



August 05, 2024

City of Redmond Investment Grade Audit Proposal

To: Amy Kim, Project Manager, City of Redmond
 From: Andrew Williamson, Business Development Manager, McKinstry Essention
 Cc: Jessica DeWitt, Energy Engineer, WA Department of Enterprise Services
 Subject: Public Safety Building Phase 02: HVAC and Controls Upgrade Investment Grade Audit Proposal

Project Description: The City of Redmond is interested in improving the infrastructure and efficiency of the Public Safety Building facility through a performance-based contract with McKinstry. This proposal will provide the guidelines for which McKinstry will provide the following tasks:

1. Conduct an Investment Grade Audit at the target facility.
 - A. Public Safety Building – 53,328 SF; 8701 160th Ave NE, Redmond, WA 98052
2. Develop a comprehensive Energy Services Proposal for selected measures. Initial target measures are :
 - B. Investigate indoor Water Source Heat Pump (WSHP) unit upgrades.
 - a. Preliminary equipment list provided by the City comprises below units. Replace with same capacity units. Except for Units HP-8x and HP-9x which will be sized for new zoning. Consider relocation where necessary to improve access.

Floor	Unit #	Serves	Notes
First	HP-4A	Ops LT office	Possible Relocate
First	HP-5A	Briefing Room	Abandon and Relocate
First	HP-5B	Briefing Room	Abandon and Relocate
First	HP-7B	Entry	Abandon and Relocate, Not on DDC
First	HP-8A		Replace and right size
First	HP-9A	Flight Ops/ Prosecutor	Air Distribution needs mod
First	HP-9 NEW		New unit for the core zone
First	HP-A	Women's R/Rm Locker Rm	Hard Lid, Not on DDC
First	HP-G	Police Fitness Room	Not on DDC
Second	HP-18A	Tech Support	
Second	HP-19A	Chief's	
Second	HP-19B	Chief Conf Rm	
Second	HP-20A	Sr Admin South Perimeter	
Second	HP-20B	Sr Amin conf/Store, room dujour	
Second	HP-31B	Lobby Large Unit West Mezz	
Second		Investigations Break Rm	Possible abandon/ relocate

- C. Main AHU (OA Unit) Retrofit
 - a. Assess retrofit to replace the supply fan with new fan array.
 - b. Perform review of the existing system and operation.
 - i. Review the operation of this unit (supply air) and the building general exhaust with the facilities team.
 - ii. Review BAS data for unit's setpoints and operation trends if available.
 - iii. Review for current code compliance including heat recovery.
 - iv. TAB for airflow or building pressure is not included.
- D. Full Building Controls Upgrades
 - a. Evaluate upgrade the controls of replaced WSHP and all legacy controls in the building to the newer version of the existing controls in the building.
- E. Condenser Pump Replacement
 - a. Evaluate replacement of (1) condenser pump with new pump and VFD. New pump to match the previously replaced pump.
- F. IDF Room Split system upgrade.
 - a. Evaluate upgrade the outdoor and indoor units to match existing cooling capacity. Reuse existing refrigerant lines.
- 3. Develop a Rough Order of Magnitude (ROM) scope and budget. Review with the City to select scope for GMAX that aligns with the City priorities and budget.
- 4. Coordinate the construction access requirements, expected construction duration and construction impacts with the City to develop an acceptable mitigation plan and inform the GMAX scope and budget.
- 5. Comprehensive ASHRAE Level 2 Audit. Refer Attachment B for detailed tasks.
 - A. Perform comprehensive building audit to identify energy reduction Facility Improvement Measures (FIMs). The intent is to identify FIMs with total energy savings that shall meet the CBPS EUI_t.
 - B. Perform EUI benchmarking to determine CBPS EUI_t.
 - C. Provide preliminary energy savings, preliminary budgets, simple payback analysis for the identified measures and Life Cycle Cost Analysis for select measures.
 - D. Support the City to prioritize the measures to align with City's EUI reduction for CBPS.

The investment grade effort is intended to lead to the implementation of energy improvement measures. The audit will provide all the details necessary for implementation of viable initiatives detailing all the associated savings, costs, potential utility funding, and return on investment scenarios, as well as loan details (if applicable) and construction schedules.

This will be a collaborative effort with the City of Redmond and the Washington State Department of Enterprise Services (DES). The study will be a product of the direction McKinstry receives, and it is anticipated that the information contained in the resulting Energy Services Proposal will form the basis of contracting documents for implementation. The specific deliverables associated with this professional services endeavor can be found in Attachment A.

Requested Information: For effective execution of this proposal we ask that the City of Redmond provide access to the following:

- ✓ Historical utility bills for the last 24 months.
- ✓ All mechanical, electrical, architectural, and structural drawings.
- ✓ All operational and maintenance manuals, balancing records, & specifications.
- ✓ Operational records related to the cost of maintaining specific equipment.
- ✓ Information with regards to any on-going maintenance contracts.
- ✓ Access to individuals that have relevant information pertaining to the day-to-day operation of energy using systems on site.
- ✓ Access to the building automation systems, including remotely, if available.
- ✓ Prior energy studies for related systems, if applicable.
- ✓ Any available hazardous material survey reports.

Timeline and Milestones: McKinstry will initiate this scope of work immediately upon execution of a Professional Services Contract and notice to proceed. Formal progress review meetings will be conducted regularly throughout the study phase. During these review meetings, McKinstry will recommend measures based on preliminary analysis, while the City of Redmond will provide final direction regarding recommended measures. The goal of these review meetings is to focus engineering efforts, budgeting, and savings assessment on those measures that possess a high probability for implementation. McKinstry will target completion of the IGA within 120 days of a notice to proceed. The following are proposed milestones following notice to proceed:

Duration	Action
6 weeks	McKinstry to deliver Rough Order of Magnitude analysis and recommendations
2 weeks	Owner review comments and direction given
6 weeks	McKinstry to deliver pre-final analysis and recommendations and deliver IGA Document
2 weeks	Owner review comments and direction given. Includes DES review time for IGA Document
2 weeks	McKinstry to deliver final investment grade audit analysis and Energy Services Proposal to Owner and DES

Criteria for Implementation: It is the City of Redmond intent that McKinstry will implement all approved projects that meet the project criteria:

1. The NPV of the proposed project will be neutral or positive over the term of the useful life of the equipment where the following will be included in the cash flow: total project cost, any available utility incentives, the value of the energy saved on an annual basis (cost at current utility rates).
2. For the purpose of the financial cash flow models, McKinstry will work with DES Energy Program and the client to use appropriate financial rates and other variables to show project benefits.
3. The cash flow model may include the following based on client approval: Hard-cost operational savings (no labor), Capital infusion from planned capital project budgets, cash reserves, grants, utility incentives, or other sources, Loans/financing, Deferred maintenance, Social cost of carbon etc.

4. The project scope could be adjusted to align with the funds budgeted for the project.
5. McKinstry will work with Puget Sound Energy to secure rebates for applicable scope.

Investment Grade Audit Fee: The City of Redmond will reimburse McKinstry for **Not to Exceed \$99,000** for this scope of work.

Fee Breakout

Targeted IGA Scope Fee – \$ 77,000

Comprehensive Building ASHRAE Level 2 Audit Fee - \$ 22,000

Total Fee - \$99,000

All fees assessed under this proposal will be included in the final implementation costs. In the event that McKinstry is unable to recommend projects that meet the criteria above, the City of Redmond has no financial obligation to McKinstry. However, if the recommendations meet or exceed the Criteria for Implementation and the City of Redmond chooses not to enter into an agreement with McKinstry to install the projects, the City of Redmond will reimburse McKinstry for the Investment Grade Audit fee. All associated information, including deliverables, will become the property of the City of Redmond upon final receipt of payment.

We look forward to working with the City of Redmond . Please call should you have any questions.

Best Regards,

Andrew Williamson
Business Development Manager
McKinstry Essention

Attachment A

Investment Grade Audit Deliverables

An IGA is an intensive engineering analysis of Facility Improvement Measures (FIMs) for the facility, net energy savings, and a cost-effectiveness determination. This is a Level 2 audit as defined in ANSI/ASHRAE/ACCA Standard 211-2018, Standard for Commercial Building Energy Audits. This IGA proposal as currently scoped is focused solely on the FIMs listed in our IGA proposal and will meet the ASHRAE Level 2 audit requirements for those FIMs only. Accordingly, items 3, 9 and 15 below will apply only to the FIMs listed in this IGA Proposal.

The IGA report shall be submitted before the ESP for Owner and DES review. The IGA report shall include results from the preliminary audit and:

1. Executive summary of the audit findings;
2. A description of the Facility including type of use, square footage, and location; T
3. Description of building systems and major equipment;
4. The standards of comfort and service appropriate for the Facility;
5. The Baseline Energy Consumption per fuel type for the Facility, including the data, methodology and variables used to compute the Baseline, and the Baseline calendar period which must not be less than 12 months, and must be multiples of 12 months;
6. Utility rate schedules and/or Tariffs;
7. Detailed energy analysis calculations. If an energy model is performed the software used, baseline modeling assumptions, and summary of results;
8. Facility benchmarking including the Energy Use Intensity (EUI) index and 12 months of utility data input into the EPA's Energy Star Portfolio Manager with a printout of the Energy Star Statement of Performance; **(Please note that the Statement of Performance will not be stamped by a professional engineer unless our IGA proposal explicitly includes stamping. This is because the EPA has additional tasks (beyond those required in ASHRAE Level 2 audits) that must be completed prior to stamping the Statement of Performance.)**
9. A list of applicable building, mechanical, energy, or other pertinent state and local codes that the facility currently doesn't meet or that may impact the project costs;
10. Description of Facility Improvement Measures (FIMs) recommended;
11. Description of FIMs considered and not recommended or not financially viable;
12. Measurement and verification (M&V) plan proposed for verifying energy savings consistent with the International Performance Measurement and Verification Protocol (IPMVP);
13. Financial analysis of FIMs;
14. Summary table with FIM name, installed cost, energy savings by utility, and O&M savings;
15. Normative Annex C Reporting Forms for Level 1 and Level 2 audits found in the ASHRAE Standard for Commercial Buildings Energy Audits;

16. Prepared by a person acting as the auditor of record, who must be a qualified energy auditor having training, expertise, and three years of professional experience in building energy auditing, and being any one of the following:
 - a. A licensed professional architect or engineer
 - b. An energy auditor, assessor, or analyst certified by ASHRAE or the Association of Energy Engineers (AEE) for all building types.

Attachment B

ASHRAE Level 2 Audit for CBPS - Detailed Tasks

Roles & Qualifications

1. The energy audit and subsequent calculations will be completed by a Qualified Energy Auditor (QEA), which is a person who has the training, expertise, and at least three years professional experience in building energy auditing and is a licensed professional architect or engineer or certified energy auditor by ASHRAE or AEE.

Systems Included

1. The below facility systems are included in the energy audit scope, where existing: Envelope, Structural Considerations (i.e., roofing condition for solar adaptation), Lighting System, Cooling, Computer Rooms, Heating, Ventilation and Exhaust Systems, Air Distribution Systems, Heating, Chilled, Condenser, and Domestic Water Systems, Refrigeration (except for food processing refrigeration), Power Generation Equipment (including renewables), Uninterruptible Power Supplies and Power Distribution Units, Electrical System Capacity, People-Moving Systems, Building Heating and/or Cooling Systems.

Scope of Work Detail

McKinstry will perform the following scopes of work as part of the ASHRAE Level II audit. Individual scopes items are laid out sequentially, but McKinstry expects to return to previous activities as necessary throughout the audit process:

1. Continued Benchmarking Support
 - a. Help establish the EUI considering the varied use types of the facility.
2. Documentation Collection and Review
 - a. Gather digital facility documentation and identify existing onsite hard copies.
 - b. As built drawings (architectural, mechanical, electrical, plumbing, lighting, and renewables)
 - c. Washington State Energy Compliance Forms (architectural, mechanical, electrical, plumbing, lighting, and renewables); these would be completed for permitted projects in the last 20 years.
 - d. Any previous commissioning reports.
 - e. Any previous energy audit reports (mechanical, electrical, plumbing, lighting)
 - f. Controls information (as-builts or final submittals, configuration/programming files (depending on the vendor), and if remote access is available)
 - g. Review documentation and identify information gaps
 - h. Pre-identify FIMs that may get the facility into compliance and develop on-site audit plan
 - i. McKinstry will review at least two years of utility consumption on a per building basis. Per our discussion, we will work with City of Redmond's Energy Manager to acquire the consumption reports.
3. On-Site Assessment`
 - a. Conduct interviews with facilities personnel and other onsite staff as appropriate.
 - i. Discuss any current efficiency programs
 - ii. Discuss known performance, operational, or comfort issues
 - iii. Discuss active and planned projects and pre-identified FIMs
 - b. Perform comprehensive facility inspection

- i. Compare facility documentation to on-site observations to verify accuracy .
 - ii. Observe equipment/system operations
 - iii. Install data loggers/instrumentation to collect trends (as necessary)
 - c. Perform Building Automation System (BAS) assessment
 - i. Compare facility documentation and on-site observations to BAS to verify accuracy
 - ii. Observe sequences of operations and other control strategies
 - iii. Set up and pull trend data (as necessary)
 - iv. Identify no-cost, low-cost, and capital energy efficiency measures
- 4. Facility Improvement Measure (FIM) Development
 - a. Utilize facility documentation and information gathered during the on-site assessments to identify potential FIMs
 - b. Perform additional documentation collection/review and on-site assessments as necessary to further develop potential FIMs and develop a Preliminary FIM List
 - c. Conduct “go/no-go” conversation with relevant facility stakeholders on Preliminary FIM List to determine FIM feasibility and whether they are appropriate in accordance with facility operations and future plans.
 - d. Finalize Preliminary FIM list with details required for cost estimation
- 5. Modeling and Estimating
 - a. Develop budgetary cost estimates for Preliminary FIMs, taking into account potential utility incentives
 - b. Develop calibrated baseline energy model of the facility
 - c. Develop efficiency model of the facility that includes the Preliminary FIMs
 - d. Compare baseline and energy efficient model to determine estimated savings for each FIM, taking into account interactive effects
 - e. Utilize budgetary costs and estimated savings to determine energy savings, EUI impacts, and FIM return on investment (ROI)
 - f. Review FIMs with facility owner and identify which FIMs it would like to pursue.
- 6. Life-Cycle Cost Analysis
 - a. Perform a Life Cycle Cost analysis on FIMs identified during the audit, utilizing “Form F” in accordance with CBPS rules and regulations.
 - b. Add LCCA findings to the audit report
- 7. Reporting
 - a. A final report will be presented at the end of the project that meets the requirements of CBPS programs:
 - b. EUI validation and gap analysis, including baseline calculation methodology, assumptions, and time period
 - c. Facility and systems descriptions
 - d. List of FIMs with the goal of reducing the facility EUI
 - e. List of FIMs likely required to pursue Investment Criteria Pathway
 - f. Estimated energy savings and peak energy savings for each recommended FIM (in cost and energy units)
 - g. Estimated cost of implementation for each recommended FIMs per ASHRAE 211 Section 5.4.8 for level 2 audits
 - h. Calculations address interactive effects of all recommended FIMs
 - i. Estimated end-use breakdown analysis after expected FIM implementation