on the civil, structural, and architectural portions of the facilities.

Les is also an industry recognized expert in the evaluation, design, and repair of building envelope and structural systems. Design materials include conventional reinforced and pre-stressed concrete, structural steel, masonry and timber. Types of building envelope systems have included conventional, gasket, and structurally glazed curtainwall systems; load-bearing and masonry veneers; EIFS; GFRC; pre-cast panels; metal panels; and stone-cladding systems (limestone, marble, granite). His roof consulting services have included general evaluations, development of remedial options, design of replacement roof/waterproofing systems, and construction management and inspection services. Types of roofing/waterproofing projects have included built-up, modified, single-ply, and metal roof systems.

Recent and Relevant Project Experience:
Texas Department of Transportation Facility Condition Survey, Statewide, TX
Project Manager. Served as assistant project manager for the year long project that assessed the existing condition and identified needed repairs of 2,700 building on 525 properties throughout the state. Les's responsibilities included development of assessment criteria,

coordination of 12 field teams, quality assurance/quality control audits, and development of the database system and automated input screens. Les also designed and implemented the database automated report generation system. The entire automated system was delivered to the client for use with an existing facility management system.

Koger Office Buildings, Austin and San Antonio, TX
Project Manager. Project Manager and lead surveyor for 38 ADA audits of single and multi-story office buildings in Austin and San Antonio, Texas. The office buildings and their site accessibility were observed for general compliance to ADA Title III provisions. Project scope included identification of non-accessible areas and prioritized recommendations with associated opinions of cost.

Sarofirm Realty Advisors, Austin, TX
Project Manager. Project Manager and lead surveyor for property transfer conditions surveys for three retail complexes containing over 400,000 square feet of tenant space in Austin, Texas. Surveys included a review of the structures, foundations, roofs, pavements, sitework, MEP systems, life safety and building code issues, asbestos, and ADA compliance.

Wyoming School District Condition Assessment, Statewide, WY
Project Manager. The Wyoming Schools Facilities Commission required the creation and implementation of a plan to assess all schools in the state of Wyoming (23 million square feet). In conjunction with the assessment, they required the development of a prioritization asset management program that would be defensible under court order from the Supreme Court of Wyoming and could be put in place in less than six months. FEA developed a program that met the requirements of the State of Wyoming while utilizing the Wyoming School Facility Commission's personnel and available budget. We prioritized needs in an objective, consistent, and transparent fashion that was linked to industry best practices. As part of his duties, Les co-authored the development of the BMAR approach including evaluation criteria, scoring systems, and training systems. Les was one of four trainers to teach commission personnel how to evaluate their facilities and capture the data within the system. Les also performed quality assurance checks on school facilities commission personnel to verify they were completing surveys according to the procedures. When WSFC ran behind schedule during the 2008 surveys, Les led a team of 4 FEA surveyors to evaluated more than 6 million square feet of K-12 facilities.

Weld County Condition Assessment Master Plan
Associate in charge. This was a multi-facility and school assessment to establish a strategic plan for future capital expenditures. The district was seeking to determine the current condition of their facilities and uncover unforeseen capital projects. Les served as one of the primary client contacts and was responsible for the overall quality control and assurance for FEA.

Hilton Cancun, Cancun, Mexico,
Associate in charge. Served as the consultant of record for structural and building envelope systems for the reconstruction activities at the hotel due to damage caused by Hurricane Wilma. Services included emergency stabilization response, damage assessment,

structural evaluation of existing systems, design of new impact resistant, 150 mph hurricane rated curtainwall systems, design of replacement concrete and concrete masonry unit structural systems, and contract administration and monitoring services. Glass and glazing project cost was approximately $4.3 million of a total reconstruction cost greater than $35 million.

Hilton Hotels – Multiple Sites Nationwide

Associate in charge. Performed condition assessment surveys of multiple mid-level and high-rise hotels nationwide to develop master capital needs plans for both 5 and 10 year periods. The condition assessments typically focused on structural and building envelope systems. The final deliverables included a report describing the systems, outlining the observed deficiencies, and providing opinions of probably construction cost to repair those elements over the selected time period. For most of the properties, FEA was then authorized to design and oversee those repairs, living within the budgets that we set. FEA was able to complete the services within the budget with over a 95% success rate.

FEA FACILITY ENGINEERING ASSOCIATES

Paul G. Swanson, PE
Principal

Years with FEA: 18
Total years of experience: 37

Education:
Master of Science / Civil Engineering
Bachelor of Science / Civil Engineering

Registrations:
Professional Engineer / VA, NY, DC

Qualifications and Experience:
Paul Swanson is a Principal and co-founder of FEA. He earned his Bachelor of Science degree in Civil Engineering and Master of Science Degree in Geotechnical Engineering from Cornell University, and has over 35 years of consulting engineering experience in the Washington, DC Metropolitan area, throughout the United States and internationally. Paul is a Registered Professional Engineer in the Commonwealth of Virginia, the District of Columbia, and the state of New York. Paul has been a member of the American Society of Civil Engineers (ASCE) since 1972 including past chairman of one of the technical committees. He is a member of the National Society of Professional Engineers and the National Academy of Forensic Engineers.

Paul's consulting engineering experience spans a wide variety of physical and environmental issues associated with existing facilities. These projects include studies involving the physical assessment of building exterior elements and internal mechanical systems as well as site infrastructure and piping systems. The product of those studies has included physical condition surveys, capital reserve plans, recommended work plans for repair and maintenance and design documentation for a wide variety of required repair projects and environmental abatement projects.

Paul is currently a technical reviewing principal for FEA. Projects routinely include condition assessments of residential, commercial, retail, industrial, and institutional buildings for purpose of due diligence surveys required in property transfers or as engineering evaluations of existing building and site systems. These studies require the formulation of opinions of cost related to repairing or restoring failed systems. Paul has experience with the evaluation of masonry brick and block construction, steel construction, conventional and post-tension concrete reinforcement, and masonry and glass curtainwall construction. Paul has also performed evaluations and designed repair documents for various site systems such as pavements, retaining walls, retention structures, and drainage systems.

Recent and Relevant Project Experience:

Wyoming School District Condition Assessment, Statewide, WY

Project Consultant. The Wyoming Schools Facilities Commission required the creation and implementation of a plan to assess all schools in the state of Wyoming (23 million square feet). In conjunction with the assessment, they required the development of a prioritization asset management program that would be defensible under court order from the Supreme Court of Wyoming and could be put in place in less than six months. The condition of school facilities was assessed statewide using commission personnel trained by FEA. Paul participated in the development of the evaluation criteria and the creation of the field manuals used by the assessors. Paul also conducted training classes for assessors and participated in quality assurance checks of the field assessments.

National Park Service Comprehensive Condition Assessment, Nationwide, United States

Principal-In-Charge. Paul has been involved with all of the task orders performed by FEA under this 5-year contract. As a project principal, his role involves quality assurance of both the field studies and the office deliverables and data input activities. To accomplish this, he has spent time in the field with the project assessors to gain understanding of the process and the level of expertise required. He has assisted project personnel in the development of testing and evaluation protocols when such procedures were not yet established. He regularly reviews project deliverables for accuracy and clarity and confirms the review process for each deliverable is in place and provides a sufficient level of control over the work product.

Arts & Industry Building Condition Assessment, Washington, DC

Principal-In-Charge. FEA performed a condition assessment and capital expenditure forecast to aid the Smithsonian in the rehabilitation of the building by providing them with an opinion of cost for two different scenarios. The evaluation was based on both engineering and environmental assessments of the current property's condition. Paul was the Principal-in-Charge and QA/QC for the project.

District of Columbia Schools Condition Assessment, Washington, DC

Principal-In-Charge. Served as the project principal and QA/QC. The project consisted in the assessment of 12 school properties owned by the District of Columbia Office of Property Management. The assessments were conducted in an effort to identify apparent deficiencies in the school buildings, major capital expenditure projects, an equipment inventory, a hazardous materials screening, and a LEED pre-assessment. Paul Swanson served as the project principal and QA/QC.

National Park Service Energy and Water Audits and Sustainability Assessments, Nationwide

Principal-In-Charge. Paul Swanson served as the project principal for a number of energy and water audits and sustainability assessments for the National Park Service. The work was completed in general accordance with Section 432 of the Energy Independence and Security Act of 2007 (EISA) and according to the Department of Energy's Facility Energy Management Guidelines and Criteria for Energy and Water Evaluations in Covered

Facilities. Mechanical equipment, including HVAC systems in buildings as well as pumping and treatment facilities for both water and wastewater were evaluated for condition and efficiency of operation. Energy conservation measures ECMs were developed and prioritized based on energy reduction and payback periods. Alternative energy sources were evaluated to determine the feasibility of capital projects to be constructed on site.

Condition Assessment and Space Planning IDQ for DCOPM, Washington, DC
Principal-In-Charge. The project consisted of facility condition assessments of several high profile office buildings, schools, and residential facilities under the control of the Office of Property Management (OPM) in the District of Columbia. These assessments were part of a comprehensive program implemented by the DC Government to determine cost of capital expenditures, redevelopment, and maintenance for government facilities throughout the city. The purpose of the project was to gather and assemble site specific data on most of the Office of Property Management's facilities, identify space utilization, evaluation department functions for space planning purposes, and develop long-term capital expenditure forecasts for the facilities.

Dulles International Airport, Dulles, VA
Principal-In-Charge. The project included the assessment and development of long-range capital expenditure program at Dulles International Airport. The assessments included the evaluation of physical conditions of the terminal, baggage, and control facilities throughout the airport. FEA's Integrated Facility Management Information System (IFMIS) was used as the database repository and generator of the required reporting. The results of the assessment project were used to develop several expansion and renovation scenarios for the airports future development.

FEA FACILITY ENGINEERING ASSOCIATES

James L. Justus, PE

Vice President and Associate

Years with FEA: 10
Total years of experience: 28

Education:
Bachelor of Science / Civil Engineering / Structural Emphasis

Registrations:
National Council of Examiners for Engineering & Surveying
Professional Engineer / AL, FL, GA, IL, IN, KY, MA, MO, NC, OH, SC, TN

Qualifications and Experience:
Jim brings extensive experience in both civil/structural engineering and project management to FEA, and has performed evaluations and professional services for multiple projects throughout the U.S. Having earned his Bachelor of Science degree from Purdue University, he is currently a Registered Professional Engineer in South Carolina and 12 other states. Jim has served as an officer and board member for the South Carolina Section of the National Society of Professional Engineers, was named Engineer of the Year by SCSPE in 2004, and was a previous State President for the association. He has multiple affiliations with various professional organizations including: the Precast/Prestressed Concrete Institute, the American Concrete Institute, the American Society of Civil Engineers, and the National Council for Examiners for Engineering and Surveying - where he currently serves on the Structural Subcommittee of the Civil Engineering Exam Committee. Jim offers a broad-based knowledge of glass, masonry, stone, and precast wall systems, including mid-rise and high-rise systems.

Jim has managed a number of FEA's largest and most challenging condition assessment projects throughout his tenure. Some major career triumphs include: management of the HUD National Lead Paint Program ($120M Contract Value); assessments and repairs of various major buildings, including the Wachovia building in Miami, FL, Prudential building in Boston, MA, and Pittsburgh Symphony Hall in Pittsburgh, PA. Jim has done major consulting work for multiple national clients and has been a guest lecturer and speaker for the International Concrete Restoration Institute, Sealant Waterproofing and Restoration Institute, Building Owners and Managers Association, Jones Lang LaSalle National Operations Conference, Clemson University, and Greenville Technical College.

Recent and Relevant Project Experience;
Wachovia Financial Center, Miami, FL
Principal in Charge. Performed inspections of the 55-story stone and glass building façade and assessment of the plaza space frame due to damage from hurricanes. Performed an analysis of the building façade system to confirm compliance with applicable building codes for wind loads for remaining portions of the façade. Resultant work scopes included granite and glass repairs and replacements, and repair of selected sealant joints on the building façade, and repairs and replacements to the framing and glass in the space frame.

Prudential Building, Boston, MA
Principal in Charge. Performed façade rehabilitation and roof replacement on a 55-story office building located in Boston, MA. Multiple projects have included evaluation of the exterior metal panel and glass curtain wall system, replacement of exterior sealants, installation of ice dams, repairs to granite plaza panels, repairs to precast parapet panels, and replacement of the original building roof with a specialized system. Additional projects have included studies of masonry walls impacted by the cooling towers, assessments of leaks in other parts of the complex, and consultation on repairs to equipment racks. Total construction project costs to date exceed 5 million.

Fifth Third Tower, Columbus, OH
Principal in Charge. Responsible for consulting services to assess and repair storefront and curtain wall glass systems on the 25-story high rise. The systems had snap cover issues, with snap covers becoming loose and falling onto the street below. FEA's assessment determined the cause of the problem, and we worked with the original manufacturer to obtain replacement components under warranty, and oversaw the contract for repairs and restoration. In addition, due to numerous leaks in the building, all sealants on the building facades were replaced. Total cost of repairs was approximately $400,000.

Façade Repairs and Roof Replacement, 53rd at 3rd Building, New York City, NY
Principal in Charge. Performed critical inspection of the 34-story building façade and assessment of the roof due to reports of numerous leaks into the building. Resultant work scopes included minor granite and glass repairs, repair of selected sealant joints on the building façade, and replacement of the inverted roof system. The work was completed in multiple stages over a period of two years.

Twenty One Turtle Creek, Dallas, TX
Principal in Charge. Responsible for consulting services to assess and repair the exterior balconies and façade elements of the 22 story high rise condominium building. Work included structural concrete balcony repairs and/or replacement (as appropriate), railing replacements, tuckpointing, waterproofing, window replacements, and door replacements. The project also included replacements of the storefront systems at the main entrance, and on the two story lower common areas. Permanent fall protection tie backs were also designed and installed, and misc. concrete repairs were performed. Construction value for all projects exceeded $3 million.

Sam Gibbons Federal Courthouse, Tampa, FL
Façade Consultant. Façade consultant for a team to assess and repair storefront and curtain wall glass systems on the 16-story mid rise office building and courthouse that had leaked extensively since construction. Multiple building façade types and systems, along with multiple curtain wall and storefront systems had been poorly designed and constructed, with literally hundreds of leak locations throughout the complex. Work performed included sealant replacements curtain wall repairs, storefront system repairs, installation of flashings and drainage systems, and the design and installation of customized solutions for various building configuration issues. Total construction value is in excess of $8 million.

Corporate Center Park Facade and Roof Repairs, Indianapolis, IN
Principal in Charge. Responsible for consulting services to assess and repair 12 office buildings with a combination of EIFS, Brick, Stucco, and Glass (ribbon, storefront, punch, and curtain wall) building facades. Work included repairs and replacement of the EIFS, repairs to the brick, repairs to the stucco and glass systems, and a general program of repair or replacement of water prevention materials and devices. In addition, all roofs (660,000 sq. ft.) were replaced during the project.

Shadeland Station Office Park EIFS Precast Facade System, Indianapolis, IN
Principal in Charge. Project Manager responsible for the evaluation, design, and construction support for EIFS repairs or replacements on twelve buildings with EIFS related water intrusion issues. Project included the complete replacement of EIFS systems on one building, partial replacements on two others, and repairs on the remaining buildings. Total construction value of the EIFS work exceeded $1,000,000, with total project costs including roof replacements and interior remediation exceeding $4,000,000.

Gary T. DuVall, FMP
Division Coordinator

Years with FEA: 12
Total years of experience: 12

Qualifications and Experience:
Gary has participated in a variety of high-profile projects throughout the DC metropolitan area, including a first of its kind real-time program for monitoring railway track during adjacent tunneling procedures. He is currently managing a CAC project for the National Park Service, assessing the existing condition of underground utility systems.

Gary has extensive experience in project management and the instrumentation practice. His technical abilities include the use of a wide variety of monitoring equipment, such as tape extensometer, both vertical and horizontal inclinometers, and surveying used to monitor for settlement/heave. His instrumentation experience includes the monitoring elements of sheeting and shoring systems, the placement of electronic sensors for remote capabilities, and deformation of underground railway tunnels. He has performed much of this work with clients such as CSX Corporation, Washington Metropolitan Area Transit Authority (WMATA), and the Metropolitan Washington Airports Authority (MWAA).

Recent and Relevant Project Experience:
National Park Service Comprehensive Condition Assessment, Nationwide
Project Manager. Project Manager for underground utility assessment. Gary's work was an effort to assist the Program Manager. In this capacity Gary was responsible for all aspects of project management to include but not limited to coordination and scheduling of both field and office efforts, maintenance of scope requirements and quality control, and schedule and budget commitments. He maintained a team of assessors and coordinated the collection of GPS related data and condition assessment for both water and waste water systems and is responsible for the proper utilization of personnel and resources. In addition, Gary was responsible for maintaining current financial status of the contract and for reporting budgetary information to include final projected costs.

E Street Pile Monitoring Instrumentation, Washington, DC
Project Manager. Management of all administrative aspects to include project related accounting and client management.

Fiber Optic Instrumentation, Newark, DE
Project Manager. Involved in both the technical and administrative aspects of this project. Gary actively participated in and managed the implementation of this automated real-time monitoring effort, providing our client with quality assured vibration and inclination data necessary during on-going construction.

Navy League Building, Arlington, VA
Project Manager. Involved in both the technical and administrative aspects of this project. Responsibilities included the daily contract administration, specifically dealing with project accounting, and provided assistance with technical services. Gary was involved in the installation and implementation of all aspects of the monitoring program.

Potomac Yard, Alexandria, VA
Project Manager. Managed staff providing technical service and maintained client contact. Responsibilities included the installation and implementation of the monitoring program, technical assistance in data recovery and reporting, and field coordination of staff and resources. Technical skills included the use of both total station and leveling equipment used in surveying.

Supreme Court Annex Project Instrumentation, Washington, DC
Project Manager. FEA performed an assessment of the existing condition adjacent to an area of scheduled expansion of the Supreme Court building in Washington, DC. The expansion consisted of an excavation adjacent to the existing facility, utilizing a soldier pile and tieback shoring system. An instrumentation program was implemented to monitor potential movement of this historic structure during the construction process. As Project Manager, Gary was responsible for the technical and administrative aspects of this project; maintaining personnel, schedule, scope, and budget.

The Bowen Building, Washington, DC
Project Manager. Involved in both the technical and administrative aspects of this project. Responsibilities included the daily contract administration, specifically dealing with project accounting, and provided assistance with technical services. Gary was involved in the installation and implementation of all aspects of the monitoring program.

The Target Store, Rockville, MD
Project Manager. Involved in both the technical and administrative aspects of this project. Responsibilities included the daily contract administration, specifically dealing with project accounting, and provided assistance with technical services. Gary was involved in the installation and implementation of all aspects of the monitoring program.

Washington Dulles International Airport Package 6, Main Terminal, People Mover Station, Dulles, VA
Project Manager. FEA provided instrumentation services during construction of an underground station for the Automated People Mover tunnels at Dulles International Airport. The project involved an assessment of pre-construction condition and the subsequent monitoring of the existing main terminal building during excavation and the associated shoring system during the excavation for the new station. The elements monitored included ground surface and building settlement, soil inclinometers, tilt meters, and the excavation shoring system. FEA installed and recovered data for the monitoring program which included a robotic theodolite monitoring system which was installed to provide continuous monitoring of specific columns during demolition activity. Following this activity, the data recovery for the entire project was transferred to an automated

system using tilt sensors and a robotic theodolite. Data from the theodolite was relayed via wireless modem to our office for review and analysis. Gary served as Project Manager of this effort and maintained both the technical and administrative aspects of this project. Responsibilities included the daily contract administration, specifically dealing with project accounting, and provided assistance with technical services. He was involved throughout the project, including the installation and implementation of all aspects of the monitoring program.

Waterford Mill, Waterford, VA
Engineering Technician. The Waterford Mill is a pre-Civil War-era water-powered grain mill located in Waterford, Virginia. The mill building is a brick masonry, multi-story structure with an interior timber floor framing system. This historic structure was renovated and FEA maintained an instrumentation program to monitor the behavior of the structure over a period of several years in an effort to determine whether any adverse deformation was occurring as a result of the preservation effort. The instrumentation services included fieldwork for collection of monitoring data, data management, interpretation and reporting. Gary served as the engineering technician on this project, responsible for data collection and management and project administration.

Virginia Tech Roofing & Waterproofing Term Contract, Blacksburg, VA
Team Leader. Assessment and stabilization of the McCormick Farm barn is one of the many efforts undertaken by FEA as part of the engineering term contract held with Virginia Tech University. This project involved an initial condition assessment with a report of findings and recommendations for repair and preservation of this historic structure. A major realignment and stabilization effort was initiated which incorporated the use of real-time data recovery during the preservation process. Gary led and managed the technical team responsible for the instrumentation of this effort. He also coordinated and maintained the long-term monitoring effort that ensured continued stabilization of the structure.

Warren G. Glimpse

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Summary

Warren Glimpse is an econometrician/demographer and information technologist. Glimpse is a specialist in developing, integrating, analyzing and providing access to demographic, economic, geographic, and administrative/business data to meet decision making, management, administrative and other needs for wide ranging public and private sector applications and clientele.

Expertise and Specializations

- Econometrician/statistician, demographic-economic modeling, estimation, forecasting
- Expert, Census 2010, American Community Survey, related Census statistical programs
- Expert, Census Bureau TIGER/Line data resources and use
- Expert, national scope K-12 education geodemographics
- Expert, development and use of mapping and geographic information systems and resources
- Expert, statistical analysis packages and data management software
- Software and database design/development (multiple languages and dbms environments)
- Internet/Web site development and operation
- Platform-independent data exchange systems: architecture, development, deployment
- Federal statistical system; leading expert on decennial census data access, linkage, and use
- Excellent written and oral communications

Education

Ph.D. Economics ADB, 1976 (econometrics and public finance areas of concentration),
University of Missouri-Columbia
Bachelor of Science in Business Administration, 1972 (economics major; graduated cum laude)
University of Missouri-Columbia

Business & Professional Background

Present Founder and Principal, ProximityOne and independent professional

Responsible for all phases of ProximityOne business operations. ProximityOne develops geographic-demographic-economic data and analytical tools and helps organizations knit together and use diverse data in a decision-making and analytical framework. ProximityOne develops custom demographic/economic estimates and projections, develop geographic and geocoded address files, and assist with impact and geospatial analyses. Wide-ranging organizations ProximityOne resources (software, data, methodologies) to analyze their own data integrated with other data. See Web site: http://www.proximityone.com for additional information.

Summary of Selected Skills

- Econometrician: modeling, estimation, forecasting, impact analysis
- GIS Tools; CV XE GIS developer; GIS components and application tools developer
- Delphi XE2 developer; multi-platform applications developer
- SAS Institute Statistical Analysis System applications developer
- ESRI ArcGIS applications developer

Selected projects, products and experience

- Developer, ProximityOne demographic-economic estimates and projections
- Developer, ProximityOne CV XE GIS (full featured Geographic Information System (GIS)
- Developer, ProximityOne Situation & Outlook Server; API database access/use
- Developer, ProximityOne Situation & Outlook integrated database and software system
- Developer, ProximityOne web-based and standalone software and data products
- Developer, School District Data System (US Department of Education), development and support
- Developer, Census 2000 School District Special Tabulation Website (US Department of Education)
- Developer, Interactive Analysis System, first PC-based econometric modeling system
- Developer, first national scale small area demographic estimates and projections
- Developer, Census Bureau State Data Center Program
- Founding board member, Association of Public Data Users
- Campaign targeting and allocation of campaign funds for Reagan presidential campaign.

Previous Experience

U.S. Office of Federal Statistical Policy and Standards, Washington, DC
Associate Director

Responsible for establishing and implementing the first set of Federal policies and guidelines for an integrated and unified approach for public use statistical and related data dissemination and access.
- White House Domestic Information Display System, first integrated Federal statistical access system.
- Established Federal Information Managers Group.

U.S. Bureau of the Census, Washington, DC
Data Access and User Services, Assistant Chief

Responsible for managing the data access and user services across all types of statistical programs and products produced by the Census Bureau. Approximate 100 staff, $6 million budget.
- Developed State Data Center Program; established regional user services in 12 regional offices.
- Participated in planning in Census Bureau national scale statistical programs.
- Managed Bureau-wide product sales, user training, systems/programming, documentation/news.

University of Missouri, Bureau of Business & Economic Research, Columbia, Missouri
Director

Responsible for providing faculty research/services support and securing and managing independent research and data services contracts in areas of business and social science research.
- Developer, Missouri demographic-economic estimates and projections
- Co-founder and charter member of the Association of Public Data Users.
- Managed largest university statistical databases holdings, supported in IBM mainframe environment
- Developed GBF/DIME files (Columbia, MO MSA) used for prototype Census Bureau TIGER System.
- Developed Financial Analysis System, first PC system for analysis of SEC corporate performance data.

Selected Projects & Experience

1 Experience with Developing Census and Department of Education Data and Access
(these items all with/for U.S. Department of Education)

1. Developer 1990 Census School District Special Tabulation (School District Data Book)
Developer, first set of national scale school district electronic boundaries.
Time frame: early 1990s

2. Developer Census 2000 School District Special Tabulation Web Site
Time frame: early 2000s

3. Advisor on data integration and user access/support design for NCES School District Data System.
Data integration: blending 1990 Census, Census 2000, Census 2010, American Community Survey.
Time frame: early 2010-11

4. Early Childhood Longitudinal Study-Grade K; 2011: geocoding respondent data; developing related national scope Census 2010 and American Community Survey 2010 datasets for analysis.
Time frame: 2011-12

5. Emergency Notification System – developed location and contact data for all types of U.S. educational institutions: K-12 public, K-12 private, colleges and universities; organized and delivered data in shapefile structure for use in integrated mapping and notification system; developing associated updating process to collect more detailed and current school administration contact information.
Time frame: 2012

2 Experience Working with School Systems/Education Agencies

Warren Glimpse has experience working with many school districts on projects that involve developing demographic and integrating multi-sourced demographic data to meet a range of school district administrative, management, planning, analysis and evaluation needs. One example of this work is with McKinney Independent School District (MISD) located in the Dallas, TX metro area. McKinney, TX is the fastest growing urbanized area between 2000 and 2010 with a diverse population in terms of race-ethnicity and socioeconomic composition.

McKinney Independent School District, Texas
Fastest growing urban area 2000-2010
Time frame: 2010-2013

Kamehameha Schools, Hawaii
Largest private K-12 school system
Time frame: 2012-2013

Hawaii Department of Education
Geographic/Demographic data development and applications
Time frame: 2002-2013

Various New York State school districts
2000 forward

3 Experience with Analyzing Hard to Estimate Populations

1. Idaho Indian Demographic Patterns -- 2005
Expert advisor/analyst to Modrall, Sperling, Roehl, Harris & Sisk, PA (New Mexico)

2. Osage Nation/Osage County, Oklahoma – 2007
Expert advisor/analyst to Modrall, Sperling, Roehl, Harris & Sisk, PA (New Mexico) and Oklahoma
Analyzing long-term demographic patterns of the Osage Indian population

3. Chickasaw and Choctaw Indian Population – 2012
Expert advisor/analyst to Ryley Carlock & Applewhite (Denver) and Oklahoma City
Analyzing long-term demographic patterns of the Chickasaw and Choctaw Indian population in a 35 county region of Oklahoma.

4. Improving coverage of Census 2010 – including hard to count populations
Participation in Census 2010 LUCA program
Included State of Georgia and all Georgia counties and municipalities

5 .. Estimation and projection of higher education underserved populations by census tract.
Georgia statewide for all campuses in University System of Georgia

6. Development of estimates and projections of the Native Hawaiian population by county
Kamehameha Schools, Hawaii

4 Experience with Modeling; Developing Demographic Estimates and Projections

1. Developer Missouri official demographic-economic estimates and projections
For Missouri Office of Administration in coordination with Census Bureau Federal State Cooperative Program for Population Estimates and Projections.

2. Developer ProximityOne Demographic Estimates and Projections
U.S. by Census Tract/County/Metro/State to 2017; annual estimates and projections; updated annually
U.S. State and National Projections to 2060

3. Estimation and projection of higher education underserved populations by census tract.
Georgia statewide for all campuses in University System of Georgia

4. Estimation and projection of underserved populations by census tract.
Kamehameha Schools, Hawaii

5 Experience with Coaching Non-Professional Demographic Data Users

1. Warren Glimpse has worked/assisted a wide range of data users over a period of many years. Understanding how to structure and provide assistance to both experts in their fields and data users with limited statistical, GIS/geographic and demographic-economic background is a key element to successful enablement and capacity building. Glimpse works with hundreds of data users each year, each having their own requirements and abilities.

2. Warren Glimpse is developer of the Census Bureau State Data Center (SDC) Program which operates in most states. Based in part on Glimpse's own experiences in Missouri, the SDC Program reflects an effort to institutionalize data access and use technical assistance focused on Census geographic and demographic data via within-state partnerships.

3. The content-rich ProximityOne Website provides wide-ranging data access and analysis resources accessible on a no-fee, no-registration basis. Not funded by any organization other than ProximityOne, these resources provide direct assistance to both demographic-economic specialists as well as non-professionals.

Selected examples:
- Census Tract Geography & Demographics -- http://proximityone.com/tracts.htm
- Census 2010 – http://proximityone.com/cen2010.htm
- American Community Survey 2010 – http://proximityone.com/acs0610.htm
- Schools, School Districts & K-12 Education – http://proximityone.com/sddmi.htm
- GIS & Demographics Applications Gallery – http://proximityone.com/gallery/guide
- Demographic Estimates and Projections – http://proximityone.com/demographics2020.htm
- Demographic-Economic Interactive Ranking Tables – http://proximityone.com/rankingtables.htm

6 Experience with Systems Development and Operation (2012)

1. ProximityOne Situation & Outlook
http://proximityone.com/situation&outlook.com

2. The College Board
EPS Data Tagging Package
Development of a tool used by College Board clients, higher education institutions and consultants to "tag" individual student/address data by census block (and higher level geography) with Census-related data and proprietary College Board data.

EPS Market Areas
Development of EPS Market Areas shapefiles corresponding to aggregates of small area geographies (census tracts and ZIP codes)

3. Kamehameha Schools, Hawaii
Data Systems/Analytics Integration

4. ProximityOne Internet Map Server

7 Business Clients and Other Experience (2012)

1. GfK Mediamark Research & Intelligence
Development of data resources to analyze block group measures of linguistic isolation

2. 113th Congress Congressional Districts and associated state legislative districts
Various clients
- shapefile
- demographic datasets

3/25/13

MasterFormat Classification Code	Classification Description	Archibus Record Count
2000	SITE CONSTRUCTION	5,902
2110	Excavation, Removal, and Handling of Hazardous Materials	313
2310	Grading	1
2400	TUNNELING, BORING, AND JACKING	3
2450	FOUNDATION AND LOAD-BEARING ELEMENTS	318
2505	Fuel,Gas,Oil,Steam Distribution	141
2510	Water Distribution	33
2545	Pipes & Fittings	1
2600	DRAINAGE AND CONTAINMENT	141
2630	Storm Drainage	2
2660	Ponds and Reservoirs	1
2700	BASES, BALLASTS, PAVEMENTS, AND APPURTENANCES	370
2760	Paving Specialties	2
2770	Curbs and Gutters	11
2780	Unit Pavers	1
2800	SITE IMPROVEMENTS AND AMENITIES	1460
2810	Irrigation System	1
2820	Fences and Gates	4
2830	Retaining Walls	6
2840	Walk, Road, and Parking Appurtenances	10
2870	Site Furnishings	1
2900	PLANTING	496
3000	CONCRETE	4782
3300	CAST-IN-PLACE CONCRETE	2
3310	Structural Concrete	4
3315	Pumps & Placement Equipment	1
3350	Concrete Finishing	6
3404	Precast Autoclaved Aerated Concrete Wall & Roof Panels	3
4000	MASONRY	4634
4060	Masonry Mortar	2
4411	Marble*	2
4412	Limestone*	2
4413	Granite*	1
5000	METALS	4630
5120	Structural Steel	1
5310	Steel Deck	1
5510	Metal Stairs*	11
5520	Handrails and Railings	9
5700	ORNAMENTAL METAL	4
5710	Ornamental Stairs	1
5715	Fabricated Spiral Stairs	2
6000	WOOD AND PLASTICS	4697
6200	FINISH CARPENTRY	22
6415	Countertops	1
6420	Paneling	6
6430	Wood Stairs and Railings	3
7000	THERMAL & MOISTURE PROTECTION	4658

7240	Exterior Insulation and Finish Systems (EIFS)	452
7300	SHINGLES, ROOF TILES, AND ROOF COVERINGS	1092
7400	ROOFING AND SIDING PANELS	15
7460	Siding	1
7480	Exterior Wall Assemblies	3
7500	MEMBRANE ROOFING	2
7510	Built-Up Bituminous Roofing	4
7610	Sheet Metal Roofing	4
7700	ROOF SPECIALTIES AND ACCESSORIES	1
7720	Roof Accessories	3
7800	FIRE AND SMOKE PROTECTION	10
7810	Applied Fireproofing	2
7812	Applied Fireproofing	1
7840	Firestopping	1
8000	DOORS & WINDOWS	4929
8100	METAL DOORS AND FRAMES	19
8210	Wood Doors	10
8300	SPECIALTY DOORS	5
8310	Access Doors and Panels	1
8350	Folding Doors and Grilles	1
8360	Overhead Doors	2
8400	ENTRANCES AND STOREFRONTS	1
8450	All-Glass Entrances and Storefronts	1
8460	Automatic Entrance Doors	3
8470	Revolving Entrance Doors	1
8480	Balanced Entrance Doors	1
8500	WINDOWS	4
8520	Aluminum Windows	5
8550	Wood Windows	3
8600	SKYLIGHTS	6
8715	Exit Devices*	1
9000	FINISHES	4730
9120	Ceiling Suspension	1
9200	PLASTER AND GYPSUM BOARD	12
9210	Gypsum Plaster	2
9300	TILE	9
9310	Ceramic Tile	9
9330	Quarry Tile	2
9500	CEILINGS	164
9510	Acoustical Ceilings	1
9600	FLOORING	153
9620	Specialty Flooring	2
9632	Marble Flooring*	4
9640	Wood Flooring	1
9680	Carpet	10
9684	Carpet Tile	1
9700	WALL FINISHES	201
9900	PAINTS AND COATINGS	103
10000	SPECIALTIES	4548

10100	VISUAL DISPLAY BOARDS	1
10200	LOUVERS AND VENTS	1
10250	SERVICE WALLS	11
10280	Prefabricated Ramps & Walkways	3
10340	MANUFACTURED EXTERIOR SPECIALTIES	221
10426	Signage & Graphics	4
10430	Exterior Signage	139
10450	PEDESTRIAN CONTROL DEVICES	139
10500	LOCKERS	2
10520	FIRE PROTECTION SPECIALTIES	10
10600	PARTITIONS	25
10630	Portable Partitions, Screens, and Panels	2
10750	TELEPHONE SPECIALTIES	1
10800	TOILET, BATH AND LAUNDRY ACCESSORIES	19
10820	Bath Accessories	4
11000	EQUIPMENT	4572
11020	SECURITY AND VAULT EQUIPMENT	4
11060	THEATER AND STAGE EQUIPMENT	1
11130	AUDIO-VISUAL EQUIPMENT	3
11160	LOADING DOCK EQUIPMENT	1
11200	WATER SUPPLY AND TREATMENT EQUIPMENT	139
11400	FOOD SERVICE EQUIPMENT	2
11425	Hood and Ventilation Equipment	3
11455	Kitchen & Bath Cabinets	1
12000	FURNISHINGS	4522
12140	Sculptures	1
12350	Specialty Casework	3
12440	Bath Furnishings	2
12450	Bedroom Furnishings	1
13000	SPECIAL CONSTRUCTION	5179
13037	Kitchen Units	6
13200	STORAGE TANKS	313
13220	FILTER UNDERDRAINS AND MEDIA	1
13700	SECURITY ACCESS AND SURVEILLANCE	141
13850	DETECTION AND ALARM	2
13910	Fire Protection Basic Materials and Methods	140
14000	CONVEYING DEVICES	4632
14100	DUMBWAITERS	1
14200	ELEVATORS	5
14240	Hydraulic Elevators	9
14400	LIFTS	3
14580	Pneumatic Tube Systems	1
14600	HOISTS AND CRANES	1
15000	MECHANICAL	4645
15080	Mechanical Insulation	1
15100	BUILDING SERVICES PIPING	3
15110	Valves	1
15130	Pumps	2
15140	Domestic Water Piping	1

15150	Sanitary Waste and Vent Piping	145
15160	Storm Drainage Piping	2
15180	Heating and Cooling Piping	2
15210	Process Air And Gas Piping	1
15400	PLUMBING FIXTURES AND EQUIPMENT	531
15410	Plumbing Fixtures	15
15500	HEAT-GENERATION EQUIPMENT	8
15510	Heating Boilers and Accessories	2
15600	REFRIGERATION EQUIPMENT	1
15670	Refrigerant Condensing Units	1
15700	HEATING, VENTILATING, AND AIR CONDITIONING EQUIPMEN	322
15710	Heat Exchangers	5
15740	Heat Pumps	3
15750	Humidity Control Equipment	1
15760	Terminal Heating and Cooling Units	8
15800	AIR DISTRIBUTION	5
15810	Ducts	1
15830	Fans	144
15850	Air Outlets and Inlets	1
15900	HVAC INSTRUMENTATION AND CONTROLS	7
16000	ELECTRICAL	4662
16100	WIRING METHODS	7
16140	Wiring Devices	4
16200	ELECTRICAL POWER	141
16220	Motors and Generators	5
16500	LIGHTING	422
16520	Exterior Luminaires	1
16530	Emergency Lighting	2
16700	COMMUNICATIONS	4
16720	Telephone and Intercommunication Equipment	58
16740	Communication and Data Processing Equipment	140
16760	Intercom & Music Systems	2
16770	Cable Transmission and Reception Equipment	2
16780	Broadcast Transmission and Reception Equipment	2
16800	SOUND AND VIDEO	3
16900	ELECTRICAL SYSTEMS CONTROLS	2
16920	Equipment Controls & Instrumentation	1
16945	Energy Management Systems	18
16960	Radiators,Radiant Heat & Fans	1

MasterFormat Map (Typical examples. Will vary depending on 'where' the 'what' occurs.)
G.BUILDING SITEWORK
G1040.Hazardous Waste Remediation
A1030.Grading
A1020.Underpinning, G9010.Service Tunnels
A1010.STANDARD FOUNDATIONS, A1020.SPECIAL FOUNDATIONS
D3010.Energy Supply, D3040.HVAC Distribution,
G3010.Water Supply (site infrastructure); D20 PLUMBING (within Buildings)
D20.Plumbing
G1030.Site Earthwork
G3030.Storm Water Collection
G3020.Sewage Ponds
G.BUILDING SITEWORK, G20.Site Improvements, G1030.Site Earthwork
G2010.Roadway xx, G2020.Parking Lot xx, G2030.Pedestrian Paving xx
G2010.Roadway Curbs and Gutters, G2020.Parking Lot Curbs and Gutters, G2030.Pedestrian Paving Curbs and Gutters
G2010.Roadway Unit Pavers, G2020.Parking Lot Unit Pavers, G2030.Pedestrian Paving Unit Pavers
G20.Site Improvements
G2050.Irrigation Systems
G2040.Fences and Gates
G2040.Retaining Walls
G2010.Roadway Appurtenances, G2020.Parking Lot Appurtenances, G2030.Pedestrian Paving Appurtenances
G2040.Seating
G2050.Landscaping
A.SUBSTRUCTURE, B.SHELL, C.INTERIORS
A.SUBSTRUCTURE, B.SHELL, C.INTERIORS
A10.Foundations, A20.Basement Construction, B10.Superstructure, B20.Exterior Enclosure, C10, Interior Construction, etc.
A10.Foundations, A20.Basement Construction, B10.Superstructure, B20.Exterior Enclosure, C10, Interior Construction, etc.
A10.Foundations, A20.Basement Construction, B10.Superstructure, B20.Exterior Enclosure, C10, Interior Construction, etc.
B1020.Roof Construction.Precast Concrete, B1020.Exterior Wall Construction.Precast Concrete
A.SUBSTRUCTURE, B.SHELL, C.INTERIORS
A10.Foundations, A20.Basement Construction, B10.Superstructure, B20.Exterior Enclosure, C10, Interior Construction, etc.
B20.Exterior Enclosure, C10, Interior Construction
B20.Exterior Enclosure, C10, Interior Construction
B20.Exterior Enclosure, C10, Interior Construction+G2
B.SHELL, C.INTERIORS
B1010.Structural Steel
B1010.Steel Floor Deck
C2010.Metal Stairs and Ladders
B2010.Handrails and Railings
B.SHELL, C.INTERIORS
C2010.Ornamental Stairs
C2010.Fabricated Spiral Stairs
B.SHELL, C.INTERIORS, E. EQUIPMENT AND FURNISHINGS
B2010.Finish Carpentry
C1030.Fittings, E2010.Fixed Furnishing
C3010.Wall Paneling
C1010.Ornamental Metal Railings, C2020.Stair Finishes
B.SHELL

B2010.Exterior Insulation and Finish System (EIFS)
B3010.Shingles and Roofing Tiles
B2010.Siding Panels
B2010.Siding
B.SHELL
B3010.Membrane Roofing
B3010.Built-up Bituminous Roofing
B3010.Sheet Metal Roofing
B3010.Roof Specialties and Accessories
B3010.Expansion Joint Assemblies
D.SERVICES
B1010.Floor Construction Fireproofing, B1020.Roof Construction Fireproofing
B1010.Floor Construction Fireproofing, B1020.Roof Construction Fireproofing
B1010.Floor Construction Firestopping, B1020.Roof Construction Firestopping
B2020.Exterior Windows, B2030.Exterior Doors, C1010.Interior Windows, C1020.Interior Doors
B.SHELL, C.INTERIORS
B2030.Wood Doors, C1020.Wood Doors
B2030.Large Exterior Special Doors, B2030.Other Exterior Doors
C1020.Access Doors and Panels
C1020.Folding Doors and Grilles
B2030.Large Exterior Special Doors
B.SHELL
B2030.All Glass Entrances and Storefronts
B2030.Automatic Entrance Doors
B2030.Revolving Entrance Doors
B2030.Balanced Entrance Doors
B2020.Windows
B2020.Aluminum Windows
B2020.Wood Windows
B3020.Skylights
D5020.Interior Lighting, D5030.Communication and Security
C.INTERIORS
C3030.Ceiling Finishes
A2020.Lath and Plaster
C2020.Gypsum Plaster
C.INTERIORS
C2020.Ceramic Tile, C3010.Ceramic Tile, C3020.Ceramic Tile, C3030.Ceramic Tile
C2020.Quarry Tile, C3010.Quarry Tile, C3020.Quarry Tile, C3030.Quarry Tile
C.INTERIORS, C3030.Ceiling Finishes
C3030.Acoustical Ceilings
C.INTERIORS, C2020.Stair Finishes, C.3020.Floor Finishes
C2020.Stair Finishes, C.3020.Floor Finishes
C2020.Marble Flooring, C3010.Marble Flooring, C3020.Marble Flooring, C3030.Marble Flooring
C2020.Wood Flooring, C3010.Wood Flooring, C3020.Wood Flooring, C3030.Wood Flooring
C2020.Carpet Flooring, C3010.Carpet Flooring, C3020.Carpet Flooring, C3030.Carpet Flooring
C2020.Carpet Tile, C3010.Carpet Tile, C3020.Carpet Tile, C3030.Carpet Tile
C.INTERIORS, C3010.Wall Finishes
C3010.Interior Wall Painting, C3020.Floor Painting/Topping/Traffic Coating, C3030.Interior Ceiling Painting
F.SPECIAL CONSTRUCTION AND DEMOLITION

C.INTERIORS, C1030.Visual Display Boards
B.SHELL, B2010.Exterior Louvers, Grilles, and Screens
C1030.Sevice Walls
B1010.Ramps, B2030.Exterior Steps and Ramps, C1010.Stair Construction
B3010.Manufactured Exterior Specialties
G2040.Exterior Signs
C1030.Interior Identifying Signage, G2040.Exterior Signs
C1030.Portable Posts and Railings
C1030.Lockers
D.SERVICES, D40.Fire Protection
C.INTERIORS, C1010.Partions
E2020.Portable Partitions, Screens and Panels
C1030.Telephone Specialties
C1030.Toilet, Bath and Laundry Accessories
C1030.Bath Accessories
E.EQUIPMENT AND FURNISHINGS
E1010.Security and Vault Equipment
E1020.Theater and Stage Equipment
E1020.Audiovisual Equipment
E1030.Loading Dock Equipment
D.SERVICES, D20.Plumbing, D2020.Water Supply Piping Systems/Water Supply Equipment
E1090.Food Service Equipment
E1090.Hood and Ventilation Equipment
E2010.Fixed Casework
E.EQUIPMENT AND FURNISHINGS, E20, Furnishings
E2010.Fixed Sculptures
E2010.Fixed Casework
E2020.Bath Furnishings
E2020.Bedroom Furnishings
F.SPECIAL CONSTRUCTION AND DEMOLITION
E1090.Food Service Equipment, E2010.Kitchen Casework, E2020.Furniture and Accessories
D3010.Storage Equipment
A.SUBSTRUCTURE, A1030.Subdrainage Systems
D5030.Security Access and Surveillance
D5030.Detection and Alarm Fire Alarm
D4010.Fire Protection Basic Materials and Methods
D.SERVICES, D10.Conveying
D1090.Dumbwaiters
D1010.Elevators and Lifts
D1010.Hydraulic Passenger Elevators
D1010.Elevators and Lifts
D2090.Other Plumbing Systems, E1010.Package Transfer Units
D.SERVICES, D10.Conveying. D1090.Cranes/Hoists
D.SERVICES, D30 Heating, Ventilating, and Air Conditioning (HVAC)
D30xx.Equipment Insulation
D.SERVICES
D2020.Valves
D20xx.Plumbing Pumps, D30xx.Pumps, D40xx.Pumps
D2020.Water Supply Piping Systems

D2030.Waste and Vent Piping
D2040.Rain Water Drainage Piping Systems
D30xx.Distribution Piping
D2090.Compressed Air Systems
D.SERVICES, D20.Plumbing Systems
D2010.Plumbing Fixtures
D.SERVICES, D3020.Heat Generation
D3020.Heating Boilers and Accessories
D.SERVICES, D3030.Refrigeration
D3030.Refrigerant Condensing Units
D.SERVICES, D30 Heating, Ventilating, and Air Conditioning (HVAC)
D30xx.Auxiliary Equipment
D3030.Heat Pumps
D3050.Humidifiers, D3050.Dehumidifiers
D3050.Terminal and Packaged Units
D3040.Air Distribution Systems
D3040.Ducts
D3040.Fans
D3040.Air Outlets and Inlets
D.SERVICES, D3060.HVAC Instrumentation and Controls
D.SERVICES, D50.Electrical
D.SERVICES, D5010.Electrical Service and Distribution, D5020.Lighting and Branch Wiring
D5020.Wiring Devices
D.SERVICES, D50.Electrical
D5010.Motor Control Centers, D5090.Other Electrical Systems
D.SERVICES, D5020.Interior Lighting/Exterior Lighting, G4020.Site Lighting
D5020.Exterior Luminaires
D5020.Emergency Lighting
D.SERVICES, D5030.Communication and Security
D5030.Voice and Data Systems
D5030.Voice and Data Systems
D5030.Public Address and Music Systems
D5030.Other Communications and Security
D5030.G4030.Broadcast Transmission and Reception Equipment
D.SERVICES, D5030.Communication and Security
D.SERVICES, D30 Heating, Ventilating, and Air Conditioning (HVAC), D50.Electrical
D3060.HVAC Instrumentation and Controls, D5010,Motor Control Centers, D5090.Other Electrical Systems
D3060.Eneergy Management and Conservation Systems
D3040.HVAC Distribution

Facility Name	[illegible]0300310: MAINTENANCE BUILDING
BuildingCode	E4000300310
Agency	Historical Society
AgencyCode	E40
Location	2609 County Road 76, Grand Rapids, MN 55744
Zip, First3	557
County	
Year Built	2011
Date Surveyed	Friday, March 01, 2013
Surveyor	Joe Black
Cost Model Category	Tunnel

# of Levels	1
Average Building Height FT	12
Perimeter LF	1,040
Length LF	500
Width LF	20
Footprint SF	10,000
Building Gross SF	10,000

Element not present	n/a
0 to 5%	5
5 to 10%	4
10 to 25%	3
25 to 50%	2
>50%	1

M03

BUILDING CONSTRUCTION DESCRIPTION

Sectioned concrete tunnel using CMU block for separation walls, painted finishes, lighting systems. No other power, HVAC or plumbing as served by adjacent buildings. Waterproofing system provided at exterior as below grade.

WBS Code	Level 3 Title	Present Yes/No	Level 4 / 5 Title	Cost ID	Description	Quantity or Area Served	Unit of Measure	Condition Rating	Notes
A. Substructure									
A10	***Foundations***								
A1010	Standard Foundations	Yes	Standard Foundations: Standard Model	M03-A1010-01	Continous strip footings at exterior walls, 16 foot exc	10,000	Building Footprint SF	5	A1010 Notes:
A1020	Special Foundations	No	Special Foundations: Standard Model		Not expected	-	Building Footprint SF	n/a	A1020 Notes:
A1030	Slab-on-Grade	Yes	Slab-on-Grade: Standard Model	M03-A1030-01	Cast-in-place, 8-inch concrete slab	10,000	Building Footprint SF	5	A1030 Notes:
A20	***Basement***								
A2020	Basement Wall Structures	Yes	Basement Walls: Standard Model	M03-A2020-01	Assume 12 inch thick concrete walls	10,000	Basement Area SF	n/a	A2020 Notes:
B. Structure and Shell									
B10	***Superstructure***								
B1010	Elevated Floor Structures	No	Floor Construction: Standard Model		None	-	Elevated Floors SF	n/a	B1010 Notes:
B1020	Roof Structural System	Yes	Roof Construction: Standard Model	M03-B1020-01	Flat 10-inch thick slab, 20 foot bay, 175PSF deadloa	10,000	Building Footprint SF	5	B1020 Notes:
B20	***Exterior Enclosure***								
B2010	Exterior Walls	No	Exterior Walls: Standard Model		Not Expected	-	Building Gross SF	4	B2010 Notes:
B2020	Exterior Windows	No	Exterior Windows: Standard Model		Not Expected	-	Building Gross SF	n/a	B2020 Notes:
B2030	Exterior Doors	No	Exterior Doors: Standard Model		Not Expected	-	Building Gross SF	3	B2030 Notes:
B30	***Roofing***								
B3010	Roof Coverings	Yes	Roof Coverings: Standard Model	M03-B3010-01	Waterproofing system including protection board and	10,000	Building Footprint SF	2	B3010 Notes:
C. Interiors									
C10	***Interior Construction***								
C1010	Partitions	Yes	Partitions: Standard Model	M03-C1010-01	Single CMU block demising wall separating utilities fr	10,000	Finished Area SF	5	C1010 Notes:
C1020	Interior Doors	Yes	Interior Doors: Standard Model	M03-C1020-01	6x7 double doors, aluminum storefront at each segm	10,000	Finished Area SF	n/a	C1020 Notes:
C1030	Fittings	Yes	Fittings: Standard Model	M03-C1030-01	Handrails - vary - assume 1 rail entire length	10,000	Finished Area SF	n/a	C1030 Notes:
C20	***Stairs/Fire Escapes***								
C2010	Stair Construction	No	Stair Construction: Standard Model		Not expected - part of attached building	-	Building Gross SF	n/a	C2010 Notes:
C30	***Interior Finishes***								
C3010	Walls	Yes	Wall Finishes: Standard Model	M03-C3010-01	Painted in public areas, bare concrete in utility area	10,000	Finished Area SF	3	C3010 Notes:
C3020	Floors	No	Floor Finishes: Standard Model		Exposed concrete	-	Finished Area SF	3	C3020 Notes:
C3030	Ceilings	Yes	Ceiling Finishes: Standard Model	M03-C3030-01	Painted in public areas, bare concrete in utility area	10,000	Finished Area SF	2	C3030 Notes:
D. Services									
D10	***Conveying Systems***								
D1010	Elevators and Lifts								
D1010.100	Elevators and Lifts	No	Elevators: Standard Model		Not Expected	-	# of Units	2	D1010.100 Notes:

Facility Name	- .300310: MAINTENANCE BUILDING
BuildingCode	E4000300310
Agency	Historical Society
AgencyCode	E40
Location	2609 County Road 76, Grand Rapids, MN 55744
Zip, First3	557
County	
Year Built	2011
Date Surveyed	Friday, March 01, 2013
Surveyor	Joe Black
Cost Model Category	Tunnel

# of Levels	1
Average Building Height FT	12
Perimeter LF	1,040
Length LF	500
Width LF	20
Footprint SF	10,000
Building Gross SF	10,000

Element not present	n/a
0 to 5%	5
5 to 10%	4
10 to 25%	3
25 to 50%	2
>50%	1

M03

BUILDING CONSTRUCTION DESCRIPTION

Sectioned concrete tunnel using CMU block for separation walls, painted finishes, lighting systems. No other power, HVAC or plumbing as served by adjacent buildings. Waterproofing system provided at exterior as below grade.

WBS Code	Level 3 Title	Present Yes/No	Level 4 / 5 Title	Cost ID	Description	Quantity or Area Served	Unit of Measure	Condition Rating	Notes
D1010.200	Elevators and Lifts	No	Lifts: Standard Model		Not Expected	-	# of Units	3	D1010.200 Notes:
D20	*Plumbing*								
D2010	Plumbing System and Fixtures	No	Plumbing System and Fixtures: Standard Model		Not Expected	-	Area Served SF	3	D2010 Notes:
D2020	Domestic Hot Water	No	Domestic Hot Water : Standard Model		Not Expected	-	Area Served SF	4	D2020 Notes:
D2040	Rain Water Drainage	No	Rain Water Drainage: Standard Model		Not Expected	-	Building Footprint SF	3	D2040 Notes:
D30	*HVAC*								
D3010	Energy Supply	No	Energy Supply: Standard Model		From adjacent buildings	-	Building Gross SF	n/a	D3010 Notes:
D3010.700	Energy Supply	No	Solar Energy Supply: Standard Model			-	Area Served SF	n/a	D3010.700 Notes:
D3010.800	Energy Supply	No	Wind Energy Supply: Standard Model			-	Area Served SF	n/a	D3010.800 Notes:
D3010.900	Energy Supply	No	Geothermal Heating/Cooling Supply: Standard Model			-	Area Served SF	n/a	D3010.900 Notes:

Facility Name	E4000300310: MAINTENANCE BUILDING
BuildingCode	E4000300310
Agency	Historical Society
AgencyCode	E40
Location	2609 County Road 76, Grand Rapids, MN 55744
Zip, First3	557
County	
Year Built	2011
Date Surveyed	Friday, March 01, 2013
Surveyor	Joe Black
Cost Model Category	Tunnel

# of Levels	1
Average Building Height FT	12
Perimeter LF	1,040
Length LF	500
Width LF	20
Footprint SF	10,000
Building Gross SF	10,000

Element not present	n/a
0 to 5%	5
5 to 10%	4
10 to 25%	3
25 to 50%	2
>50%	1

BUILDING CONSTRUCTION DESCRIPTION

M03 — Sectioned concrete tunnel using CMU block for separation walls, painted finishes, lighting systems. No other power, HVAC or plumbing as served by adjacent buildings. Waterproofing system provided at exterior as below grade.

WBS Code	Level 3 Title	Present Yes/No	Level 4 / 5 Title	Cost ID	Description	Quantity or Area Served	Unit of Measure	Condition Rating	Notes
D3020	Central Plant Heating	No	Central Plant Heating: Standard Model			-	Area Served SF	n/a	D3020 Notes:
D3020.300	Central Plant Heating	No	Fireplaces: Standard Model			-	Area Served SF	n/a	D3020.300 Notes:
D3030	Central Plant Cooling	No	Central Plant Cooling: Standard Model			-	Area Served SF	3	D3030 Notes:
D3040	Distribution Systems								
D3040.100	Distribution Systems	No	Distribution Systems, Heat: Standard Model			-	Area Served SF	3	D3040.100 Notes:
D3040.200	Distribution Systems	No	Distribution Systems, Cooling: Standard Model			-	Area Served SF	3	D3040.200 Notes:
D3050	Terminal and Packaged Units								
D3050.100	Terminal and Packaged Units	No	Cooling Condenser Addded to AHU: Standard Model			-	Area Served SF	2	D3050.100 Notes:
D3050.200	Terminal and Packaged Units	No	Terminal and Packaged Units: SubcategoryOption2			-	Area Served SF	2	D3050.200 Notes:
D3060	Controls	No	Controls: Standard Model			-	Area Served SF	2	D3060 Notes:
D40	***Fire Protection***								
D4010	Sprinklers	Yes	Sprinklers: Standard Model	M03-D4010-01	Ordinary hazard - one floor, 10,000 SF	10,000	Area Served SF	4	D4010 Notes:
D4020	Standpipes	No	Standpipes: Standard Model		Not expected	-	Area Served SF	4	D4020 Notes:
D50	***Electrical***								
D5010	Electrical Service and Distribution	Yes	Electrical Service and Distribution: Standard Model	M03-D5010-01	Pole mounted switch	10,000	Building Gross SF	4	D5010 Notes:
D5020	Lighting and Branch Wiring	Yes	Lighting and Branch Wiring: Standard Model	M03-D5020-01	Limited distribution wiring and florescent wall mount f	10,000	Building Gross SF	3	D5020 Notes:
D5030	Communication/Security/Fire Alarm	No	Communication/Security/Fire Alarm: Standard Model			-	Area Served SF	3	D5030 Notes:
D5090	Emergency Power	No	Emergency Power: Standard Model			-	Area Served SF	4	D5090 Notes:
E. Equipment and Furnishings									
E10	***Equipment***								
E1010	Commercial Equipment	No	Commercial Equipment: Standard Model			-	Building Gross SF	3	E1010 Notes:
E1020	Institutional Equipment	No	Institutional Equipment: Standard Model			-	Building Gross SF	3	E1020 Notes:
E1030	Vehicular Equipment								
E1030.100	Vehicular Equipment	No	Overhead Cranes: Standard Model			-	Area Served SF	3	E1030.100 Notes:
E1030.200	Vehicular Equipment	No	Truck Weight Scales: Standard Model			-	Area Served SF	4	E1030.200 Notes:
E1030.300	Vehicular Equipment	No	Boat Lifts: Standard Model			-	Area Served SF	3	E1030.300 Notes:
E1090	Other Equipment								
E1090.300	Other Equipment	No	Food Service Equipment: Standard Model			-	Area Served SF	3	E1090.300 Notes:
E1090.400	Other Equipment	No	Residential Equipment: Standard Model			-	Area Served SF	4	E1090.400 Notes:
E1090.700	Other Equipment	No	Athletic Equipment: Standard Model			-	Area Served SF	3	E1090.700 Notes:

Facility Name	E400300310: MAINTENANCE BUILDING
BuildingCode	E4000300310
Agency	Historical Society
AgencyCode	E40
Location	2609 County Road 76, Grand Rapids, MN 55744
Zip, First3	557
County	
Year Built	2011
Date Surveyed	Friday, March 01, 2013
Surveyor	Joe Black
Cost Model Category	Tunnel

# of Levels	1
Average Building Height FT	12
Perimeter LF	1,040
Length LF	500
Width LF	20
Footprint SF	10,000
Building Gross SF	10,000

Element not present	n/a
0 to 5%	5
5 to 10%	4
10 to 25%	3
25 to 50%	2
>50%	1

M03

BUILDING CONSTRUCTION DESCRIPTION

Sectioned concrete tunnel using CMU block for separation walls, painted finishes, lighting systems. No other power, HVAC or plumbing as served by adjacent buildings. Waterproofing system provided at exterior as below grade.

WBS Code	Level 3 Title	Present Yes/No	Level 4 / 5 Title	Cost ID	Description	Quantity or Area Served	Unit of Measure	Condition Rating	Notes
E1090.900	Other Equipment								
E1090.901	Other Equipment	No	Animal Storage/Cages: Standard Model			-	Area Served SF	4	E1090.901 Notes:
E1090.902	Other Equipment	No	Fish Hatchery/Concrete Troughs: Standard Model			-	Area Served SF	4	E1090.902 Notes:
E20	*Furnishings*								
E2010	Fixed Furnishings								
E2010.200	Fixed Furnishings	No	Casework: Standard Model			-	Area Served SF	3	E2010.200 Notes:
E2010.300	Fixed Furnishings	No	Seating: Standard Model			-	# of Seats	2	E2010.300 Notes:
F. Special Construction and Demolition									
F10	*Special Structures*								
F1010.100	Pre-Engineered Structure - Tower	No	Pre-Engineered Structure - Tower: Standard Model			-	HeightLF	n/a	F1010.100 Notes:
F1010.330	Silos	No	Silos: Standard Model			-	Volume CF	n/a	F1010.330 Notes:
F1010.400	Pre-Fabricated Vault Toilet	No	Pre-Fabricated Vault Toilets: Standard Model			-	Footprint SF	n/a	F1010.400 Notes:
F1010.700	Fabric Structure	No	Fabric Structure: Standard Model			-	Area Served SF	n/a	F1010.700 Notes:
F20	*Integrated Construction*								
F1020.101	Integrated Construction	No	Elementary School Gym/Multi-purpose Room			-	Area Served SF	n/a	F1020.101 Notes:
F1020.102	Integrated Construction	No	High School Level - Competition Gymnasium			-	Area Served SF	n/a	F1020.102 Notes:
F1020.200	Integrated Construction	No	Auditorium: Standard Model			-	Area Served SF	n/a	F1020.200 Notes:
F1020.300	Integrated Construction	No	Cold Storage Rooms: Standard Model			-	Area Served SF	n/a	F1020.300 Notes:
F40	*Special Facilities*								
F1040.100	Special Facilities	No	Aquatic Facilities: Standard Model			-	Area Served SF	n/a	F1040.100 Notes:
F1040.300	Special Facilities	No	Ice Rinks: Standard Model			-	Area Served SF	n/a	F1040.300 Notes:

GENERAL NOTES:

Facility Name	E4[illegible]: MAINTENANCE BUILDING
BuildingCode	E4000300310
Agency	Historical Society
AgencyCode	E40
Location	2609 County Road 76, Grand Rapids, MN 55744
Zip, First3	557
County	
Year Built	2011
Date Surveyed	Friday, March 01, 2013
Surveyor	Joe Black
Cost Model Category	Tunnel M03

# of Levels	1
Average Building Height FT	12
Perimeter LF	1,040
Footprint SF	10,000
Building Gross SF	10,000

Element not present	n/a	0%
0 to 5%	5	2%
5 to 10%	4	10%
10 to 25%	3	33%
25 to 50%	2	75%
>50%	1	100%

Use Raw or Factored Costs?	Raw	USER ENTER HERE
Location Factor	1.00	County missing from buildings list; enter on MN Buildings worksheet
Historic Factor	1.10	USER ENTER HERE
Markup %	80.0%	USER ENTER HERE

$ 110.38 $ 1,103,806 $ 110.38 $117,115
All costs are Raw costs, without Factors or Markup

WBS Code	Level 3 Title	Present Yes/No	Level 4 / 5 Title	Cost ID	Description	Quantity or Area Served	Unit of Measure	Condition Rating	Unit Cost $	Category CRV $	DM %	Category DM $	Notes
A. Substructure													
A10	*Foundations*												
A1010	Standard Foundations	Yes	Standard Foundations: Standard Mo	M03-A1010-01	Continous strip footings at exterior walls, 16 foot ex	10,000	Building Footprint SF	5	$ 17.75	$ 177,500	2%	$ 3,550	A1010 Notes:
A1020	Special Foundations	No	Special Foundations: Standard Mod		Not expected	0	Building Footprint SF	n/a	$ -	$ -	0%	$ -	A1020 Notes:
A1030	Slab-on-Grade	Yes	Slab-on-Grade: Standard Model	M03-A1030-01	Cast-in-place, 6-inch concrete slab	10,000	Building Footprint SF	5	$ 14.55	$ 145,500	2%	$ 2,910	A1030 Notes:
A20	*Basement*												
A2020	Basement Wall Structures	Yes	Basement Walls: Standard Model	M03-A2020-01	Assume 12 inch thick concrete walls	10,000	Basement Area SF	n/a	$ 28.98	$ 289,800	0%	$ -	A2020 Notes:
B. Structure and Shell													
B10	*Superstructure*												
B1010	Elevated Floor Structures	No	Floor Construction: Standard Model		None	0	Elevated Floors SF	n/a	$ -	$ -	0%	$ -	B1010 Notes:
B1020	Roof Structural System	Yes	Roof Construction: Standard Model	M03-B1020-01	Flat 10-inch thick slab, 20 foot bay, 175PSF deadloa	10,000	Building Footprint SF	5	$ 15.85	$ 158,500	2%	$ 3,170	B1020 Notes:
B20	*Exterior Enclosure*												
B2010	Exterior Walls	No	Exterior Walls: Standard Model		Not Expected	0	Building Gross SF	4	$ -	$ -	10%	$ -	B2010 Notes:
B2020	Exterior Windows	No	Exterior Windows: Standard Model		Not Expected	0	Building Gross SF	n/a	$ -	$ -	0%	$ -	B2020 Notes:
B2030	Exterior Doors	No	Exterior Doors: Standard Model		Not Expected	0	Building Gross SF	3	$ -	$ -	33%	$ -	B2030 Notes:
B30	*Roofing*												
B3010	Roof Coverings	Yes	Roof Coverings: Standard Model	M03-B3010-01	Waterproofing system including protection board an	10,000	Building Footprint SF	2	$ 8.86	$ 88,600	75%	$ 64,950	B3010 Notes:
C. Interiors													
C10	*Interior Construction*												
C1010	Partitions	Yes	Partitions: Standard Model	M03-C1010-01	Single CMU block demising wall separating utilities	10,000	Finished Area SF	5	$ 5.02	$ 50,150	2%	$ 1,003	C1010 Notes:
C1020	Interior Doors	Yes	Interior Doors: Standard Model	M03-C1020-01	8x7 double doors, aluminum storefront at each segn	10,000	Finished Area SF	n/a	$ 3.45	$ 34,500	0%	$ -	C1020 Notes:
C1030	Fittings	Yes	Fittings: Standard Model	M03-C1030-01	Handrails - very - assume 1 rail entire length	10,000	Finished Area SF	n/a	$ 1.90	$ 19,000	0%	$ -	C1030 Notes:
C20	*Stairs/Fire Escapes*												
C2010	Stair Construction	No	Stair Construction: Standard Model		Not expected - part of attached building	0	Building Gross SF	n/a	$ -	$ -	0%	$ -	C2010 Notes:
C30	*Interior Finishes*												
C3010	Walls	Yes	Wall Finishes: Standard Model	M03-C3010-01	Painted in public areas, bare concrete in utility area	10,000	Finished Area SF	3	$ 3.23	$ 32,333	33%	$ 10,670	C3010 Notes:
C3020	Floors	No	Floor Finishes: Standard Model		Exposed concrete	0	Finished Area SF	3	$ -	$ -	33%	$ -	C3020 Notes:
C3030	Ceilings	Yes	Ceiling Finishes: Standard Model	M03-C3030-01	Painted in public areas, bare concrete in utility area	10,000	Finished Area SF	2	$ 1.74	$ 17,400	75%	$ 13,050	C3030 Notes:
D. Services													
D10	*Conveying Systems*												
D1010	Elevators and Lifts												
D1010.100	Elevators and Lifts	No	Elevators: Standard Model		Not Expected	0	# of Units	2	$ -	$ -	75%	$ -	D1010.100 Notes:
D1010.200	Elevators and Lifts	No	Lifts: Standard Model		Not Expected	0	# of Units	3	$ -	$ -	33%	$ -	D1010.200 Notes:
D20	*Plumbing*												
D2010	Plumbing System and Fixtures	No	Plumbing System and Fixtures: Star		Not Expected	0	Area Served SF	3	$ -	$ -	33%	$ -	D2010 Notes:
D2020	Domestic Hot Water	No	Domestic Hot Water : Standard Mod		Not Expected	0	Area Served SF	4	$ -	$ -	10%	$ -	D2020 Notes:
D2040	Rain Water Drainage	No	Rain Water Drainage: Standard Mod		Not Expected	0	Building Footprint SF	3	$ -	$ -	33%	$ -	D2040 Notes:
D30	*HVAC*												
D3010	Energy Supply	No	Energy Supply: Standard Model		From adjacent buildings	0	Building Gross SF	n/a	$ -	$ -	0%	$ -	D3010 Notes:
D3010.700	Energy Supply	No	Solar Energy Supply: Standard Mod			0	Area Served SF	n/a	$ -	$ -	0%	$ -	D3010.700 Notes:
D3010.800	Energy Supply	No	Wind Energy Supply: Standard Mod			0	Area Served SF	n/a	$ -	$ -	0%	$ -	D3010.800 Notes:

Surveyor Initials:_____
Date:_____

Facility Name	E4. :0: MAINTENANCE BUILDING
BuildingCode	E4000300310
Agency	Historical Society
AgencyCode	E40
Location	2609 County Road 76, Grand Rapids, MN 55744
Zip, First3	557
County	
Year Built	2011
Date Surveyed	Friday, March 01, 2013
Surveyor	Joe Black
Cost Model Category	Tunnel M03

# of Levels	1
Average Building Height FT	12
Perimeter LF	1,040
Footprint SF	10,000
Building Gross SF	10,000

Element not present	n/a	0%
0 to 5%	5	2%
5 to 10%	4	10%
10 to 25%	3	33%
25 to 50%	2	75%
>50%	1	100%

Use Raw or Factored Costs?	Raw	USER ENTER HERE
Location Factor	1.00	County missing from buildings list; enter on MN Buildings worksheet
Historic Factor	1.10	USER ENTER HERE
Markup %	60.0%	USER ENTER HERE

$ 110.36 $ 1,103,608 $ 110.36 $117,115
All costs are Raw costs, without Factors or Markup

WBS Code	Level 3 Title	Present Yes/No	Level 4 / 5 Title	Cost ID	Description	Quantity or Area Served	Unit of Measure	Condition Rating	Unit Cost $	Category CRV $	DM %	Category DM $	Notes
D3010.900	Energy Supply	No	Geothermal Heating/Cooling Supply			0	Area Served SF	n/a	$ -	$ -	0%	$ -	D3010.900 Notes:

Facility Name	Ex. :10: MAINTENANCE BUILDING
BuildingCode	E4000300310
Agency	Historical Society
AgencyCode	E40
Location	2609 County Road 76, Grand Rapids, MN 55744
Zip, First3	557
County	
Year Built	2011
Date Surveyed	Friday, March 01, 2013
Surveyor	Joe Bleck
Cost Model Category	Tunnel M03

# of Levels	1
Average Building Height FT	12
Perimeter LF	1,040
Footprint SF	10,000
Building Gross SF	10,000

Element not present	n/a	0%
0 to 5%	5	2%
5 to 10%	4	10%
10 to 25%	3	33%
25 to 50%	2	75%
>50%	1	100%

Use Raw or Factored Costs?	Raw	USER ENTER HERE
Location Factor	1.00	County missing from buildings list; enter on MN Buildings worksheet.
Historic Factor	1.10	USER ENTER HERE
Markup %	80.0%	USER ENTER HERE

$ 110.38 $ 1,103,808 $ 110.36 $117,115
All costs are Raw costs, without Factors or Markup

WBS Code	Level 3 Title	Present Yes/No	Level 4 / 5 Title	Cost ID	Description	Quantity or Area Served	Unit of Measure	Condition Rating	Unit Cost $	Category CRV $	DM %	Category DM $	Notes
D3020	Central Plant Heating	No	Central Plant Heating: Standard Mod			0	Area Served SF	n/a	$ -	$ -	0%	$ -	D3020 Notes:
D3020.300	Central Plant Heating	No	Fireplaces: Standard Model			0	Area Served SF	n/a	$ -	$ -	0%	$ -	D3020.300 Notes:
D3030	Central Plant Cooling												
D3040	Distribution Systems												
D3040.100	Distribution Systems	No	Distribution Systems, Heat: Standard			0	Area Served SF	3	$ -	$ -	33%	$ -	D3040.100 Notes:
D3040.200	Distribution Systems	No	Distribution Systems, Cooling: Stand			0	Area Served SF	3	$ -	$ -	33%	$ -	D3040.200 Notes:
D3050	Terminal and Packaged Units												
D3050.100	Terminal and Packaged Units	No	Cooling Condenser Added to AHU:			0	Area Served SF	2	$ -	$ -	75%	$ -	D3050.100 Notes:
D3050.200	Terminal and Packaged Units	No	Terminal and Packaged Units: Subc			0	Area Served SF	2	$ -	$ -	75%	$ -	D3050.200 Notes:
D3060	Controls	No	Controls: Standard Model			0	Area Served SF	2	$ -	$ -	75%	$ -	D3060 Notes:
D40	*Fire Protection*												
D4010	Sprinklers	Yes	Sprinklers: Standard Model	M03-D4010-01	Ordinary hazard - one floor, 10,000 SF	10,000	Area Served SF	4	$ 4.73	$ 47,300	10%	$ 4,730	D4010 Notes:
D4020	Standpipes	No	Standpipes: Standard Model		Not expected	0	Area Served SF	4	$ -	$ -	10%	$ -	D4020 Notes:
D50	*Electrical*												
D5010	Electrical Service and Distribution	Yes	Electrical Service and Distribution: S	M03-D5010-01	Pole mounted switch	10,000	Building Gross SF	4	$ 0.77	$ 7,725	10%	$ 773	D5010 Notes:
D5020	Lighting and Branch Wiring	Yes	Lighting and Branch Wiring: Standa	M03-D5020-01	Limited distribution wiring and florescent wall mount	10,000	Building Gross SF	3	$ 3.73	$ 37,300	33%	$ 12,309	D5020 Notes:
D5030	Communication/Security/Fire Alarm	No	Communication/Security/Fire Alarm:			0	Area Served SF	3	$ -	$ -	33%	$ -	D5030 Notes:
D5090	Emergency Power	No	Emergency Power: Standard Model			0	Area Served SF	4	$ -	$ -	10%	$ -	D5090 Notes:
E, Equipment and Furnishings													
E10	*Equipment*												
E1010	Commercial Equipment	No	Commercial Equipment: Standard M			0	Building Gross SF	3	$ -	$ -	33%	$ -	E1010 Notes:
E1020	Institutional Equipment	No	Institutional Equipment: Standard M			0	Building Gross SF	3	$ -	$ -	33%	$ -	E1020 Notes:
E1030	Vehicular Equipment												
E1030.100	Vehicular Equipment	No	Overhead Cranes: Standard Model			0	Area Served SF	3	$ -	$ -	33%	$ -	E1030.100 Notes:
E1030.200	Vehicular Equipment	No	Truck Weight Scales: Standard Mod			0	Area Served SF	4	$ -	$ -	10%	$ -	E1030.200 Notes:
E1030.300	Vehicular Equipment	No	Boat Lifts: Standard Model			0	Area Served SF	3	$ -	$ -	33%	$ -	E1030.300 Notes:
E1090	Other Equipment												
E1090.300	Other Equipment	No	Food Service Equipment: Standard I			0	Area Served SF	3	$ -	$ -	33%	$ -	E1090.300 Notes:
E1090.400	Other Equipment	No	Residential Equipment: Standard M			0	Area Served SF	4	$ -	$ -	10%	$ -	E1090.400 Notes:
E1090.700	Other Equipment	No	Athletic Equipment: Standard Model			0	Area Served SF	3	$ -	$ -	33%	$ -	E1090.700 Notes:
E1090.900	Other Equipment												
E1090.901	Other Equipment	No	Animal Storage/Cages: Standard Mo			0	Area Served SF	4	$ -	$ -	10%	$ -	E1090.901 Notes:
E1090.902	Other Equipment	No	Fish Hatchery/Concrete Troughs: St			0	Area Served SF	4	$ -	$ -	10%	$ -	E1090.902 Notes:
E20	*Furnishings*												
E2010	Fixed Furnishings												
E2010.200	Fixed Furnishings	No	Casework: Standard Model			0	Area Served SF	3	$ -	$ -	33%	$ -	E2010.200 Notes:
E2010.300	Fixed Furnishings	No	Seating: Standard Model			0	# of Seats	2	$ -	$ -	75%	$ -	E2010.300 Notes:
F, Special Construction and Demolition													
F10	*Special Structures*												
F1010.100	Pre-Engineered Structure - Tower	No	Pre-Engineered Structure - Tower: S			0	Height LF	n/a	$ -	$ -	0%	$ -	F1010.100 Notes:
F1010.330	Silos	No	Silos: Standard Model			0	Volume CF	n/a	$ -	$ -	0%	$ -	F1010.330 Notes:

Facility Name	EA 0: MAINTENANCE BUILDING
BuildingCode	E4000300310
Agency	Historical Society
AgencyCode	E40
Location	2609 County Road 76, Grand Rapids, MN 55744
Zip, First3	557
County	
Year Built	2011
Date Surveyed	Friday, March 01, 2013
Surveyor	Joe Black
Cost Model Category	Tunnel M03

# of Levels	1
Average Building Height FT	12
Perimeter LF	1,040
Footprint SF	10,000
Building Gross SF	10,000

Element not present	n/a	0%
0 to 5%	5	2%
5 to 10%	4	10%
10 to 25%	3	33%
25 to 50%	2	75%
>50%	1	100%

Use Raw or Factored Costs?	Raw	USER ENTER HERE
Location Factor	1.00	County missing from buildings list; enter on MN Buildings worksheet.
Historic Factor	1.10	USER ENTER HERE
Markup %	60.0%	USER ENTER HERE

$ 110.36 $ 1,103,608 $ 110.36 $ 117,115
All costs are Raw costs, without Factors or Markup

WBS Code	Level 3 Title	Present Yes/No	Level 4 / 5 Title	Cost ID	Description	Quantity or Area Served	Unit of Measure	Condition Rating	Unit Cost $	Category CRV $	DM %	Category DM $	Notes
F1010.400	Pre-Fabricated Vault Toilet	No	Pre-Fabricated Vault Toilets: Standa			0	Footprint SF	n/a	$ -	$ -	0%	$ -	F1010.400 Notes:
F1010.700	Fabric Structure	No	Fabric Structure: Standard Model			0	Area Served SF	n/a	$ -	$ -	0%	$ -	F1010.700 Notes:
F20	*Integrated Construction*												
F1020.101	Integrated Construction	No	Elementary School Gym/Multi-purpo			0	Area Served SF	n/a	$ -	$ -	0%	$ -	F1020.101 Notes:
F1020.102	Integrated Construction	No	High School Level - Competition Gy			0	Area Served SF	n/a	$ -	$ -	0%	$ -	F1020.102 Notes:
F1020.200	Integrated Construction	No	Auditorium: Standard Model			0	Area Served SF	n/a	$ -	$ -	0%	$ -	F1020.200 Notes:
F1020.300	Integrated Construction	No	Cold Storage Rooms: Standard Mod			0	Area Served SF	n/a	$ -	$ -	0%	$ -	F1020.300 Notes:
F40	*Special Facilities*												
F1040.100	Special Facilities	No	Aquatic Facilities: Standard Model			0	Area Served SF	n/a	$ -	$ -	0%	$ -	F1040.100 Notes:
F1040.300	Special Facilities	No	Ice Rinks: Standard Model			0	Area Served SF	n/a	$ -	$ -	0%	$ -	F1040.300 Notes:

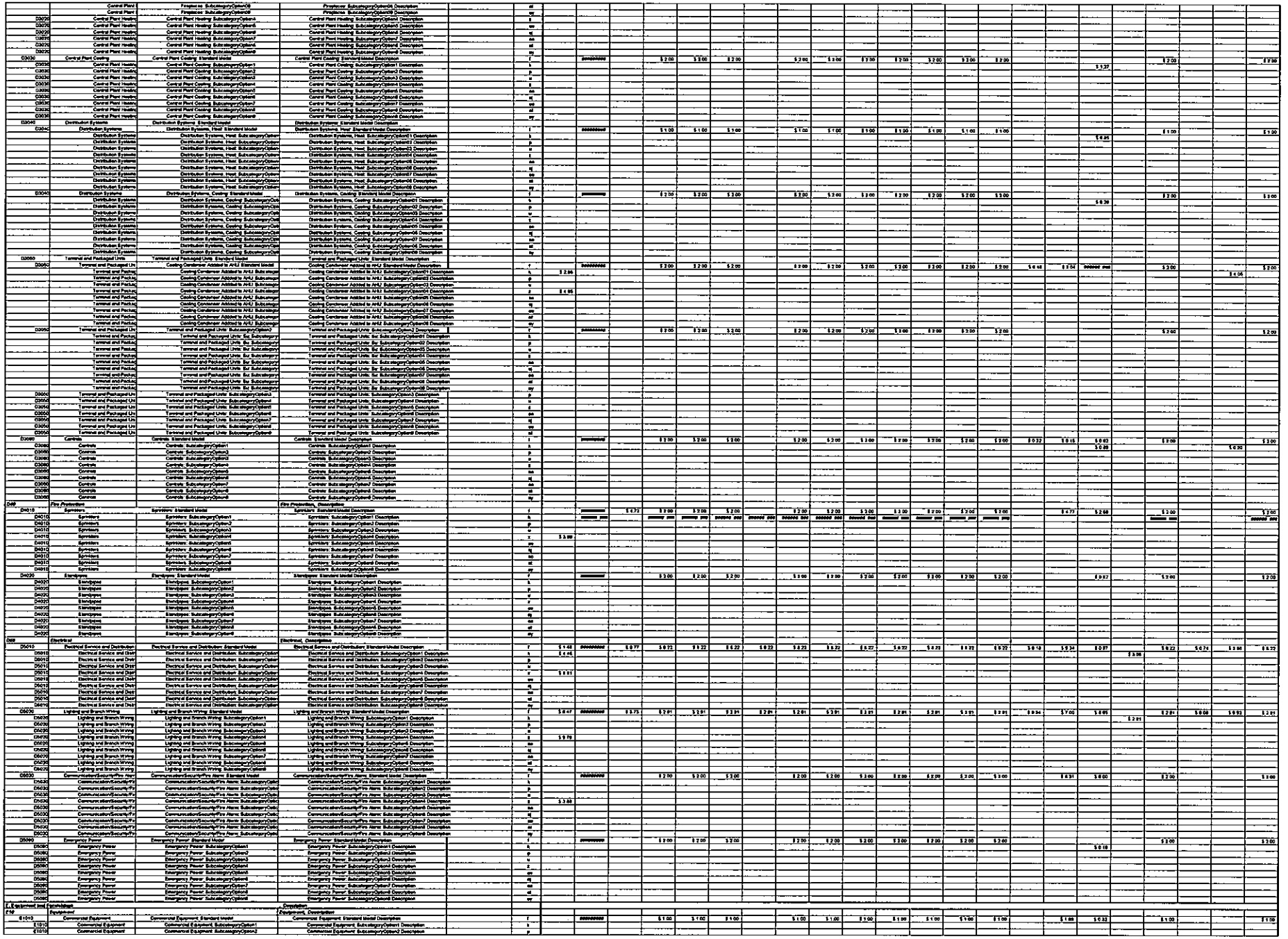
GENERAL NOTES:

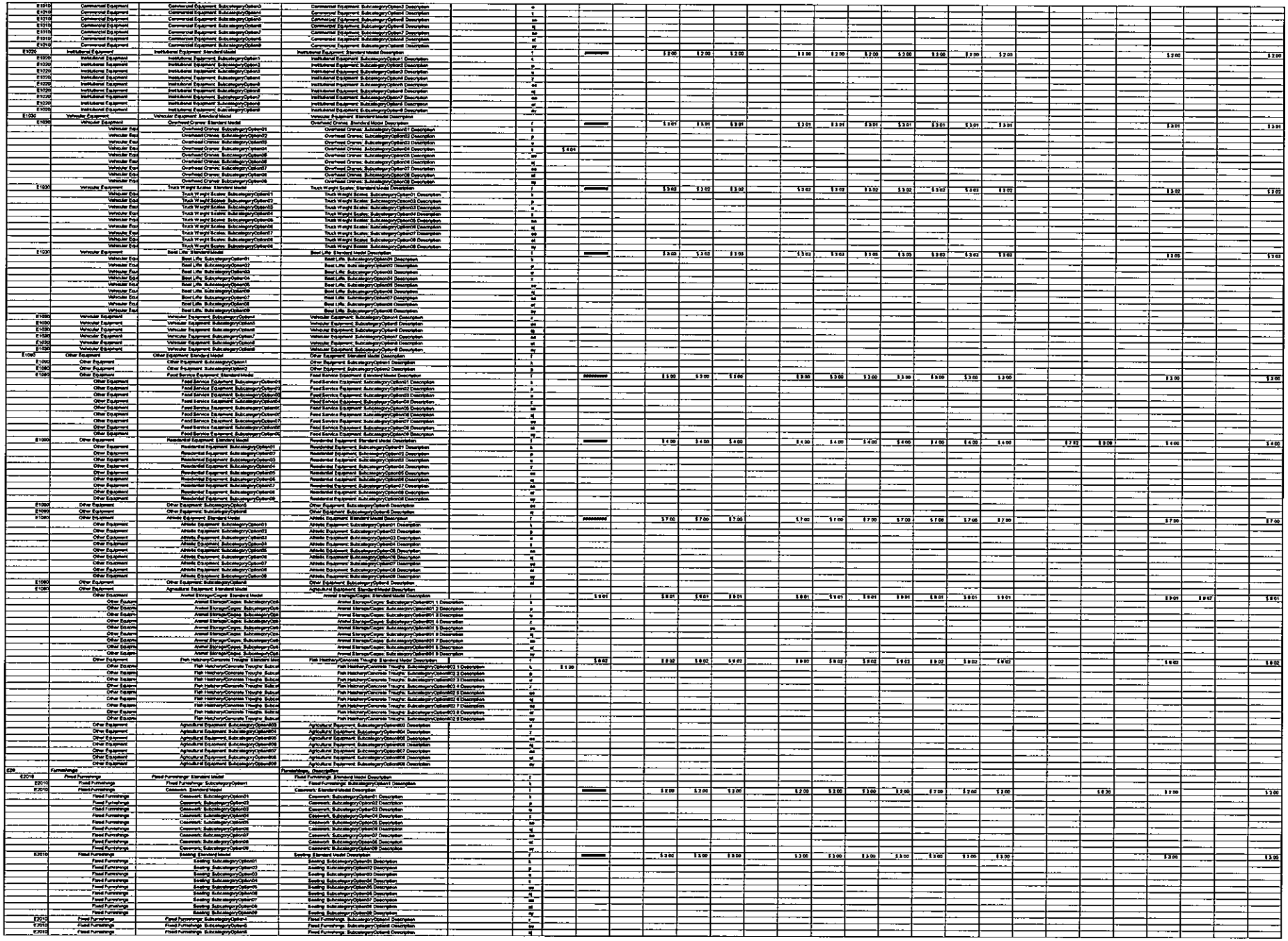
Systems and Assemblies

COST MODELS & UNIT COSTS

WBS Code	Level 3 Title	Level 4 / 5 Title	Item Description	RS Means Reference	Local Column Reference	M01 Automatic Warehouse Building	M02 Single-family Residence	M03 Tunnel	M04 Executive Office Building 3 to 5 story	M05 Mid-rise Office Building 5 to 10 story	M06 Single-story Commercial Public Facility	M07 Utility Shed	M08 Single-story Non-public Facility	M09 Watch Tower	M10 Parking Ramp	M11 Parking Garage	M12 Recreation Center	M13 Tower	M14 Fabric Structure	M15 Single-story Restroom Facility	M16 Multi-family Housing	M17 Dormitory	M18 Open Air Shelter	M19 School	M20 Open Air Storage Structure	M21 Bunker	M22 Jail
A10	Foundations																										
A1010	Standard Foundations	Standard Foundations: Standard Model	Standard Foundations: Standard Model Description	A1010 110 2700/7410/7700	f	$5.26	######	######	######	######	######	######	######	######	######	######	######	######	######	######	######	$5.86	$7.40	######	$8.75	######	######
A1010	Standard Foundations	Standard Foundations: SubcategoryOption1	Standard Foundations: SubcategoryOption1 Description		k																		$9.24				
A1010	Standard Foundations	Standard Foundations: SubcategoryOption2	Standard Foundations: SubcategoryOption2 Description		p																						
A1010	Standard Foundations	Standard Foundations: SubcategoryOption3	Standard Foundations: SubcategoryOption3 Description		u																						
A1010	Standard Foundations	Standard Foundations: SubcategoryOption4	Standard Foundations: SubcategoryOption4 Description		z																						
A1010	Standard Foundations	Standard Foundations: SubcategoryOption5	Standard Foundations: SubcategoryOption5 Description		ae																						
A1010	Standard Foundations	Standard Foundations: SubcategoryOption6	Standard Foundations: SubcategoryOption6 Description		aj																						
A1010	Standard Foundations	Standard Foundations: SubcategoryOption7	Standard Foundations: SubcategoryOption7 Description		ao																						
A1010	Standard Foundations	Standard Foundations: SubcategoryOption8	Standard Foundations: SubcategoryOption8 Description		at																						
A1010	Standard Foundations	Standard Foundations: SubcategoryOption9	Standard Foundations: SubcategoryOption9 Description		ay																						
A1020	Special Foundations	Special Foundations: Standard Model	Special Foundations: Standard Model Description		f		######		$1.00	$1.00	$1.00		$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00					$1.00			$1.00
A1020	Special Foundations	Special Foundations: SubcategoryOption1	Special Foundations: SubcategoryOption1 Description		k																						
A1020	Special Foundations	Special Foundations: SubcategoryOption2	Special Foundations: SubcategoryOption2 Description		p																						
A1020	Special Foundations	Special Foundations: SubcategoryOption3	Special Foundations: SubcategoryOption3 Description		u																						
A1020	Special Foundations	Special Foundations: SubcategoryOption4	Special Foundations: SubcategoryOption4 Description		z																						
A1020	Special Foundations	Special Foundations: SubcategoryOption5	Special Foundations: SubcategoryOption5 Description		ae																						
A1020	Special Foundations	Special Foundations: SubcategoryOption6	Special Foundations: SubcategoryOption6 Description		aj																						
A1020	Special Foundations	Special Foundations: SubcategoryOption7	Special Foundations: SubcategoryOption7 Description		ao																						
A1020	Special Foundations	Special Foundations: SubcategoryOption8	Special Foundations: SubcategoryOption8 Description		at																						
A1020	Special Foundations	Special Foundations: SubcategoryOption9	Special Foundations: SubcategoryOption9 Description		ay																						
A1030	Slab-on-Grade	Slab-on-Grade: Standard Model	Slab-on-Grade: Standard Model Description	A1030 110 2240	f	######	######	######	$6.88	$6.66	$6.88	$6.88	$6.66	$6.88	$6.88	$6.88	$6.88	$6.88	$6.88	$6.87	$5.11	$6.11	$5.11	$6.88	$5.11	######	$6.88
A1030	Slab-on-Grade	Slab-on-Grade: SubcategoryOption1	Slab-on-Grade: SubcategoryOption1 Description		k	######																					
A1030	Slab-on-Grade	Slab-on-Grade: SubcategoryOption2	Slab-on-Grade: SubcategoryOption2 Description		p																						
A1030	Slab-on-Grade	Slab-on-Grade: SubcategoryOption3	Slab-on-Grade: SubcategoryOption3 Description		u																						
A1030	Slab-on-Grade	Slab-on-Grade: SubcategoryOption4	Slab-on-Grade: SubcategoryOption4 Description		z																						
A1030	Slab-on-Grade	Slab-on-Grade: SubcategoryOption5	Slab-on-Grade: SubcategoryOption5 Description		ae																						
A1030	Slab-on-Grade	Slab-on-Grade: SubcategoryOption6	Slab-on-Grade: SubcategoryOption6 Description		aj																						
A1030	Slab-on-Grade	Slab-on-Grade: SubcategoryOption7	Slab-on-Grade: SubcategoryOption7 Description		ao																						
A1030	Slab-on-Grade	Slab-on-Grade: SubcategoryOption8	Slab-on-Grade: SubcategoryOption8 Description		at																						
A1030	Slab-on-Grade	Slab-on-Grade: SubcategoryOption9	Slab-on-Grade: SubcategoryOption9 Description		ay																						
A20	Basement		Basement, Description																								
A2020	Basement Walls	Basement Walls: Standard Model	Basement Walls: Standard Model Description		f		######	######	$1.00	$1.00	$1.00		$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00					$1.00		######	$1.00
A2020	Basement Walls	Basement Walls: SubcategoryOption1	Basement Walls: SubcategoryOption1 Description		k																######	$6.37					
A2020	Basement Walls	Basement Walls: SubcategoryOption2	Basement Walls: SubcategoryOption2 Description		p																						
A2020	Basement Walls	Basement Walls: SubcategoryOption3	Basement Walls: SubcategoryOption3 Description		u																						
A2020	Basement Walls	Basement Walls: SubcategoryOption4	Basement Walls: SubcategoryOption4 Description		z																						
A2020	Basement Walls	Basement Walls: SubcategoryOption5	Basement Walls: SubcategoryOption5 Description		ae																						
A2020	Basement Walls	Basement Walls: SubcategoryOption6	Basement Walls: SubcategoryOption6 Description		aj																						
A2020	Basement Walls	Basement Walls: SubcategoryOption7	Basement Walls: SubcategoryOption7 Description		ao																						
A2020	Basement Walls	Basement Walls: SubcategoryOption8	Basement Walls: SubcategoryOption8 Description		at																						
A2020	Basement Walls	Basement Walls: SubcategoryOption9	Basement Walls: SubcategoryOption9 Description		ay																						
B. Structure and Shell			Description																								
B10	Superstructure		Superstructure, Description																								
B1010	Floor Construction	Floor Construction: Standard Model	Floor Construction: Standard Model Description		f	######	######		$1.00	$1.00	$1.00		$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00			######		$1.00			$1.00
B1010	Floor Construction	Floor Construction: SubcategoryOption1	Floor Construction: SubcategoryOption1 Description		k	######															$9.94	######					
B1010	Floor Construction	Floor Construction: SubcategoryOption2	Floor Construction: SubcategoryOption2 Description		p																$4.49						
B1010	Floor Construction	Floor Construction: SubcategoryOption3	Floor Construction: SubcategoryOption3 Description		u																						
B1010	Floor Construction	Floor Construction: SubcategoryOption4	Floor Construction: SubcategoryOption4 Description		z																						
B1010	Floor Construction	Floor Construction: SubcategoryOption5	Floor Construction: SubcategoryOption5 Description		ae																						
B1010	Floor Construction	Floor Construction: SubcategoryOption6	Floor Construction: SubcategoryOption6 Description		aj																						
B1010	Floor Construction	Floor Construction: SubcategoryOption7	Floor Construction: SubcategoryOption7 Description		ao																						
B1010	Floor Construction	Floor Construction: SubcategoryOption8	Floor Construction: SubcategoryOption8 Description		at																						
B1010	Floor Construction	Floor Construction: SubcategoryOption9	Floor Construction: SubcategoryOption9 Description		ay																						
B1020	Roof Construction	Roof Construction: Standard Model	Roof Construction: Standard Model Description	B1020 124 5600	f	######	######	######	$3.99	$3.99	$3.99	$3.99	$3.99	$3.99	$3.99	$3.99	$3.99	$3.99	$3.99	$3.99	$8.34	######	$7.02	$3.99	$8.86	######	$3.99
B1020	Roof Construction	Roof Construction: SubcategoryOption1	Roof Construction: SubcategoryOption1 Description		k	######														$5.58	$3.99	######	######		$5.38		
B1020	Roof Construction	Roof Construction: SubcategoryOption2	Roof Construction: SubcategoryOption2 Description		p	######																			$4.80		
B1020	Roof Construction	Roof Construction: SubcategoryOption3	Roof Construction: SubcategoryOption3 Description		u																						
B1020	Roof Construction	Roof Construction: SubcategoryOption4	Roof Construction: SubcategoryOption4 Description		z																						
B1020	Roof Construction	Roof Construction: SubcategoryOption5	Roof Construction: SubcategoryOption5 Description		ae																						
B1020	Roof Construction	Roof Construction: SubcategoryOption6	Roof Construction: SubcategoryOption6 Description		aj																						
B1020	Roof Construction	Roof Construction: SubcategoryOption7	Roof Construction: SubcategoryOption7 Description		ao																						
B1020	Roof Construction	Roof Construction: SubcategoryOption8	Roof Construction: SubcategoryOption8 Description		at																						
B1020	Roof Construction	Roof Construction: SubcategoryOption9	Roof Construction: SubcategoryOption9 Description		ay																						
B20	Exterior Enclosure		Exterior Enclosure, Description																								
B2010	Exterior Walls	Exterior Walls: Standard Model	Exterior Walls: Standard Model Description		f	######	######		######	######	######	######	######	######	######	######	######	######	######	######	######	$9.23	$1.21	######	$9.90		######
B2010	Exterior Walls	Exterior Walls: SubcategoryOption1	Exterior Walls: SubcategoryOption1 Description		k	######	######		######	######	######	######	######	######	######	######	######	######	######	######	$7.06	$4.32		######	$8.37		######
B2010	Exterior Walls	Exterior Walls: SubcategoryOption2	Exterior Walls: SubcategoryOption2 Description		p	######	######		######	######	######	######	######	######	######	######	######	######	######	######	######	$4.83		######	######		######
B2010	Exterior Walls	Exterior Walls: SubcategoryOption3	Exterior Walls: SubcategoryOption3 Description		u	######	######		######	######	######	######	######	######	######	######	######	######	######	######	$3.47	$3.07		######	######		######
B2010	Exterior Walls	Exterior Walls: SubcategoryOption4	Exterior Walls: SubcategoryOption4 Description		z															######	$6.48	######					
B2010	Exterior Walls	Exterior Walls: SubcategoryOption5	Exterior Walls: SubcategoryOption5 Description		ae																						
B2010	Exterior Walls	Exterior Walls: SubcategoryOption6	Exterior Walls: SubcategoryOption6 Description		aj																						
B2010	Exterior Walls	Exterior Walls: SubcategoryOption7	Exterior Walls: SubcategoryOption7 Description		ao																						
B2010	Exterior Walls	Exterior Walls: SubcategoryOption8	Exterior Walls: SubcategoryOption8 Description		at																						
B2010	Exterior Walls	Exterior Walls: SubcategoryOption9	Exterior Walls: SubcategoryOption9 Description		ay																						
B2020	Exterior Windows	Exterior Windows: Standard Model	Exterior Windows: Standard Model Description		f		######		$1.00	$1.00	$1.00		$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00		$4.48	$2.04		$1.00			$1.00
B2020	Exterior Windows	Exterior Windows: SubcategoryOption1	Exterior Windows: SubcategoryOption1 Description		k																						
B2020	Exterior Windows	Exterior Windows: SubcategoryOption2	Exterior Windows: SubcategoryOption2 Description		p																						
B2020	Exterior Windows	Exterior Windows: SubcategoryOption3	Exterior Windows: SubcategoryOption3 Description		u																						
B2020	Exterior Windows	Exterior Windows: SubcategoryOption4	Exterior Windows: SubcategoryOption4 Description		z	$8.44																					
B2020	Exterior Windows	Exterior Windows: SubcategoryOption5	Exterior Windows: SubcategoryOption5 Description		ae																						
B2020	Exterior Windows	Exterior Windows: SubcategoryOption6	Exterior Windows: SubcategoryOption6 Description		aj																						
B2020	Exterior Windows	Exterior Windows: SubcategoryOption7	Exterior Windows: SubcategoryOption7 Description		ao																						
B2020	Exterior Windows	Exterior Windows: SubcategoryOption8	Exterior Windows: SubcategoryOption8 Description		at																						
B2020	Exterior Windows	Exterior Windows: SubcategoryOption9	Exterior Windows: SubcategoryOption9 Description		ay																						
B2030	Exterior Doors	Exterior Doors: Standard Model	Exterior Doors: Standard Model Description		f	$1.21	######		$3.27	$3.27	$3.27	$3.27	$3.27	$3.27	$3.27	$3.27	$3.27	$3.27	$3.27	$4.85	$8.88	$0.90		$3.27		######	$3.27
B2030	Exterior Doors	Exterior Doors: SubcategoryOption1	Exterior Doors: SubcategoryOption1 Description		k	$0.25	$5.46		$5.46	$5.46	$5.46	$5.46	$5.46	$5.46	$5.46	$5.46	$5.46	$5.46	$5.46					$5.46			$5.46
B2030	Exterior Doors	Exterior Doors: SubcategoryOption2	Exterior Doors: SubcategoryOption2 Description		p																						
B2030	Exterior Doors	Exterior Doors: SubcategoryOption3	Exterior Doors: SubcategoryOption3 Description		u																						
B2030	Exterior Doors	Exterior Doors: SubcategoryOption4	Exterior Doors: SubcategoryOption4 Description		z	$2.47																					
B2030	Exterior Doors	Exterior Doors: SubcategoryOption5	Exterior Doors: SubcategoryOption5 Description		ae																						
B2030	Exterior Doors	Exterior Doors: SubcategoryOption6	Exterior Doors: SubcategoryOption6 Description		aj																						
B2030	Exterior Doors	Exterior Doors: SubcategoryOption7	Exterior Doors: SubcategoryOption7 Description		ao																						
B2030	Exterior Doors	Exterior Doors: SubcategoryOption8	Exterior Doors: SubcategoryOption8 Description		at																						
B2030	Exterior Doors	Exterior Doors: SubcategoryOption9	Exterior Doors: SubcategoryOption9 Description		ay																						
B30	Roofing		Roofing, Description																								
B3010	Roof Coverings	Roof Coverings: Standard Model	Roof Coverings: Standard Model Description		f	$5.60	######	$1.86	$6.04	$6.04	$6.04	$6.04	$6.04	$6.04	$6.04	$6.04	$6.04	$6.04	$6.04	$3.74	$4.41	$8.86	$3.51	$6.04	$3.58	$6.08	$6.04
B3010	Roof Coverings	Roof Coverings: SubcategoryOption1	Roof Coverings: SubcategoryOption1 Description		k	$7.27	$6.13		$6.12	$6.13	$6.12	$6.12	$6.12	$6.13	$6.13	$6.12	$6.12	$6.12	$6.13	$4.82	$7.38	$8.74	$4.50	$6.12	$4.87		$6.12
B3010	Roof Coverings	Roof Coverings: SubcategoryOption2	Roof Coverings: SubcategoryOption2 Description		p	$3.08															$6.44						
B3010	Roof Coverings	Roof Coverings: SubcategoryOption3	Roof Coverings: SubcategoryOption3 Description		u	$4.14															$6.62	$0.22					
B3010	Roof Coverings	Roof Coverings: SubcategoryOption4	Roof Coverings: SubcategoryOption4 Description		z																						
B3010	Roof Coverings	Roof Coverings: SubcategoryOption5	Roof Coverings: SubcategoryOption5 Description		ae																						
B3010	Roof Coverings	Roof Coverings: SubcategoryOption6	Roof Coverings: SubcategoryOption6 Description		aj																						
B3010	Roof Coverings	Roof Coverings: SubcategoryOption7	Roof Coverings: SubcategoryOption7 Description		ao																						
B3010	Roof Coverings	Roof Coverings: SubcategoryOption8	Roof Coverings: SubcategoryOption8 Description		at																						
B3010	Roof Coverings	Roof Coverings: SubcategoryOption9	Roof Coverings: SubcategoryOption9 Description		ay																						
C. Interiors			Description																								
C10	Interior Construction		Interior Construction, Description																								
C1010	Partitions	Partitions: Standard Model	Partitions: Standard Model Description		f		######	$6.02	$1.00	$1.00	$1.00		$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$2.48	$7.36	$8.82		$1.00			$1.00
C1010	Partitions	Partitions: SubcategoryOption1	Partitions: SubcategoryOption1 Description		k			######												$0.18	######					######	
C1010	Partitions	Partitions: SubcategoryOption2	Partitions: SubcategoryOption2 Description		p															$0.00							
C1010	Partitions	Partitions: SubcategoryOption3	Partitions: SubcategoryOption3 Description		u																						
C1010	Partitions	Partitions: SubcategoryOption4	Partitions: SubcategoryOption4 Description		z	$3.35																					
C1010	Partitions	Partitions: SubcategoryOption5	Partitions: SubcategoryOption5 Description		ae																						
C1010	Partitions	Partitions: SubcategoryOption6	Partitions: SubcategoryOption6 Description		aj																						
C1010	Partitions	Partitions: SubcategoryOption7	Partitions: SubcategoryOption7 Description		ao																						
C1010	Partitions	Partitions: SubcategoryOption8	Partitions: SubcategoryOption8 Description		at																						
C1010	Partitions	Partitions: SubcategoryOption9	Partitions: SubcategoryOption9 Description		ay																						
C1020	Interior Doors	Interior Doors: Standard Model	Interior Doors: Standard Model Description		f		######	$3.45	$1.00	$1.00	$1.00		$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00		$1.01	$8.56		$1.00			$1.00
C1020	Interior Doors	Interior Doors: SubcategoryOption1	Interior Doors: SubcategoryOption1 Description		k																					$0.80	
C1020	Interior Doors	Interior Doors: SubcategoryOption2	Interior Doors: SubcategoryOption2 Description		p																						
C1020	Interior Doors	Interior Doors: SubcategoryOption3	Interior Doors: SubcategoryOption3 Description		u																						
C1020	Interior Doors	Interior Doors: SubcategoryOption4	Interior Doors: SubcategoryOption4 Description		z	######																					
C1020	Interior Doors	Interior Doors: SubcategoryOption5	Interior Doors: SubcategoryOption5 Description		ae																						
C1020	Interior Doors	Interior Doors: SubcategoryOption6	Interior Doors: SubcategoryOption6 Description		aj																						
C1020	Interior Doors	Interior Doors: SubcategoryOption7	Interior Doors: SubcategoryOption7 Description		ao																						
C1020	Interior Doors	Interior Doors: SubcategoryOption8	Interior Doors: SubcategoryOption8 Description		at																						
C1020	Interior Doors	Interior Doors: SubcategoryOption9	Interior Doors: SubcategoryOption9 Description		ay																						
C1030	Fittings	Fittings: Standard Model	Fittings: Standard Model Description		f		######	$1.80	$1.00	$1.00	$1.00		$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	$1.00	######				$1.00			$1.00
C1030	Fittings	Fittings: SubcategoryOption1	Fittings: SubcategoryOption1 Description		k																						
C1030	Fittings	Fittings: SubcategoryOption2	Fittings: SubcategoryOption2 Description		p																						
C1030	Fittings	Fittings: SubcategoryOption3	Fittings: SubcategoryOption3 Description		u																						
C1030	Fittings	Fittings: SubcategoryOption4	Fittings: SubcategoryOption4 Description		z																						
C1030	Fittings	Fittings: SubcategoryOption5	Fittings: SubcategoryOption5 Description		ae																						
C1030	Fittings	Fittings: SubcategoryOption6	Fittings: SubcategoryOption6 Description		aj																						
C1030	Fittings	Fittings: SubcategoryOption7	Fittings: SubcategoryOption7 Description		ao																						
C1030	Fittings	Fittings: SubcategoryOption8	Fittings: SubcategoryOption8 Description		at																						

C1030	Fittings		Fittings: SubcategoryOption9	Fittings: SubcategoryOption9 Description		sy																								
C20	Stairs/Fire Escapes			Stairs/Fire Escapes, Description																										
C2010	Stair Construction		Stair Construction: Standard Model	Stair Construction: Standard Model Description		f	$ 0.27				$ 1.00	$ 1.00	$ 1.00			$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00				$ 1.15		$ 1.00			$ 1.00
C2010	Stair Construction		Stair Construction: SubcategoryOption1	Stair Construction: SubcategoryOption1 Description		h	$ 1.37																							
C2010	Stair Construction		Stair Construction: SubcategoryOption2	Stair Construction: SubcategoryOption2 Description		p																								
C2010	Stair Construction		Stair Construction: SubcategoryOption3	Stair Construction: SubcategoryOption3 Description		u																								
C2010	Stair Construction		Stair Construction: SubcategoryOption4	Stair Construction: SubcategoryOption4 Description		z																								
C2010	Stair Construction		Stair Construction: SubcategoryOption5	Stair Construction: SubcategoryOption5 Description		aa																								
C2010	Stair Construction		Stair Construction: SubcategoryOption6	Stair Construction: SubcategoryOption6 Description		ai																								
C2010	Stair Construction		Stair Construction: SubcategoryOption7	Stair Construction: SubcategoryOption7 Description		ao																								
C2010	Stair Construction		Stair Construction: SubcategoryOption8	Stair Construction: SubcategoryOption8 Description		aj																								
C2010	Stair Construction		Stair Construction: SubcategoryOption9	Stair Construction: SubcategoryOption9 Description		ay																								
C30	Interior Finishes			Interior Finishes, Description																										
C3010	Wall Finishes		Wall Finishes: Standard Model	Wall Finishes: Standard Model Description		f			$ 3.23		$ 1.00	$ 1.00	$ 1.00			$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.64	$ 3.41	$ 4.43			$ 1.00			$ 1.00
C3010	Wall Finishes		Wall Finishes: SubcategoryOption1	Wall Finishes: SubcategoryOption1 Description		h	$ 1.36	$ 3.28			$ 3.28	$ 3.28	$ 3.28		$ 3.28	$ 3.28	$ 3.28	$ 3.28	$ 3.28	$ 3.28	$ 3.28	$ 7.49	$ 4.27				$ 3.28			$ 3.28
C3010	Wall Finishes		Wall Finishes: SubcategoryOption2	Wall Finishes: SubcategoryOption2 Description		p																$ 1.75	$ 3.87							
C3010	Wall Finishes		Wall Finishes: SubcategoryOption3	Wall Finishes: SubcategoryOption3 Description		u																								
C3010	Wall Finishes		Wall Finishes: SubcategoryOption4	Wall Finishes: SubcategoryOption4 Description		z	$ 9.52																							
C3010	Wall Finishes		Wall Finishes: SubcategoryOption5	Wall Finishes: SubcategoryOption5 Description		aa																								
C3010	Wall Finishes		Wall Finishes: SubcategoryOption6	Wall Finishes: SubcategoryOption6 Description		ai																								
C3010	Wall Finishes		Wall Finishes: SubcategoryOption7	Wall Finishes: SubcategoryOption7 Description		ao																								
C3010	Wall Finishes		Wall Finishes: SubcategoryOption8	Wall Finishes: SubcategoryOption8 Description		aj																								
C3010	Wall Finishes		Wall Finishes: SubcategoryOption9	Wall Finishes: SubcategoryOption9 Description		ay																								
C3020	Floor Finishes		Floor Finishes: Standard Model	Floor Finishes: Standard Model Description		f					$ 1.00	$ 1.00	$ 1.00			$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00				$ 4.82		$ 1.00			$ 1.00
C3020	Floor Finishes		Floor Finishes: SubcategoryOption1	Floor Finishes: SubcategoryOption1 Description		h																								
C3020	Floor Finishes		Floor Finishes: SubcategoryOption2	Floor Finishes: SubcategoryOption2 Description		p																								
C3020	Floor Finishes		Floor Finishes: SubcategoryOption3	Floor Finishes: SubcategoryOption3 Description		u																								
C3020	Floor Finishes		Floor Finishes: SubcategoryOption4	Floor Finishes: SubcategoryOption4 Description		z	$ 2.29																							
C3020	Floor Finishes		Floor Finishes: SubcategoryOption5	Floor Finishes: SubcategoryOption5 Description		aa																								
C3020	Floor Finishes		Floor Finishes: SubcategoryOption6	Floor Finishes: SubcategoryOption6 Description		ai																								
C3020	Floor Finishes		Floor Finishes: SubcategoryOption7	Floor Finishes: SubcategoryOption7 Description		ao																								
C3020	Floor Finishes		Floor Finishes: SubcategoryOption8	Floor Finishes: SubcategoryOption8 Description		aj																								
C3020	Floor Finishes		Floor Finishes: SubcategoryOption9	Floor Finishes: SubcategoryOption9 Description		ay																								
C3030	Ceiling Finishes		Ceiling Finishes: Standard Model	Ceiling Finishes: Standard Model Description		f			$ 1.73		$ 1.00	$ 1.00	$ 1.00			$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 0.13	$ 0.13		$ 2.78	$ 2.48	$ 1.00			$ 1.00
C3030	Ceiling Finishes		Ceiling Finishes: SubcategoryOption1	Ceiling Finishes: SubcategoryOption1 Description		h	$ 1.62	$ 1.64			$ 1.64	$ 1.64	$ 1.64		$ 1.64	$ 1.64	$ 1.64	$ 1.64	$ 1.64	$ 1.64	$ 1.64				$ 4.13		$ 1.64			$ 1.64
C3030	Ceiling Finishes		Ceiling Finishes: SubcategoryOption2	Ceiling Finishes: SubcategoryOption2 Description		p																								
C3030	Ceiling Finishes		Ceiling Finishes: SubcategoryOption3	Ceiling Finishes: SubcategoryOption3 Description		u																								
C3030	Ceiling Finishes		Ceiling Finishes: SubcategoryOption4	Ceiling Finishes: SubcategoryOption4 Description		z	$ 4.21																							
C3030	Ceiling Finishes		Ceiling Finishes: SubcategoryOption5	Ceiling Finishes: SubcategoryOption5 Description		aa																								
C3030	Ceiling Finishes		Ceiling Finishes: SubcategoryOption6	Ceiling Finishes: SubcategoryOption6 Description		ai																								
C3030	Ceiling Finishes		Ceiling Finishes: SubcategoryOption7	Ceiling Finishes: SubcategoryOption7 Description		ao																								
C3030	Ceiling Finishes		Ceiling Finishes: SubcategoryOption8	Ceiling Finishes: SubcategoryOption8 Description		aj																								
C3030	Ceiling Finishes		Ceiling Finishes: SubcategoryOption9	Ceiling Finishes: SubcategoryOption9 Description		ay																								
D, Services				Description																										
D10	Conveying Systems			Elevators /Conveying Systems, Description																										
D1010	Elevators and Lifts		Elevators and Lifts: Standard Model	Elevators and Lifts: Standard Model Description																										
D1010	Elevators and Lifts		Elevators: Standard Model	Elevators: Standard Model Description		f					$ 1.00	$ 1.00	$ 1.00			$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00						$ 1.00			$ 1.00
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption1	Elevators and Lifts: SubcategoryOption1 Description		h																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption2	Elevators and Lifts: SubcategoryOption2 Description		p																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption3	Elevators and Lifts: SubcategoryOption3 Description		u																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption4	Elevators and Lifts: SubcategoryOption4 Description		z																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption5	Elevators and Lifts: SubcategoryOption5 Description		aa																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption6	Elevators and Lifts: SubcategoryOption6 Description		ai																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption7	Elevators and Lifts: SubcategoryOption7 Description		ao																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption8	Elevators and Lifts: SubcategoryOption8 Description		aj																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption9	Elevators and Lifts: SubcategoryOption9 Description		ay																								
D1010	Elevators and Lifts		Lifts: Standard Model	Lifts: Standard Model Description		f					$ 1.00	$ 1.00	$ 1.00			$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00						$ 1.00			$ 1.00
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption1	Elevators and Lifts: SubcategoryOption1 Description		h																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption2	Elevators and Lifts: SubcategoryOption2 Description		p																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption3	Elevators and Lifts: SubcategoryOption3 Description		u																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption4	Elevators and Lifts: SubcategoryOption4 Description		z																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption5	Elevators and Lifts: SubcategoryOption5 Description		aa																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption6	Elevators and Lifts: SubcategoryOption6 Description		ai																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption7	Elevators and Lifts: SubcategoryOption7 Description		ao																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption8	Elevators and Lifts: SubcategoryOption8 Description		aj																								
	Elevators and Lifts		Elevators and Lifts: SubcategoryOption9	Elevators and Lifts: SubcategoryOption9 Description		ay																								
D20	Plumbing			Plumbing, Description																										
D2010	Plumbing Systems and Fixtures		Plumbing Systems and Fixtures: Standard Model	Plumbing Systems and Fixtures: Standard Model Description		f					$ 1.00	$ 1.00	$ 1.00			$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00	$ 1.00				$ 7.48		$ 1.00			$ 1.00
	Plumbing Systems and		Plumbing Systems and Fixtures: SubcategoryOption1	Plumbing Systems and Fixtures: SubcategoryOption1 Description		h																							$ 3.85		
	Plumbing Systems and		Plumbing Systems and Fixtures: SubcategoryOption2	Plumbing Systems and Fixtures: SubcategoryOption2 Description		p																									
	Plumbing Systems and		Plumbing Systems and Fixtures: SubcategoryOption3	Plumbing Systems and Fixtures: SubcategoryOption3 Description		u																									
	Plumbing Systems and		Plumbing Systems and Fixtures: SubcategoryOption4	Plumbing Systems and Fixtures: SubcategoryOption4 Description		z																									
	Plumbing Systems and		Plumbing Systems and Fixtures: SubcategoryOption5	Plumbing Systems and Fixtures: SubcategoryOption5 Description		aa																									
	Plumbing Systems and		Plumbing Systems and Fixtures: SubcategoryOption6	Plumbing Systems and Fixtures: SubcategoryOption6 Description		ai																									
	Plumbing Systems and		Plumbing Systems and Fixtures: SubcategoryOption7	Plumbing Systems and Fixtures: SubcategoryOption7 Description		ao																									
	Plumbing Systems and		Plumbing Systems and Fixtures: SubcategoryOption8	Plumbing Systems and Fixtures: SubcategoryOption8 Description		aj																									
	Plumbing Systems and		Plumbing Systems and Fixtures: SubcategoryOption9	Plumbing Systems and Fixtures: SubcategoryOption9 Description		ay																									
D2020	Domestic Hot Water		Domestic Hot Water : Standard Model	Domestic Hot Water : Standard Model Description		f					$ 3.00	$ 2.00	$ 2.00			$ 3.00	$ 2.00	$ 2.00	$ 2.00	$ 3.00	$ 2.00	$ 2.00	$ 3.64	$ 2.52	$ 0.95			$ 2.00			$ 2.00
	Domestic Hot Water		Domestic Hot Water : SubcategoryOption1	Domestic Hot Water : SubcategoryOption1 Description		h																									
	Domestic Hot Water		Domestic Hot Water : SubcategoryOption2	Domestic Hot Water : SubcategoryOption2 Description		p																									
	Domestic Hot Water		Domestic Hot Water : SubcategoryOption3	Domestic Hot Water : SubcategoryOption3 Description		u																									
	Domestic Hot Water		Domestic Hot Water : SubcategoryOption4	Domestic Hot Water : SubcategoryOption4 Description		z	$ 9.52																								
	Domestic Hot Water		Domestic Hot Water : SubcategoryOption5	Domestic Hot Water : SubcategoryOption5 Description		aa																									
	Domestic Hot Water		Domestic Hot Water : SubcategoryOption6	Domestic Hot Water : SubcategoryOption6 Description		ai																									
	Domestic Hot Water		Domestic Hot Water : SubcategoryOption7	Domestic Hot Water : SubcategoryOption7 Description		ao																									
	Domestic Hot Water		Domestic Hot Water : SubcategoryOption8	Domestic Hot Water : SubcategoryOption8 Description		aj																									
	Domestic Hot Water		Domestic Hot Water : SubcategoryOption9	Domestic Hot Water : SubcategoryOption9 Description		ay																									
D2040	Rain Water Drainage		Rain Water Drainage: Standard Model	Rain Water Drainage: Standard Model Description		f	$ 3.67				$ 1.00	$ 2.00	$ 2.00			$ 3.00	$ 2.00	$ 2.00	$ 2.00	$ 3.00	$ 2.00	$ 2.00		$ 2.23	$ 0.87			$ 2.00			$ 2.00
	Rain Water Drainage		Rain Water Drainage: SubcategoryOption1	Rain Water Drainage: SubcategoryOption1 Description		h	$ 3.37																								
	Rain Water Drainage		Rain Water Drainage: SubcategoryOption2	Rain Water Drainage: SubcategoryOption2 Description		p	$ 5.44																								
	Rain Water Drainage		Rain Water Drainage: SubcategoryOption3	Rain Water Drainage: SubcategoryOption3 Description		u																									
	Rain Water Drainage		Rain Water Drainage: SubcategoryOption4	Rain Water Drainage: SubcategoryOption4 Description		z																									
	Rain Water Drainage		Rain Water Drainage: SubcategoryOption5	Rain Water Drainage: SubcategoryOption5 Description		aa																									
	Rain Water Drainage		Rain Water Drainage: SubcategoryOption6	Rain Water Drainage: SubcategoryOption6 Description		ai																									
	Rain Water Drainage		Rain Water Drainage: SubcategoryOption7	Rain Water Drainage: SubcategoryOption7 Description		ao																									
	Rain Water Drainage		Rain Water Drainage: SubcategoryOption8	Rain Water Drainage: SubcategoryOption8 Description		aj																									
	Rain Water Drainage		Rain Water Drainage: SubcategoryOption9	Rain Water Drainage: SubcategoryOption9 Description		ay																									
D30	HVAC			HVAC, Description																										
D3010	Energy Supply		Energy Supply: Standard Model	Energy Supply: Standard Model Description		f					$ 2.00	$ 3.00	$ 2.00			$ 2.00	$ 3.00	$ 2.00	$ 2.00	$ 2.00	$ 3.00	$ 2.00	$ 0.58	$ 0.23	$ 0.03			$ 2.00			$ 2.00
	Energy Supply		Energy Supply: SubcategoryOption2	Energy Supply: SubcategoryOption2 Description		h	$ 0.11																						$ 0.23		
	Energy Supply		Energy Supply: SubcategoryOption3	Energy Supply: SubcategoryOption3 Description		p																									
	Energy Supply		Energy Supply: SubcategoryOption4	Energy Supply: SubcategoryOption4 Description		u																									
	Energy Supply		Energy Supply: SubcategoryOption5	Energy Supply: SubcategoryOption5 Description		z																									
	Energy Supply		Energy Supply: SubcategoryOption6	Energy Supply: SubcategoryOption6 Description		aa																									
	Energy Supply		Solar Energy Supply: Standard Model	Solar Energy Supply: Standard Model Description		f					$ 3.00	$ 3.00	$ 2.00			$ 3.00	$ 2.00	$ 2.00	$ 2.00	$ 2.00	$ 3.00	$ 2.00						$ 2.00			$ 2.00
	Energy Supply		Solar Energy Supply: SubcategoryOption01	Solar Energy Supply: SubcategoryOption01 Description		h																									
	Energy Supply		Solar Energy Supply: SubcategoryOption02	Solar Energy Supply: SubcategoryOption02 Description		p																									
	Energy Supply		Solar Energy Supply: SubcategoryOption03	Solar Energy Supply: SubcategoryOption03 Description		u																									
	Energy Supply		Solar Energy Supply: SubcategoryOption04	Solar Energy Supply: SubcategoryOption04 Description		z																									
	Energy Supply		Solar Energy Supply: SubcategoryOption05	Solar Energy Supply: SubcategoryOption05 Description		aa																									
	Energy Supply		Solar Energy Supply: SubcategoryOption06	Solar Energy Supply: SubcategoryOption06 Description		ai																									
	Energy Supply		Solar Energy Supply: SubcategoryOption07	Solar Energy Supply: SubcategoryOption07 Description		ao																									
	Energy Supply		Solar Energy Supply: SubcategoryOption08	Solar Energy Supply: SubcategoryOption08 Description		aj																									
	Energy Supply		Solar Energy Supply: SubcategoryOption09	Solar Energy Supply: SubcategoryOption09 Description		ay																									
D3010	Energy Supply		Wind Energy Supply: Standard Model	Wind Energy Supply: Standard Model Description		f					$ 2.00	$ 3.00	$ 2.00			$ 2.00	$ 3.00	$ 2.00	$ 2.00	$ 2.00	$ 3.00	$ 2.00						$ 2.00			$ 2.00
	Energy Supply		Wind Energy Supply: SubcategoryOption01	Wind Energy Supply: SubcategoryOption01 Description		h																									
	Energy Supply		Wind Energy Supply: SubcategoryOption02	Wind Energy Supply: SubcategoryOption02 Description		p																									
	Energy Supply		Wind Energy Supply: SubcategoryOption03	Wind Energy Supply: SubcategoryOption03 Description		u																									
	Energy Supply		Wind Energy Supply: SubcategoryOption04	Wind Energy Supply: SubcategoryOption04 Description		z																									
	Energy Supply		Wind Energy Supply: SubcategoryOption05	Wind Energy Supply: SubcategoryOption05 Description		aa																									
	Energy Supply		Wind Energy Supply: SubcategoryOption06	Wind Energy Supply: SubcategoryOption06 Description		ai																									
	Energy Supply		Wind Energy Supply: SubcategoryOption07	Wind Energy Supply: SubcategoryOption07 Description		ao																									
	Energy Supply		Wind Energy Supply: SubcategoryOption08	Wind Energy Supply: SubcategoryOption08 Description		aj																									
	Energy Supply		Wind Energy Supply: SubcategoryOption09	Wind Energy Supply: SubcategoryOption09 Description		ay																									
D3010	Energy Supply		Geothermal Heating/Cooling Supply: Standard Model	Geothermal Heating/Cooling Supply: Standard Model Description		f					$ 2.00	$ 2.00	$ 2.00			$ 2.00	$ 2.00	$ 2.00	$ 2.00	$ 2.00	$ 2.00	$ 2.00						$ 2.00			$ 2.00
	Energy Supply		Geothermal Heating/Cooling Supply: SubcategoryOption01	Geothermal Heating/Cooling Supply: SubcategoryOption01 Description		h																									
	Energy Supply		Geothermal Heating/Cooling Supply: SubcategoryOption02	Geothermal Heating/Cooling Supply: SubcategoryOption02 Description		p																									
	Energy Supply		Geothermal Heating/Cooling Supply: SubcategoryOption03	Geothermal Heating/Cooling Supply: SubcategoryOption03 Description		u																									
	Energy Supply		Geothermal Heating/Cooling Supply: SubcategoryOption04	Geothermal Heating/Cooling Supply: SubcategoryOption04 Description		z																									
	Energy Supply		Geothermal Heating/Cooling Supply: SubcategoryOption05	Geothermal Heating/Cooling Supply: SubcategoryOption05 Description		aa																									
	Energy Supply		Geothermal Heating/Cooling Supply: SubcategoryOption06	Geothermal Heating/Cooling Supply: SubcategoryOption06 Description		ai																									
	Energy Supply		Geothermal Heating/Cooling Supply: SubcategoryOption07	Geothermal Heating/Cooling Supply: SubcategoryOption07 Description		ao																									
	Energy Supply		Geothermal Heating/Cooling Supply: SubcategoryOption08	Geothermal Heating/Cooling Supply: SubcategoryOption08 Description		aj																									
	Energy Supply		Geothermal Heating/Cooling Supply: SubcategoryOption09	Geothermal Heating/Cooling Supply: SubcategoryOption09 Description		ay																									
D3020	Central Plant Heating		Central Plant Heating: Standard Model	Central Plant Heating: Standard Model Description		f					$ 2.00	$ 2.00	$ 2.00			$ 2.00	$ 2.00	$ 2.00	$ 2.00	$ 2.00	$ 2.00	$ 2.00						$ 2.00			$ 2.00
D3020	Central Plant Heating		Central Plant Heating: SubcategoryOption2	Central Plant Heating: SubcategoryOption2 Description		h																				$ 1.38					
D3025	Central Plant Heating		Fireplaces: Standard Model	Fireplaces: Standard Model Description		f					$ 2.00	$ 2.00	$ 2.00			$ 2.00	$ 2.00	$ 2.00	$ 2.00	$ 2.00	$ 2.00	$ 2.00						$ 2.00			$ 2.00
	Central Plant		Fireplaces: SubcategoryOption01	Fireplaces: SubcategoryOption01 Description		h																									
	Central Plant		Fireplaces: SubcategoryOption02	Fireplaces: SubcategoryOption02 Description		p																									
	Central Plant		Fireplaces: SubcategoryOption03	Fireplaces: SubcategoryOption03 Description		u																									
	Central Plant		Fireplaces: SubcategoryOption04	Fireplaces: SubcategoryOption04 Description		z																									
	Central Plant		Fireplaces: SubcategoryOption05	Fireplaces: SubcategoryOption05 Description		aa																									
	Central Plant		Fireplaces: SubcategoryOption06	Fireplaces: SubcategoryOption06 Description		ai																									
	Central Plant		Fireplaces: SubcategoryOption07	Fireplaces: SubcategoryOption07 Description		ao																									





E2010	Fixed Furnishings	Fixed Furnishings: SubcategoryOption7	Fixed Furnishings: SubcategoryOption7 Description		ao																						
E2010	Fixed Furnishings	Fixed Furnishings: SubcategoryOption8	Fixed Furnishings: SubcategoryOption8 Description		at																						
E2010	Fixed Furnishings	Fixed Furnishings: SubcategoryOption9	Fixed Furnishings: SubcategoryOption9 Description		ay																						
F. Special Construction and Demolition			**Description**																								
F10	*Special Structures*		*Special Structures, Description*																								
F1010 100	Special Structures	Pre-Engineered Structure - Tower: Standard Model	Pre-Engineered Structure - Tower: Standard Model Description		f		########		$2.00	$2.00	$2.00		$2.00	$2.00	$2.00	$2.00	$2.00	$2.00	$2.00					$2.00			$2.00
F1010	Special Structures	Pre-Engineered Structure - Tower: SubcategoryOption	Pre-Engineered Structure - Tower: SubcategoryOption01 Description		k																						
F1010	Special Structures	Pre-Engineered Structure - Tower: SubcategoryOption	Pre-Engineered Structure - Tower: SubcategoryOption02 Description		p																						
F1010	Special Structures	Pre-Engineered Structure - Tower: SubcategoryOption	Pre-Engineered Structure - Tower: SubcategoryOption03 Description		u																						
F1010	Special Structures	Pre-Engineered Structure - Tower: SubcategoryOption	Pre-Engineered Structure - Tower: SubcategoryOption04 Description		z																						
F1010	Special Structures	Pre-Engineered Structure - Tower: SubcategoryOption	Pre-Engineered Structure - Tower: SubcategoryOption05 Description		ae																						
F1010	Special Structures	Pre-Engineered Structure - Tower: SubcategoryOption	Pre-Engineered Structure - Tower: SubcategoryOption06 Description		aj																						
F1010	Special Structures	Pre-Engineered Structure - Tower: SubcategoryOption	Pre-Engineered Structure - Tower: SubcategoryOption07 Description		ao																						
F1010	Special Structures	Pre-Engineered Structure - Tower: SubcategoryOption	Pre-Engineered Structure - Tower: SubcategoryOption08 Description		at																						
F1010	Special Structures	Pre-Engineered Structure - Tower: SubcategoryOption	Pre-Engineered Structure - Tower: SubcategoryOption09 Description		ay																						
F1010 330	Special Structures	Silos: Standard Model	Silos: Standard Model Description		f		########		$7.18	$7.18	$7.18	$7.18	$7.18	$7.18	$7.18	$7.18	$7.18	$7.18	$7.18					$7.18			$7.18
F1010	Special Structures	Silos: SubcategoryOption31	Silos: SubcategoryOption31 Description		k																						
F1010	Special Structures	Silos: SubcategoryOption32	Silos: SubcategoryOption32 Description		p																						
F1010	Special Structures	Silos: SubcategoryOption33	Silos: SubcategoryOption33 Description		u																						
F1010	Special Structures	Silos: SubcategoryOption34	Silos: SubcategoryOption34 Description		z																						
F1010	Special Structures	Silos: SubcategoryOption35	Silos: SubcategoryOption35 Description		ae																						
F1010	Special Structures	Silos: SubcategoryOption36	Silos: SubcategoryOption36 Description		aj																						
F1010	Special Structures	Silos: SubcategoryOption37	Silos: SubcategoryOption37 Description		ao																						
F1010	Special Structures	Silos: SubcategoryOption38	Silos: SubcategoryOption38 Description		at																						
F1010	Special Structures	Silos: SubcategoryOption39	Silos: SubcategoryOption39 Description		ay																						
F1010 400	Special Structures	Pre-Fabricated Vault Toilets: Standard Model	Pre-Fabricated Vault Toilets: Standard Model Description		f		########		$2.00	$2.00	$2.00		$2.00	$2.00	$2.00	$2.00	$2.00	$2.00	$2.00					$2.00			$2.00
F1010	Special Structures	Pre-Fabricated Vault Toilets: SubcategoryOption01	Pre-Fabricated Vault Toilets: SubcategoryOption01 Description		k																						
F1010	Special Structures	Pre-Fabricated Vault Toilets: SubcategoryOption02	Pre-Fabricated Vault Toilets: SubcategoryOption02 Description		p																						
F1010	Special Structures	Pre-Fabricated Vault Toilets: SubcategoryOption03	Pre-Fabricated Vault Toilets: SubcategoryOption03 Description		u																						
F1010	Special Structures	Pre-Fabricated Vault Toilets: SubcategoryOption04	Pre-Fabricated Vault Toilets: SubcategoryOption04 Description		z																						
F1010	Special Structures	Pre-Fabricated Vault Toilets: SubcategoryOption05	Pre-Fabricated Vault Toilets: SubcategoryOption05 Description		ae																						
F1010	Special Structures	Pre-Fabricated Vault Toilets: SubcategoryOption06	Pre-Fabricated Vault Toilets: SubcategoryOption06 Description		aj																						
F1010	Special Structures	Pre-Fabricated Vault Toilets: SubcategoryOption07	Pre-Fabricated Vault Toilets: SubcategoryOption07 Description		ao																						
F1010	Special Structures	Pre-Fabricated Vault Toilets: SubcategoryOption08	Pre-Fabricated Vault Toilets: SubcategoryOption08 Description		at																						
F1010	Special Structures	Pre-Fabricated Vault Toilets: SubcategoryOption09	Pre-Fabricated Vault Toilets: SubcategoryOption09 Description		ay																						
F1010 700	Special Structures	Fabric Structure: Standard Model	Fabric Structure: Standard Model Description		f		########		$2.00	$2.00	$2.00		$2.00	$2.00	$2.00	$2.00	$2.00	$2.00	$2.00					$2.00			$2.00
F1010	Special Structures	Fabric Structure: SubcategoryOption01	Fabric Structure: SubcategoryOption01 Description		k																						
F1010	Special Structures	Fabric Structure: SubcategoryOption02	Fabric Structure: SubcategoryOption02 Description		p																						
F1010	Special Structures	Fabric Structure: SubcategoryOption03	Fabric Structure: SubcategoryOption03 Description		u																						
F1010	Special Structures	Fabric Structure: SubcategoryOption04	Fabric Structure: SubcategoryOption04 Description		z																						
F1010	Special Structures	Fabric Structure: SubcategoryOption05	Fabric Structure: SubcategoryOption05 Description		ae																						
F1010	Special Structures	Fabric Structure: SubcategoryOption06	Fabric Structure: SubcategoryOption06 Description		aj																						
F1010	Special Structures	Fabric Structure: SubcategoryOption07	Fabric Structure: SubcategoryOption07 Description		ao																						
F1010	Special Structures	Fabric Structure: SubcategoryOption08	Fabric Structure: SubcategoryOption08 Description		at																						
F1010	Special Structures	Fabric Structure: SubcategoryOption09	Fabric Structure: SubcategoryOption09 Description		ay																						
F20	*Integrated Construction*		*Integrated Construction, Description*																								
F1020 100	Integrated Construction	Gymnasium: Standard Model	Gymnasium: Standard Model Description		f																						
F1020	Integrated Construct	Elementary School Gym/Multi-purpose Room	Elementary School Gym/Multi-purpose Room Description		f		########		$2.00	$2.00	$2.00		$2.00	$2.00	$2.00	$2.00	$2.00	$2.00	$2.00					$2.00			$2.00
	Special Struct	Elementary School Gym/Mu: Subcategor	Elementary School Gym/Mu: SubcategoryOption101.1 Description		k																						
	Special Struct	Elementary School Gym/Mu: Subcategor	Elementary School Gym/Mu: SubcategoryOption101.2 Description		p																						
	Special Struct	Elementary School Gym/Mu: Subcategor	Elementary School Gym/Mu: SubcategoryOption101.3 Description		u																						
	Special Struct	Elementary School Gym/Mu: Subcategor	Elementary School Gym/Mu: SubcategoryOption101.4 Description		z																						
	Special Struct	Elementary School Gym/Mu: Subcategor	Elementary School Gym/Mu: SubcategoryOption101.5 Description		ae																						
	Special Struct	Elementary School Gym/Mu: Subcategor	Elementary School Gym/Mu: SubcategoryOption101.6 Description		aj																						
	Special Struct	Elementary School Gym/Mu: Subcategor	Elementary School Gym/Mu: SubcategoryOption101.7 Description		ao																						
	Special Struct	Elementary School Gym/Mu: Subcategor	Elementary School Gym/Mu: SubcategoryOption101.8 Description		at																						
	Special Struct	Elementary School Gym/Mu: Subcategor	Elementary School Gym/Mu: SubcategoryOption101.9 Description		ay																						
F1020	Integrated Construct	High School Level - Competition Gymnasium	High School Level - Competition Gymnasium Description		f		########		$2.00	$2.00	$2.00		$2.00	$2.00	$2.00	$2.00	$2.00	$2.00	$2.00					$2.00			$2.00
	Special Struct	High School Level - Compe: Subcategor	High School Level - Compe: SubcategoryOption102.1 Description		k																						
	Special Struct	High School Level - Compe: Subcategor	High School Level - Compe: SubcategoryOption102.2 Description		p																						
	Special Struct	High School Level - Compe: Subcategor	High School Level - Compe: SubcategoryOption102.3 Description		u																						
	Special Struct	High School Level - Compe: Subcategor	High School Level - Compe: SubcategoryOption102.4 Description		z																						
	Special Struct	High School Level - Compe: Subcategor	High School Level - Compe: SubcategoryOption102.5 Description		ae																						
	Special Struct	High School Level - Compe: Subcategor	High School Level - Compe: SubcategoryOption102.6 Description		aj																						
	Special Struct	High School Level - Compe: Subcategor	High School Level - Compe: SubcategoryOption102.7 Description		ao																						
	Special Struct	High School Level - Compe: Subcategor	High School Level - Compe: SubcategoryOption102.8 Description		at																						
	Special Struct	High School Level - Compe: Subcategor	High School Level - Compe: SubcategoryOption102.9 Description		ay																						
F1020	Integrated Construct	Gymnasium: SubcategoryOption03	Gymnasium: SubcategoryOption03 Description		u																						
F1020	Integrated Construct	Gymnasium: SubcategoryOption04	Gymnasium: SubcategoryOption04 Description		z																						
F1020	Integrated Construct	Gymnasium: SubcategoryOption05	Gymnasium: SubcategoryOption05 Description		ae																						
F1020	Integrated Construct	Gymnasium: SubcategoryOption06	Gymnasium: SubcategoryOption06 Description		aj																						
F1020	Integrated Construct	Gymnasium: SubcategoryOption07	Gymnasium: SubcategoryOption07 Description		ao																						
F1020	Integrated Construct	Gymnasium: SubcategoryOption08	Gymnasium: SubcategoryOption08 Description		at																						
F1020	Integrated Construct	Gymnasium: SubcategoryOption09	Gymnasium: SubcategoryOption09 Description		ay																						
F1020 200	Integrated Construction	Auditorium: Standard Model	Auditorium: Standard Model Description		f		########		$2.00	$2.00	$2.00		$2.00	$2.00	$2.00	$2.00	$2.00	$2.00	$2.00					$2.00			$2.00
F1020	Integrated Construct	Auditorium: SubcategoryOption01	Auditorium: SubcategoryOption01 Description		k																						
F1020	Integrated Construct	Auditorium: SubcategoryOption02	Auditorium: SubcategoryOption02 Description		p																						
F1020	Integrated Construct	Auditorium: SubcategoryOption03	Auditorium: SubcategoryOption03 Description		u																						
F1020	Integrated Construct	Auditorium: SubcategoryOption04	Auditorium: SubcategoryOption04 Description		z																						
F1020	Integrated Construct	Auditorium: SubcategoryOption05	Auditorium: SubcategoryOption05 Description		ae																						
F1020	Integrated Construct	Auditorium: SubcategoryOption06	Auditorium: SubcategoryOption06 Description		aj																						
F1020	Integrated Construct	Auditorium: SubcategoryOption07	Auditorium: SubcategoryOption07 Description		ao																						
F1020	Integrated Construct	Auditorium: SubcategoryOption08	Auditorium: SubcategoryOption08 Description		at																						
F1020	Integrated Construct	Auditorium: SubcategoryOption09	Auditorium: SubcategoryOption09 Description		ay																						
F1020 300	Integrated Construction	Cold Storage Rooms: Standard Model	Cold Storage Rooms: Standard Model Description		f		########		$2.00	$2.00	$2.00		$2.00	$2.00	$2.00	$2.00	$2.00	$2.00	$2.00					$2.00			$2.00
F1020	Integrated Construct	Cold Storage Rooms: SubcategoryOption01	Cold Storage Rooms: SubcategoryOption01 Description		k																						
F1020	Integrated Construct	Cold Storage Rooms: SubcategoryOption02	Cold Storage Rooms: SubcategoryOption02 Description		p																						
F1020	Integrated Construct	Cold Storage Rooms: SubcategoryOption03	Cold Storage Rooms: SubcategoryOption03 Description		u																						
F1020	Integrated Construct	Cold Storage Rooms: SubcategoryOption04	Cold Storage Rooms: SubcategoryOption04 Description		z																						
F1020	Integrated Construct	Cold Storage Rooms: SubcategoryOption05	Cold Storage Rooms: SubcategoryOption05 Description		ae																						
F1020	Integrated Construct	Cold Storage Rooms: SubcategoryOption06	Cold Storage Rooms: SubcategoryOption06 Description		aj																						
F1020	Integrated Construct	Cold Storage Rooms: SubcategoryOption07	Cold Storage Rooms: SubcategoryOption07 Description		ao																						
F1020	Integrated Construct	Cold Storage Rooms: SubcategoryOption08	Cold Storage Rooms: SubcategoryOption08 Description		at																						
F1020	Integrated Construct	Cold Storage Rooms: SubcategoryOption09	Cold Storage Rooms: SubcategoryOption09 Description		ay																						
F1020 400	Integrated Construction	Hazmat Storage Rooms: Standard Model	Hazmat Storage Rooms: Standard Model Description		f		########		$2.00	$2.00	$2.00		$2.00	$2.00	$2.00	$2.00	$2.00	$2.00	$2.00					$2.00			$2.00
F1020	Integrated Construct	Hazmat Storage Rooms: SubcategoryOption01	Hazmat Storage Rooms: SubcategoryOption01 Description		k	########	########		########	########	########	########	########	########	########	########	########	########	########					########			########
F1020	Integrated Construct	Hazmat Storage Rooms: SubcategoryOption02	Hazmat Storage Rooms: SubcategoryOption02 Description		p																						
F1020	Integrated Construct	Hazmat Storage Rooms: SubcategoryOption03	Hazmat Storage Rooms: SubcategoryOption03 Description		u																						
F1020	Integrated Construct	Hazmat Storage Rooms: SubcategoryOption04	Hazmat Storage Rooms: SubcategoryOption04 Description		z																						
F1020	Integrated Construct	Hazmat Storage Rooms: SubcategoryOption05	Hazmat Storage Rooms: SubcategoryOption05 Description		ae																						
F1020	Integrated Construct	Hazmat Storage Rooms: SubcategoryOption06	Hazmat Storage Rooms: SubcategoryOption06 Description		aj																						
F1020	Integrated Construct	Hazmat Storage Rooms: SubcategoryOption07	Hazmat Storage Rooms: SubcategoryOption07 Description		ao																						
F1020	Integrated Construct	Hazmat Storage Rooms: SubcategoryOption08	Hazmat Storage Rooms: SubcategoryOption08 Description		at																						
F1020	Integrated Construct	Hazmat Storage Rooms: SubcategoryOption09	Hazmat Storage Rooms: SubcategoryOption09 Description		ay																						
F40	*Special Facilities*		*Special Facilities, Description*																								
F1040 100	Special Facilities	Aquatic Facilities: Standard Model	Aquatic Facilities: Standard Model Description		f		########		$2.00	$2.00	$2.00		$2.00	$2.00	$2.00	$2.00	$2.00	$2.00	$2.00					$2.00			$2.00
F1040	Special Facilities	Aquatic Facilities: SubcategoryOption01	Aquatic Facilities: SubcategoryOption01 Description		k																						
F1040	Special Facilities	Aquatic Facilities: SubcategoryOption02	Aquatic Facilities: SubcategoryOption02 Description		p																						
F1040	Special Facilities	Aquatic Facilities: SubcategoryOption03	Aquatic Facilities: SubcategoryOption03 Description		u																						
F1040	Special Facilities	Aquatic Facilities: SubcategoryOption04	Aquatic Facilities: SubcategoryOption04 Description		z																						
F1040	Special Facilities	Aquatic Facilities: SubcategoryOption05	Aquatic Facilities: SubcategoryOption05 Description		ae																						
F1040	Special Facilities	Aquatic Facilities: SubcategoryOption06	Aquatic Facilities: SubcategoryOption06 Description		aj																						
F1040	Special Facilities	Aquatic Facilities: SubcategoryOption07	Aquatic Facilities: SubcategoryOption07 Description		ao																						
F1040	Special Facilities	Aquatic Facilities: SubcategoryOption08	Aquatic Facilities: SubcategoryOption08 Description		at																						
F1040	Special Facilities	Aquatic Facilities: SubcategoryOption09	Aquatic Facilities: SubcategoryOption09 Description		ay																						
F1040 300	Special Facilities	Ice Rinks: Standard Model	Ice Rinks: Standard Model Description		f		########		$2.00	$2.00	$2.00		$2.00	$2.00	$2.00	$2.00	$2.00	$2.00	$2.00					$2.00			$2.00
F1040	Special Facilities	Ice Rinks: SubcategoryOption01	Ice Rinks: SubcategoryOption01 Description		k																						
F1040	Special Facilities	Ice Rinks: SubcategoryOption02	Ice Rinks: SubcategoryOption02 Description		p																						
F1040	Special Facilities	Ice Rinks: SubcategoryOption03	Ice Rinks: SubcategoryOption03 Description		u																						
F1040	Special Facilities	Ice Rinks: SubcategoryOption04	Ice Rinks: SubcategoryOption04 Description		z																						
F1040	Special Facilities	Ice Rinks: SubcategoryOption05	Ice Rinks: SubcategoryOption05 Description		ae																						
F1040	Special Facilities	Ice Rinks: SubcategoryOption06	Ice Rinks: SubcategoryOption06 Description		aj																						
F1040	Special Facilities	Ice Rinks: SubcategoryOption07	Ice Rinks: SubcategoryOption07 Description		ao																						
F1040	Special Facilities	Ice Rinks: SubcategoryOption08	Ice Rinks: SubcategoryOption08 Description		at																						
F1040	Special Facilities	Ice Rinks: SubcategoryOption09	Ice Rinks: SubcategoryOption09 Description		ay																						
GENERAL NOTES:						########	########	########	########	########	########	########	########	########	########	########	########	########	########	########	########	########	########	########	########	########	########
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						$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
						OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	OK	[illegible]	OK	OK	OK	OK