

**STATE OF MINNESOTA  
PROFESSIONAL AND TECHNICAL SERVICES  
WORK ORDER CONTRACT  
AMENDMENT 1**

Agreement Start Date:	_____	Total Agreement Amount:	_____	\$0.00
Original Expiration Date:	_____	Original Agreement:	_____	\$0.00
Current Expiration Date:	_____	Previous Amendment(s) Total:	_____	\$0.00
Requested Expiration Date:	_____	This Amendment:	_____	\$0.00

This amendment is by and between the [FILL IN NAME OF STATE INTITUION], acting through its [FILL IN THE NAME OF YOUR AGENCY OR BOARD. EXAMPLE: "commissioner of \_\_\_\_\_" OR "director of \_\_\_\_\_."] ("State Institution") and [GIVE THE FULL NAME OF THE CONTRACTOR INCLUDING ITS ADDRESS] ("Contractor"). This work order contract is issued under the authority of Master Contract T-Number \_\_\_\_\_, CFMS Number \_\_\_\_\_, and is subject to all provisions of the master contract which is incorporated by reference.

**Recitals**

1. WHEREAS, the Minnesota Department of Commerce ("Commerce") entered into a Master Contract with Contractor identified as Master Contract #####, dated mm/dd/yyyy ("Original Master Contract"), for energy savings study work.
2. WHEREAS, State Institution then entered into a Work Order Contract with Contractor identified as Work Order Contract #####, dated mm/dd/yyyy ("Original Work Order Contract"), to complete energy savings study work.
3. WHEREAS, State Institution and Contractor wish to amend the Original Work Order Contract to extend the term and to add terms and conditions further defining scope of work to be performed by Contractor and payment thereof by the State Institution, and to incorporate various Exhibits and Attachments to the Original Work Order Contract, as provided below.
4. NOW, THEREFORE, State Institution and Contractor have agreed to amend the Original Work Order Contract as stated below.

**Amendment(s)**

**REVISION 1.** Clause 1. "Term of Contract" is amended as follows:

- 1.1 **Effective date.** [date], or the date the State Institution obtains all required signatures under Minn. Stat. § 16C.05, subd. 2, whichever is later.  
**The Contractor must not begin work under this contract until this contract is fully executed and the Contractor has been notified by the State Institution's Authorized Representative to begin the work.**
- 1.2 **Expiration date.** [~~expiration date~~] [amended expiration date], or until all obligations have been satisfactorily fulfilled, whichever occurs first.

**REVISION 2.** Clause 3. "Consideration and Payment" is amended as follows:

**3.1. Consideration**

The State Institution will pay for all services performed by the Contractor an amount not to exceed the lesser of the total obligation specified in this clause or the product derived from the calculation specified in Exhibit B-1, which is attached and incorporated into this Work Order unless recommendations provided in the Preliminary Assessment and Analysis are not, in the sole discretion of the State, deemed reasonable and viable.

- 3.1.1 **Compensation.** The Contractor will be paid for actual eligible costs incurred, not to exceed ~~WORDS~~ AMENDED WORDS Thousands dollars (\$[~~Comp~~] [amended Comp]).
- 3.1.2 **Travel Expenses.** Reimbursement for travel and subsistence expenses actually and necessarily incurred by the Contractor as a result of this Work Order will be reimbursed in same manner and in no greater amount than provided in the current "Commissioner's Plan" promulgated by the Commissioner of Minnesota Management and Budget. The Contractor will not be reimbursed for travel and subsistence expenses incurred outside Minnesota unless it has received the State Institution's prior written approval for out of state travel. Minnesota will be considered the home state for determining whether travel is out of state, and will not exceed ~~WORDS~~ AMENDED WORDS Hundreds dollars (\$[~~Travel~~] [amended Travel]).
- 3.1.3 **Total Obligation.** The total obligation of the State Institution for all compensation and reimbursements to the Contractor under this Work Order will not exceed ~~WORDS~~ AMENDED WORDS Thousands dollars (\$[~~Total~~] [amended Total]).

**3.2. Payment**

- 3.2.1. **Invoices.** The State Institution will promptly pay the Contractor after the Contractor presents an itemized invoice for the services actually performed and the State Institution's Authorized Representative accepts the invoiced services. Invoices must be submitted timely and according to the following schedule outlined in Exhibit A-1, which is attached hereto and incorporated into this Work Order.
- 3.2.2. **Retainage.** Under Minn. Stat. § 16C.08, subd. 5(b), no more than 90 percent of the amount due under any Work Order may be paid until the final product of the Work Order has been reviewed by the State Institution's agency head. The balance due will be paid when the State's agency head determines that the Contractor has satisfactorily fulfilled all the terms of the Work Order.

**REVISION 3.**

Exhibit A to the Work Order is deleted and replaced in its entirety by Exhibit A-1, which is attached and incorporated into this contract.

Exhibit B to the Work Order is deleted and replaced in its entirety by Exhibit B-1, which is attached and incorporated into this contract..

**REVISION 4.** The following clause is added to the Work Order:

**Exhibits**

Exhibit C- Standards of Comfort

Exhibit D – Project Pro Forma

**REVISION 5.** The following clause is added to the Work Order:

**Attachments**

The following Attachments are attached and incorporated into this Work Order Contract:

Attachment # – Preliminary Assessment and Analysis Report

Except as herein amended, the provisions of the Original Master Contract, the Work Order Contract, and any previous amendments, exhibits, and attachments thereto remain in full force and effect.

SAMPLE

# Exhibit A-1

## Contractor's Duties for Investment Grade Audit

The Contractor shall do all things necessary to complete an Investment Grade Audit (IGA) for the following facilities (the Facilities):

- *List facilities from SSRFP*
- *Facility X*
- *Facility Y*

In the performance of its duties, the Contractor shall provide all services necessary and reasonable to complete the following tasks. When these duties permit the Contractor to determine if an action is necessary, the Contractor will make such determination as would a reasonable and prudent person possessing knowledge and expertise of the subject matter. Upon reasonable and timely request, to the extent permitted by the Minnesota Government Data Practices Act, Minnesota Statutes Chapter 13, the State Institution agrees to provide to the Contractor relevant information, data, drawings and plans held by or accessible to the State Institution, and to provide access to the Facilities and its staff and occupants at reasonable, mutually agreed times.

### Task 1 – Preliminary Assessment of Needs and Opportunities

- 1.1 Meet with State Institution representative(s) to establish work plans, schedules and milestones, communication procedures, and meet and confer requirements.
- 1.2 Collect data and background information from the State Institution concerning facilities operation and energy use for the most recent three years from the effective date of this Work Order Contract. The State Institution shall provide to the Contractor, upon reasonable request, accurate and complete data and information held by or accessible to the State Institution. Where information is not available from the State Institution, Contractor will make a diligent effort to collect such information through the other means such as facility inspection, staff interviews and utility -providers' records. The State Institution shall provide data release authorization(s) to the Contractor for relevant data held by other entities, including but not limited to utility, fuel, material and service providers. Contractor shall assess the validity and accuracy of information provided and to confirm or correct as needed.

Data and background information to be collected includes but is not limited to:

- 1.2.1 Building square footage;
  - 1.2.2 Construction data of buildings and major additions including building envelope;
  - 1.2.3 Utility provider invoices;
  - 1.2.4 Occupancy and usage information;
  - 1.2.5 Descriptions of all energy-consuming or energy-saving equipment used energy management procedures practiced at or by the Facilities;
  - 1.2.6 Description of any energy or water use related improvements completed or currently being implemented;
  - 1.2.7 Description of any changes made to the structure of the Facilities or its energy-using or water-using equipment during the baseline period;
  - 1.2.8 Description of future plans regarding building modifications or equipment modifications and replacements;
  - 1.2.9 Drawings, as available including mechanical, plumbing, electrical, building automation and temperature controls, structural, architectural, modifications and remodels;
  - 1.2.10 Original construction submittals and factory data such as specifications and pump curves as available.
  - 1.2.11 Operating engineer logs, maintenance work orders and like materials, as available.
  - 1.2.12 Records of maintenance expenditures for energy-using or related equipment, including service contracts.
  - 1.2.13 Prior completed energy audits or studies, if any.
- 1.3 Perform a preliminary walk-through of the Facilities and interview staff and occupants to identify potential energy and water saving measures.
    - 1.3.1 Interview the Facilities management, maintenance staff, subcontractors and occupants of each building regarding:
      - a) Facilities operation, including energy management procedures.
      - b) Equipment maintenance problems;
      - c) Comfort problems and requirements;
      - d) Equipment reliability;
      - e) Projected equipment needs;
      - f) Occupancy and use schedules for the Facilities and specific equipment therein; and
      - g) Completed, current, planned and anticipated Facility improvements.

- 1.3.2 Survey major energy-using equipment, including but not limited to:
- Lighting (indoor and outdoor);
  - Heating and heat distribution systems;
  - Cooling systems and related equipment;
  - Automatic temperature control systems and equipment;
  - Air distribution systems and equipment, outdoor air ventilation systems and equipment, exhaust systems and equipment;
  - Hot water systems;
  - Electric motors, transmission and drive systems;
  - Special systems such as kitchen/dining equipment;
  - Water consuming systems such as restroom fixtures, water fountains, irrigation systems;
  - Renewable energy systems; and
  - Any other major energy using systems,
- 1.3.3 Perform surveys outside of normal business hours and/or on weekends when necessary, and subject to prior approval of the State Institution, to verify Facilities systems and occupancy schedules.
- 1.3.4 Develop a preliminary list of potential energy and water saving measures, with consideration given to the following for each system:
- Comfort and maintenance problems;
  - Energy use, loads, proper sizing, efficiencies and hours of operation;
  - Current operating condition;
  - Remaining useful life;
  - Feasibility of system replacement;
  - Hazardous materials or other environmental concerns that may be present;
  - Future plans for equipment replacement or building renovations and use;
  - Facilities operation and maintenance procedures that could be affected; and
  - Capability to effectively monitor performance and verify savings.

Contractor shall assess the validity and accuracy of information provided and shall verify or correct the information as needed.

- 1.4 Meet with State Institution representative(s) to present preliminary findings and negotiate agreement on energy and water saving measures to be analyzed.

**List of Deliverables for Task 1:**

- Report of site information and details to be verified by State Institution
- Preliminary Findings and Recommendations to be negotiated

**2.Task 2 – Preliminary Analysis of Measures**

- 2.1 Establish base year consumption and reconcile with end-use consumption estimates.
- 2.1.1 Establish base year consumption by examining relevant utility and fuel provider bills for the past three years, including but not limited to electricity, building heating fuels, steam and water. Establish base year consumption as appropriate in:
- energy units such as kilowatt-hours of usage, kilowatts of demand;
  - physical units of fuel, such as “hundred cubic feet” (ccf) or gallon;
  - energy content, such as therms or British thermal units (Btus);
  - cost structure, such as firm or interruptible;
  - cost per unit and cost per billing period; and
  - cost per square foot of conditioned space.

The Contractor shall consult with facility personnel or other parties as needed to identify and account for any anomalous schedule or operating conditions that could affect an accurate base year representation, such as significant occupancy or use changes or periods of time when relevant equipment was malfunctioning, repaired or replaced.

- 2.1.2 Estimate loading, usage and/or hours of operation for all major end uses of total facility energy and water consumption, including but not limited to:
- lighting,
  - heating,
  - cooling,
  - motors (fans and pumps),
  - plug loads, and
  - other major energy and water using equipment.

Where loading or usage is highly variable (such as cooling loads), the Contractor may use its best judgment to determine if direct measurement or monitoring is appropriate. However, the Contractor may not assume that equipment run hours equal the operating hours of the building(s) or facility staff estimates.

- 2.1.3 Reconcile actual annual end-use loads and consumption with the calculated base year loads and consumption and modify calculated base year values as needed to conform actual loads and consumption.
  - 2.1.4 Propose adjustments to the baseline for energy and water saving measures that will be implemented in the future.
  - 2.1.5 Provide a detailed description of the process(es), calculations, variables and adjustment factors used to establish the base year consumption .
- 2.2 Within ninety (90) days of the effective date of this Work Order Contract, develop and submit to the State Institution a preliminary analysis of potential energy and water saving measures.
- 2.2.1 Provide a comprehensive list of all potential energy and water saving measures including but not limited to: lighting systems, heating/ventilating/air conditioning equipment and distribution systems, controls systems, building envelope, motors, kitchen equipment, pools, renewable energy systems, other special equipment, irrigation systems, water saving devices, and retro-commissioning.
  - 2.2.2 For each measure, prepare a preliminary estimate of energy or water cost savings including description of analysis methodology, supporting calculations and assumptions used to estimate savings.
  - 2.2.3 Identify those measures which are reasonably likely to be cost effective and therefore warrant detailed analyses. For each measure, include equipment purchase, installation, and retro-commissioning cost estimates as well as an estimate for engineering design work required to obtain construction or other bids.
- 2.3 Meet with State Institution representative(s) to present preliminary findings and recommendations, and to establish agreement on measures, if any, to include in the detailed analysis and audit report. Provide information on potential project economics, including but not limited to an assessment of energy use, savings potential, project opportunities, recommended measures for further analysis, and the Contractor's assessment of its potential to develop an energy savings contract proposal that conforms to the requirements of this Work Order Contract. The State Institution may accept in whole or in part, or may reject the Contractor's analysis or recommendations if the Contractor's analysis or recommendations do not meet the requirements of the State Institution's Work Order Contract.

**List of Deliverables for Task 2:**

- Report detailing Base Year Consumption and Methodology
- Preliminary Analysis and Recommendations Report

**3.Task 3 – Detailed Analysis and Investment Grade Audit**

- 3.1 Upon acceptance by the State Institution of the preliminary findings and recommendations, the Contractor shall perform a detailed analysis of the potential savings and costs for each accepted energy and water saving measure. In performing its detailed analysis, the Contractor shall:
- 3.1.1 Use appropriate American Society of Heating, Refrigeration and Air-conditioning Engineers or other nationally-recognized analysis and calculation methodologies for each measure analyzed.
  - 3.1.2 Use assumptions, estimates, projections and baselines which best represent the true value of each measure's future energy or operational savings and the true cost of implementing each measure. Include accurate marginal costs for each unit of savings, documentation of material and labor cost savings, adjustments to the baseline if necessary to reflect current conditions at the facility, and calculations which account for any interactive effects of the recommended measures.
  - 3.1.3 Use best judgment regarding the employment and duration of instrumentation to achieve an accurate and faithful characterization of energy use.
  - 3.1.4 Use markups and fees no greater than those specified in Exhibit B, Contractor's Fees, in all cost estimates.
  - 3.1.5 If State Institution intends to perform Measurement and Verification post-project implementation, State Institution may require Contractor to develop a preliminary measurement and verification plan for each measure in accordance with Attachment 1, Measurement and Verification Guidelines, incorporated herein.
- 3.2 Upon the State Institution's acceptance of the preliminary findings and recommendations, the Contractor shall prepare a preliminary Investment Grade Audit Report containing detailed technical and financial data and calculations sufficient to complete an energy savings project. The report shall include but is not limited to:
- 3.2.1 Report overview and summary including:
    - a)Contact information;

- b) Summary table of recommended energy and water saving measures, with itemization for each measure of total design and construction cost, annual maintenance cost, the first year cost avoidance (in dollars and energy units), simple payback and equipment service life;
  - c) Summary of annual energy and water use by fuel type and costs of existing or base year condition;
  - d) Calculation of cost savings expected if all recommended measures are implemented, and percentage savings of total facility energy cost;
  - e) Description of the existing facilities and mechanical and electrical systems;
  - f) Summary description of each recommended measure, including estimated costs and savings;
  - g) Discussion of measures considered but not investigated in detail; and
  - h) Conclusions and recommendations.
- 3.2.2 Base year energy use including:
- a) Description and itemization of current billing rates, including schedules and riders;
  - b) Summary of all utility billings;
  - c) Identification and definition of base year consumption and description of how it was established;
  - d) Reconciliation of estimated end use consumption (i.e. lighting, cooling, heating, fans, plug loads, etc.) with calculated base year consumption, include discussion of any unusual findings.
- 3.2.3 Full description of each energy and water saving measure including:
- a) Existing conditions;
  - b) Description of equipment to be installed and how it will function;
  - c) Estimated useful service life of new equipment;
  - d) Discussion of facility operations and/or maintenance procedures that will be affected by a measure's installation or implementation;
  - e) Recommended installation and implementation plan;
  - f) Savings calculations including:
    - (1) Base year energy use and cost;
    - (2) Post-retrofit annual energy use and cost;
    - (3) Savings estimates including analysis methodology, supporting calculations, formulas, assumptions and key data used;
    - (4) Annual savings estimated for each year of the proposed contract period. Savings estimates must be attributed to the time period(s) in which they are actually realized, and must conform to any limitations on savings estimates specified by the State Institution;
    - (5) Description and calculations for any proposed utility rate changes attributable to the proposed measure;
    - (6) Explanation of how savings interactions between retrofit options are accounted for in calculations; and
    - (7) Operation and maintenance savings, including detailed calculations and description.
  - g) If a computer simulation is used to estimate savings potential, the Contractor shall provide a concise description of the simulation program and methodology and list key input data. At the State Institution's request, the Contractor shall provide access to the program and all assumptions and inputs used, and/or printouts of all input files and relevant output files and documentation sufficient to explain how the savings estimates are derived from the simulation program output.
  - h) Cost estimates and estimated scope of the construction work needed. Provide specifications for major mechanical components as well as detailed lighting and water fixture counts. Include all anticipated costs associated with installation and implementation:
    - (1) Engineering and/or design costs;
    - (2) Estimates for labor, materials, and equipment; include any anticipated special provisions, such as overtime or shift differential pay, if necessary to accomplish the work within any operational or time restrictions specified by the State Institution;
    - (3) Permit costs;
    - (4) Construction management fees; and
    - (5) Environmental costs or benefits, such as waste handling and disposal or environmental credits.
  - i) Relevant conclusions, observation or caveats.
  - j) Preliminary commissioning plan in conformance with requirements provided in Attachment 2, System Start-up and Commissioning Requirements, incorporated herein.
  - k) Preliminary measurement and verification plan in conformance with Attachment 1, Measurement and Verification Guidelines.
  - l) Compatibility of existing control systems and equipment with proposed improvements. Provide brand name and model of any existing controls system if proposed controls systems modifications will have to be compatible with that control system, and note if sole-source procurement will be necessary to maintain system compatibility.
  - m) Appendices that fully document the data used to prepare the analyses and the sources and methods employed to collect the data.

- 3.3 Within 90 days of the State Institution's acceptance of the preliminary findings and recommendations, the Contractor shall meet with State Institution to present the preliminary Investment Grade Audit Report.
- 3.3.1 Review the recommendations, savings calculations and impact of the measures on the operations of the Facilities.
- 3.3.2 Specify how the estimated project costs and savings meet the State Institution's terms for completing the Investment Grade Audit.
- 3.4 Upon acceptance by the State Institution of the preliminary Investment Grade Audit Report, prepare and present final Investment Grade Audit Report within ninety (90) days of acceptance.

**List of Deliverables for Task 3:**

- **Preliminary Investment Grade Audit**
- **Final Investment Grade Audit**

SAMPLE

# Exhibit B-1

## Contractor's Fee Schedule

### 1. Contractor's Fees for Investment Grade Audit

As specified in this Work Order Contract, the Contractor shall provide an Investment Grade Audit as part of a three-stage process including the Preliminary Assessment of Needs and Opportunities, the Preliminary Analysis of Measures, and the Detailed Analysis and Investment Grade Audit.

#### 1.1 Preliminary Assessment & Analysis

In the table below provide the maximum fee to conduct the Preliminary Assessment & Analysis portion of the Investment Grade Audit, on a cost per square foot basis. The Contractor agrees that the proposed maximum fee shall incorporate its responsibility to adhere to and complete the full scope of work as presented in Exhibit A of this Work Order Contract, including any subcontracted work not performed by the Contractor.

	Proposed Maximum Cost per sq.ft.
Investment Grade Audit Preliminary Assessment & Analysis	\$/sq.ft.

The total square footage of all facilities to be evaluated in the Preliminary Assessment & Analysis is **XXXX square feet**.

This gives a maximum fee to conduct the Preliminary Assessment & Analysis of **\$XX,XXX.XX**

#### 1.2 Investment Grade Audit – Detailed Analysis

The table below includes the position descriptions and hourly rates for labor and services self-performed by the Contractor. Markups shall not be applied to fees.

Position Description	Hourly Rate
<u>Position</u>	<u>\$xx.xx</u>

For duties required by Exhibit A of this Work Order Contract, but performed by a subcontracted firm, as well as any materials or equipment purchased by the Contractor to perform the Investment Grade Audit - Detailed Analysis, the Contractor agrees to the following maximum percentage markups:

Project Markup	Maximum Percent Markup
<u>Overhead Percent</u>	<u>X%</u>
<u>Profit Percent</u>	<u>X%</u>

### 2. Open Book Pricing

The Contractor shall fully disclose all costs of materials and labor purchased and subcontracted by the Contractor and a list of hourly rates and position descriptions for labor or services provided by the Contractor. Estimates for number of hours required for the project and deviations of these budgeted hours shall require prior written approval by the State Institution or shall not be paid. Contractor shall maintain cost accounting records on authorized work performed under actual costs for labor and material, or other basis requiring accounting records. Contractor shall retain these records and afford the State access thereto pursuant to Master Contract, Section 9: State Audits. Costs will be evaluated through price analysis to compare costs with reasonable criteria such as established catalog and market prices or historical prices. The pricing methodology and individual cost markups disclosed during preliminary contract

negotiations will be expected to be applied, providing the scope and size of the project remain the same as assumed when markups were disclosed.

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