**SAMPLE: FY22 WHOLE BUILDING COMMERCIAL RETROFIT**

**PROJECT DESCRIPTION/SCOPE OF WORK**

***To assist with developing your FY22 application proposal, below is*** ***an example of a project description/scope of work for a commercial whole building retrofit.*** ***Please note that this is only an example and the scope of work adopted as part of a grant agreement may differ.***

**PROJECT DESCRIPTION**

**DELIVERABLES**

The deliverables described below will be designed, purchased, developed, and implemented by XXXXXX, hereinafter “Grantee,” and each of these deliverables shall include cost effective measures that directly contribute to energy savings and/or facilitate energy conservation behavioral practices in Maryland.

1. **Energy Efficiency Upgrades**
2. Grantee will identify commercially metered buildings which serve low-to-moderate income Marylanders in [Insert Region] that are eligible candidates for an energy efficiency upgrade.
	1. Commercially metered commercial buildings that serve low-to-moderate income Marylanders must be pre-approved in writing by MEA Program Manager.
	2. Residentially metered commercial buildings that serve low-to-moderate income Marylanders may be considered by MEA on a case-by-case basis.
3. To avoid duplication of materials or work, Grantee shall ensure that any building receiving energy efficiency upgrades and weatherization services under the Grant has not received any recent Building Performance Institute (BPI) level audits or the same weatherization measures proposed in the Grant through the Maryland Department of Housing and Community Development’s (DHCD) Weatherization Assistance Program (WAP), the EmPOWER Low Income Energy Efficiency Program (LIEEP), or any low-income energy efficiency program previously operated by a Maryland electric utility as part of EmPOWER Maryland.
4. Grantee may use utility incentives, in-kind donations, reduced administrative charges, or other grant funding sources to leverage funds in a way that will enable more upgrades.
5. To reduce duplication of effort with other programs serving low-income households (e.g., DHCD’s WAP or LIEEP program) when possible, Grantee should direct program participation to households that fall within the range of “moderate income.”
6. Grantee shall provide personnel to comply with the reporting and invoicing requirements of this Grant.
7. Each reimbursement request for Administrative costs or Indirect costs shall include supporting documentation detailing the work performed.
8. All work must be completed by contractors and/or staff holding all necessary certifications and licenses. Additionally, all work performed pursuant to the Grant shall comply with all applicable local, State, and federal building codes.
9. **Whole Building Energy Efficiency and Weatherization Services**
10. [Insert Grantee] will provide cost effective energy efficiency upgrades and weatherization services to at least **[**insert number here] buildings that serve the low to moderate income communities in [Insert Region]. Each building receiving energy efficiency services under this Grant will first undergo an energy audit that will include a visual inspection, a combustion safety test (if applicable), and may include a before and after blower door test. The use of infrared thermography is encouraged, but not required, to be included in the audit.
11. All energy audits of commercially-metered buildings funded by the Grant must be completed by individuals holding the appropriate certifications necessary to complete whole-building audits on commercial buildings.
	1. For buildings 10,000 square feet or less in size, auditors shall possess the appropriate BPI certifications.
		1. MEA will consider auditors with Certified Energy Manager (CEM) certification but without BPI certifications to perform audits if, after an MEA review of their certifications, MEA determines the auditor possesses the necessary qualifications and experience for the type of facility.
	2. For buildings more than 10,000 square feet, auditors shall have Certified Energy Manager (CEM) certification and at least 2 years of experience performing commercial energy efficiency audits or commissioning of existing buildings of comparable size. In addition, the auditor must be qualified to audit commercial buildings by possessing the following ASHRAE Building Energy Assessment Professional (BEAP) qualifications.
* MEA will consider auditors without the certifications listed above to perform audits if, after an MEA review of their certifications, MEA determines the auditors possess the necessary qualifications.
	1. The auditor and the grantee, as applicable, shall clearly explain test results, recommended measures, and observations including combustion safety, indoor air quality, mechanical ventilation, utility bill analysis, insulation, air sealing, health and safety recommendations/concerns, and others as necessary to educate building occupants on the audit and upgrade process.
1. Commercial audit costs intended to be reimbursed by MEA must be pre-approved in writing by MEA Program Manager.
	1. Grantee shall explain the type of audit (level) proposed and its cost.
	2. Upon request by MEA, Grantee will provide energy audit reports to MEA.
		1. Audit reports shall define the recommended measures and their paybacks.
		2. Audits will be shared with building owner/operator
2. An energy efficiency upgrade is defined to be cost effective when the project, on a per building basis, has an acceptable simple payback, as outlined below in section 2D. Grantee shall be required to calculate the simple payback on the grant reporting documents. Simple payback is calculated by dividing the total project costs by the annual anticipated energy cost savings.
	1. On a per building basis, the simple payback of all measures in aggregate shall be considered.
		* 1. The total of all measures recommended for installation in a **commercially-metered** building under this grant award should have a combined simple payback of 20 years or less.
			2. The total of all measures recommended for installation in a **residentially-metered** commercial-type building under this grant award should have a combined simple payback of 15 years or less.
3. The following energy efficiency measures are eligible for grant funding when identified as cost effective in the energy audit report. These measures will be reported in the new commercial projects section of the Monthly Reporting Attachment reports:
4. Air Sealing and Insulation
	* 1. Increase attic insulation to appropriate International Energy Conservation Code (IECC) levels for Commercial buildings where feasible
		2. For buildings where this is not possible, add cost effective additional insulation as allowable
5. HVAC tune-up
6. HVAC filter replacement
7. Duct sealing and/or insulation
8. Water heater wrap
	* 1. Limited to electric water heaters older than 2004 in unheated spaces.
9. Domestic hot water pipe wrap with a minimum R-value of 3, up to 10 feet on each side of the water heater (hot/cold) in a conditioned space.
10. Hydronic heating and process hot water pipe wrap with a minimum R-value of 3.
	* 1. No constraints on length of hydronic heat or process hot water pipe wrap.
11. ENERGY STAR qualified appliance replacements to include refrigerators (with a maximum MEA reimbursement of $1,000 per ENERGY STAR refrigerator), clothes washers, clothes dryers, dishwashers, window air conditioners, heat pump water heaters, natural gas/propane water heaters, commercial cooking equipment, dehumidifiers and freezers
	* 1. Appliances need to have been functional within the last year.
		2. MEA strongly recommends chest freezers over upright freezers where space allows as they are usually more energy efficient.
12. ENERGY STAR qualified office equipment upgrades, as long as the energy benefits can be shown to accrue to low-or moderate-income Marylanders
	* 1. Equipment being replaced needs to have been functional within the last year
13. Replacement of incandescent bulbs with ENERGY STAR qualified LEDs.
14. T12 to LED, T8 or T5 lighting replacements.
15. Controls/Building automation – with MEA program manager approval
	* 1. Grantee shall submit in writing estimated savings from controls/building automation tunes up for approval consideration. Estimates should explain the underlying rationale for the claimed savings.
		2. Program managers will consider and respond to requests in writing as to whether it is approved, approved with modifications, or not approved.
16. Controls/Building automation tune up– with MEA program manager approval
	* 1. Grantee shall submit in writing estimated savings from controls/building automation tunes up for approval consideration. Estimates should explain the underlying rationale for the claimed savings.
		2. Program managers will consider and respond to requests in writing as to whether it is approved, approved with modifications, or not approved.
17. Installation of low flow showerheads and/or faucet aerators to reduce hot water usage
	* 1. Installation of EPA’s Water Sense® low flow showerheads (2.0 gal/min maximum) and/or faucet aerators strongly recommended
18. Replacement of existing motors with higher efficiency motors
19. Installation of variable-frequency drives (VFD) on motor systems
20. For HVAC replacements in commercially-metered buildings including heat pumps, A/C units, and furnaces, industry standard commercial HVAC load calculations must be performed to ensure that the new system is properly sized.
	1. HVAC systems shall not be added to/replaced in buildings that have not first been weatherized with respect to air sealing and insulation (through this program or as noted during inspection).
	2. Weatherization/ / air sealing must have been completed within the last five years.
	3. For HVAC unit replacements, the following attributes of the existing HVAC system being replaced must be noted and will be reported in the Monthly Reporting Attachment:
		* 1. Equipment type (i.e. electric baseboard; ASHP; PTAC; furnace)
			2. Approximate age of unit
			3. Performance efficiency (i.e. SEER, HSPF, AFUE)
21. Heat pump/Air Conditioner (<= 5) tons replacement (includes ductless, mini-split heat pumps):
	* 1. Replacement is an acceptable measure when the existing heat pump/air conditioner has a SEER rating of 10 or less, or has a simple payback of 15 years or less, or the heat pump doesn’t retain its refrigerant charge and runs on emergency electric heat.
		2. The existing heat pump/air conditioner must be replaced with an ENERGY STAR qualified heat pump/air conditioner.
		3. For Packaged Terminal Air Conditioner (PTAC) unit replacements that currently do not have ENERGY STAR rating qualifications, PTAC replacements shall have an EER rating meeting the following minimum levels:

|  |  |
| --- | --- |
| **Capacity (Btu/hr)** | **Minimum EER** |
| 8,000 or less | 11.8 |
| 8,001 – 10,500 | 11.4 |
| 10,501 – 13,500 | 10.7 |
| 13,501 or more | 10.0 |

If these EER levels cannot be met due to the size of a replacement PTAC or PTHP, then the EER must be at least 10% better than the IECC minimum value for replacements.

1. Furnace/Boiler replacement
	* 1. Replacement is an acceptable measure if the furnace system is less than 75% efficient AND can’t be brought up to 75% efficiency with a clean and tune procedure, or is at least twenty (20) years old, or has a simple payback of 15 years or less.
		2. The existing natural gas or oil furnace must be replaced with an ENERGY STAR qualified furnace of the same fuel type.
		3. Where ENERGY STAR standards are not available for a specific product category, the heating system shall be at least 10% or more efficient than a baseline model that meets code and building requirements. Before proceeding forward, Grantee shall submit in writing the proposed heating system and the baseline system for approval consideration. The MEA Program manager will consider and respond to request in writing as to whether it is approved, approved with modifications, or not approved.
2. Duct Leakage Test/Sealing
	* 1. A duct leakage test must be performed for all ASHP or furnace installations and any other HVAC system that utilizes forced air distribution. Ducts that leak to outside or affect health and safety should be sealed with approved mastic or aerosol spray duct sealant and/or repaired.
		2. Duct tape is not an acceptable method of sealing.
		3. Duct sealing work shall include two duct leak tests, performed before and after completion of sealing. For each duct leakage test, the distribution efficiency shall be estimated based on the BPI Duct Efficiency Table (<http://www.bpi.org/sites/default/files/Guidance%20on%20Estimating%20Distribution%20Efficiency.pdf>), or a comparable method that quantifies the improvement in delivery efficiency
3. Accessible supply and return ducts in the attic must be insulated to a minimum of R-8 (where ≥ 3-inch diameter) and R-6 (where < 3-inch diameter).
4. Existing or new refrigerant lines must be insulated to a minimum of R-3.
5. Piping insulation exposed to weather shall be protected from damage, including that caused by sunlight, moisture, equipment maintenance and wind.
	* 1. Adhesive tape is not an acceptable material for wrapping the pipe.
6. Additional measures as recommended by the audit as being cost effective not on this list may be considered by MEA Program Managers.
	* 1. Such measures will be considered on an individual basis and will be subjected to an additional Maryland Historic Trust review.
		2. Any approved additional energy measures must be approved in writing from MEA program managers.
7. Incidental Repairs
8. Incidental repairs required to correct health and safety issues identified through the energy audit may be performed as long as the total cost of the materials and labor associated with incidental repairs charged to MEA does not exceed a cost of $5,000 per building, after first seeking and receiving MEA permission.  Incidental repair costs shall be included in the overall cost of upgrading the building.
9. Grantee is encouraged to leverage funds beyond this award to correct health and safety issues in a way that will enable more upgrades whenever possible.
10. Incidental Repairs / Health and safety measures funded from this grant must fall into one of these four categories:
	1. Measures that enable the installation of an energy efficiency measure, i.e., they are a prerequisite to the successful installation of the measure. For example, repairing a hole in a roof that must be patched before installing insulation in the attic would qualify.
	2. Measures to install carbon monoxide (CO) monitors for buildings with combustion appliances and/or an attached garage
	3. Measures to correct combustion appliance zone (CAZ) problems.
	4. Measures to install required mechanical ventilation, including the installation of bathroom ventilation fans and controls, and kitchen ventilation fans/hoods (which must be vented to outdoors)

G. Upon request by MEA, Grantee shall provide a list of addresses for all homes, buildings, and/or residences upgraded under this award.

1. **Building To Be Served Under this Award**
2. Insert buildings here if applicable, with address
3. Additional energy efficiency measures and locations may be approved by the assigned MEA program manager on a case-by-case basis as long as the simple payback for the measure is deemed to be acceptable by the program manager and the simple payback for the entire upgrade (all energy efficiency measures combined) is equal to 20 years or less.
	1. Any approved additional energy measures or locations must be approved in writing from MEA program managers.
	2. Additional buildings will be subject to an additional historic preservation review.