EPA REGION 7 CONTRACT- GREEN LEASE RIDER

HVAC— PROCUREMENT LANGUAGE

PRODUCT-SPECIFIC LANGUAGE

5.17.5 Environmental Design Requirements:(A) Energy Conscious Facility Design: Fundamental design decisions related to energy conservation shall be made during conceptual planning stages. The new design shall utilizes passive design techniques to minimize heating and cooling loads. When necessary, the Offeror shall use window reveals sized to allow maximum window shading in summer and minimize shading of windows in winter months. Siting of the facility in relation to sun and prevailing wind paths and vegetation, efficient design of building form and envelope in response to the climate, reduced cooling load through use of day lighting, and reduced solar heat gains through proper design of solar shading devices should be combined with proper selection of building materials and of HVAC system design for an integrated energy conserving facility. The new facility shall meet Energy Efficiency Standards set by ASHRAE 90-1 (1989) for Buildings. The building design and all construction features (materials, methods of installation, including mechanical and electrical systems) should provide concepts that will reflect and provide reduced energy consumption within the other requirements and constraints of this solicitation.

5.17.2 Energy Conservation Design: the offeror, at a minimum, meet the energy efficiency performance standards at 10 CFR 435 or ASHRAE Standard 90.1 using the prospective methods. Thermal insulation shall be inside the perimeter walls. Wall heat capacity shall be calculated by the offeror based on the mass and the specific facing materials offered. The office segment of the building shall meet an operational performance guidelines of 55,000 BTU/Equivalent gross Square foot/year. The consumption rate includes energy supplied by conventional fuel sources plus solar collected and transferred energy through the building HVAC system. This consumption rate is exclusive of passive collected energy through windows, walls, and their external surfaces. Consideration shall be given to the following design features:

(A) use of double glazed, low E, insulating glass windows to minimize absorbed summer sunlight.

(B) use of window reveals sized to allow maximum window shading in summer months while not shading windows in winter months (November- March).

5.17.11 Low E Glass All Windows, skylights and clerestories used in heated or air conditions spaces shall be double glazed, low e, insulation type (see 5.23.1)

Note:	*Block A --*	*Lab Administrative Personnel Space*
	Block B	*Administrative Support Space*
	Block C	*Lab Space*

Block D *Lab Related Office Space*
Block E *Shipping/Receiving/LMHF*

7.1.7 Variable Air Volume HVAC System: Blocks A, B and D. .... The HVAC system for Blocks A, B, and D shall be recirculating type with an economizer cycle, variable air volume system, with set back at night and unoccupied periods (ref 7.18.1) and may be designed utilizing a separate air handling unit. Unless otherwise indicated, one pass air is required in all rooms in Block C and E.

7.1.8 Variable Air Volume HVAC system: Blocks C and E ....The HVAC system for Block C and E shall be variable volume supply air terminals with variable speed fans and variable volume general area exhaust with variable speed fans.

7.7.7 HVAC Energy Efficiency. The HVAC Systems shall be energy efficient, resulting in the lower life cycle cost for the facility based on a 20 year life cycle cost (LCCA). A LCCA of at least two different air conditioning systems is required for the project, however, the air distribution system shall be as specified herein. The LCCA shall be performed in accordance with the method and evaluation procedures prescribed in the "U.S. Department of Commerce, NBS Handbook 135, (rev 1987).
(See also Life Cycle Cost Analysis)

7.9.3 Econimizer Cycle. Provisions shall be made for an outside air economizer cycle when ambient conditions satisfy temperature and humidity requirements.

7.2.8 Manifolding of Fume Hood Exhaust ..... Combining or manifolding of fume hood exhaust systems is allowed except for hoods that required special exhaust treatment (see list below).....The flow volume of the manifolded system shall be controlled by a variable speed drive exhaust fan in order to attain the maximum energy savings, however, the minimum exhaust discharge velocity established in 7.2.7 shall be maintained.

7.1.4 Energy Efficiency and Heat Recovery Devices. Use of heat recovery devices and other types of devices are desirable. These devices must be proven and demonstrated as reliable and avoiding cross contamination between the supply air and the exhaust air. These devices shall have been in the market/industry for a minimum of two (2) years, they should currently be in use in at least 3 facilities for a period of at least two (2) years. The proposed devices systems efficiency must be demonstrated by a life cycle cost analysis. The LCCA shall be performed in accordance with the method and evaluation procedures prescribed in the "US Department of Commerce, NBS Handbook 135 (Rev. 1987).

7.1.12 Facility Management System. The entire facility, including all equipment components of the HVAC system, shall be controlled by a Facility Management System (FMS) that will be integrated to control and monitor interior environment, energy management, lighting, fire management and security functions. The system must be a digital,computer based systems with advanced energy management control and documentation capabilities. The system shall be METASYS by Johnson Controls or approved equal. The system must be designed for 24 hour operation without operator attendance. Control panels shall be placed at the EPA Building Facility Manager's desk and at a location to be

determined by the Lessor for use by the Lessor's maintenance personnel.

The HVAC system controls shall be sized and adjusted for full hood operations (including night time set back speed setting) in Blocks C and E. The HVAC systems shall be automatically controlled for temperature, airflow and room pressurization. *(See also Building Automation System)*

7.2.4 Air Volume: the volume of air supplied by the HVAC system shall be as established in ASHRAE 62-1989,. HVAC systems shall be designed and operate to provide: (a) 20 CFM of outdoor air per person in offices and 20 CFM of outdoor air per person plus other laboratory related requirements, in laboratories (Note: laboratories should exceed this using one pass air.) (See also Indoor Air Quality)

3.4.5 Location of Exhausts: fume hood exhausts, cooling towers, emergency generator exhausts, truck loading areas etc must be located so as to avoid any entrainment by air handling systems fresh air intakes. .....

5.6 Finish Installation/Sequencing for Indoor Air Quality Considerations.

5.6.1 General. Special construction scheduling involves defining and controlling sequencing of finishes applications to ensure dissipation of high emissions from the finishes that off-gas unacceptably high quantities of potentially harmful material during curing, and to separate and avoid the installation of adsorptive materials that would act as a "sink" for storage and subsequent release of these unwanted substances into building spaces and mechanical systems after project occupancy. Special procedures involve provision of temporary construction ventilation as well as restrictions and controls on the use of building mechanical systems to prevent contamination by construction wastes and other deleterious substances.

5.6.4 Sequence. Offeror shall sequence construction to complete off-gassing of Type I materials prior to installation of Type 2 materials during the construction, build out, and finishing of the space and segregate the operation of the HVAC systems so that emissions in works zones do not contaminate areas where construction and installation of Type 2 materials and finishes has been completed.

At a minimum, following completion of installation of Type 1 materials in an area, the facility should be off-gassed for at least 48 hours, unless curing schedules provided by materials manufacturers call for a longer curing process, in which case, an appropriate and longer period for off-gassing should be used. Provide the maximum rate of fresh air to the HVAC system during the off-gassing period.

The HVAC system may be used to move both supply and return air except that permanent return air ductwork or finished plenum systems shall not be used in areas subject to any construction or finish installation work. No recirculating of inside air is permitted -- temporary exhaust systems must be used with exhaust air directly to the outside from the construction area.

Apply all Type 1 interior finishes throughout the entire controlled building segment and allow such finishes to completely cure according to intervals and times stated in respective finish manufacturer's

printed instructions before commencing installation of any Type 2 materials in the same area. Do not store any Type 2 materials in areas where installation or curing of Type 1 Materials is in progress.

5.29.1 Off-Gassing after completion of interior fit up/furniture installation. At a minimum, following completion of the interior build out and installation of tenant furniture, the facility should be off-gassed for at least 48 hours prior to occupancy. Provide the maximum rate of fresh air to the HVAC system while maintaining other normal operating parameters and conditions regarding humidity and temperature.

Where construction and finish work is being performed in portions of a building while other parts of the building are being occupied, each construction and finish work area shall be segregated from the HVAC system so that exhaust from the construction and finish work area does not enter into the HVAC system and contaminate parts of the building where construction and finish work and/or furniture installation is complete.

HVAC ductwork should be sealed and protected from dust and dirt infiltration during construction, especially for dust generating activities such as gypsum wall board finishing and sanding.

7.3.5 Location of Air Intakes and Airflow Analysis Requirements**.** Outside air intake(s) shall be located so as to provide the cleanest possible air for the building and shall be located so as to prevent contamination from the building's exhaust air, vent stacks, or the vehicle fumes from the loading dock. Air intakes shall be designed so that they are inherently protected from bird or bat droppings or other contamination.

Before the Best and Final Offers, the Offeror shall provide a qualifications statement for a firm or engineer, showing a familiarity with computer air flow modeling. The firm or engineer will provide the services described below. Prior to the 50% design review, when the buildings architectural configuration and the HVAC system concept (primarily locations of air intakes and exhaust) have been set, the Lessor shall provide a site atmospheric air flow characteristics study and exhaust stack dispersion performance analysis. This analysis shall be performed by a qualified firm or engineer with past experience in conducting computer modeling or air flow analysis around buildings, as specified by the latest ASHRAE Fundamentals Handbook. The purpose of the study is to demonstrate that the proposed system will prevent re-entry of exhaust fumes, odors, plumbing vents or vehicular exhaust into the facility.

7.4.38 Mechanical Exhaust for Certain Rooms. The following rooms shall be exhausted to the outside and have negative pressures:

1) copy rooms, copy centers, satelite copy centers, record center copy areas

All copy rooms are to be provided with mechanical exhaust systems ducted to the exterior of the building other acceptable exhaust plenum with no recirculation to building air supply. Supply and exhaust air volumes for these room types are to be balanced to provide a negative pressure in

accordance with good design practice to reduce the spread of odors and contaminants throughout the building.

2) toilet rooms

All toilet rooms are to be provided with mechanical exhaust systems ducted to the exterior of the building other acceptable exhaust plenum with no recirculation to building air supply. Supply and exhaust air volumes for these room types are to be balanced to provide a negative pressure in accordance with good design practice to reduce the spread of odors and contaminants throughout the building.

3) break rooms with microwave or food preparation areas

All break rooms are to be provided with mechanical exhaust systems ducted to the exterior of the building other acceptable exhaust plenum with no recirculation to building air supply. Supply and exhaust air volumes for these room types are to be balanced to provide a negative pressure in accordance with good design practice to reduce the spread of odors and contaminants throughout the building.

4) janitors closets. All janitors closets are to be provided with mechanical exhaust systems ducted to the exterior of the building other acceptable exhaust plenum with no recirculation to building air supply. Supply and exhaust air volumes for these room types are to be balanced to provide a negative pressure in accordance with good design practice to reduce the spread of odors and contaminants throughout the building.

5) battery/rectifier/UPS Rooms

All battery/rectifier/UPS Rooms are to be provided with mechanical exhaust systems ducted to the exterior of the building other acceptable exhaust plenum with no recirculation to building air supply. Supply and exhaust air volumes for these room types are to be balanced to provide a negative pressure in accordance with good design practice to reduce the spread of odors and contaminants throughout the building.

The exhaust to the Battery/rectifier/UPS room must be connected to the emergency power system. Battery room must be exhausted at a minimum of three air changes per hour.

6) Diesel Generator rooms

Air supply and exhaust shoud be located so aid does not short circuit. Generator exhaust must be carried up to roof level in a flue or exhausted by way of a vault located away from any building wall. Horizontal exhaust through the building wall is not permitted.

<u>OTHER APPLICABLE CONTRACT LANGUAGE</u>

General References

p 5 2.1.3.3 Building to Reflect EPA's Mission. Offerors are encouraged to design, build, and operate a safe, reliable, and cost-competitive facility that reflects, to the maximum extent possible within the requirements of this Solicitation for Offers, EPA's environmental protection mission and its commitment to having a positive impact on the communities where it is located. The following are concepts that should be considered during the design, construction, and operation of this facility:

Energy Conservation, via careful consideration of building siting, passive solar design approaches, day lighting, energy efficient building shell design, low E glass, efficient mechanical systems, minimizing waste energy and recapturing waste energy streams, use of solar power and other renewable or innovative energy sources, "Greenlights", advance building and mechanical control systems, thoughtful building maintenance and operation, etc.

Water Conservation, via use of low flow toilet fixtures and through sensitive mechanical system design, landscape design using native species and drip irrigation systems, and thoughtful site design.

Resource Conservation, via the use of materials with recycled contents or above average recycled contents, use of materials that are manufactured, packaged, or transported in an way that reduces energy or material expenditures, construction period recycling and waste minimization, and designing, building, and operating the building to accommodate EPA's active recycling program.

Indoor Air Quality, via careful placement of exhaust and air intakes in relative positions that prevent cross contamination, consideration regarding radon in the building, protection of the HVAC system during construction, the use of low VOC adhesives, paints, sealants, and caulks, construction period installation sequencing, sensitive janitorial and cleaning approaches during the building's operating life. No use of asbestos or asbestos containing materials.

Other Environmental Factors, such as Protection of the Ozone Layer through the avoidance of CFC's as refrigerants and blowing agents for insulation; Protection of Endangered Ecosystems and support of sustainable forestry practices by avoiding consumptive use of endangered rain forest species and obtaining products from certified sustainable sources, use of non leaded paints, and provision of plumbing systems that prevent elevated lead levels in water. Consider partnerships with local utilities and energy savings companies to assist in financing low emissions low operating cost mechanical systems.

The challenge is to minimize the conflicts between and maximize the benefits of these environmental requirements while meeting the other goals and specification associated with this project.

p. 5 2.1.3.6 LEED Building Bronze™ Certification. The Building's design should, at a minimum, meet the level of performance consistent with criteria assigned to the LEED™ Building Bronze™ Certification. The Leadership in Energy and Environmental Design (LEED™) GREEN Building Rating System has been developed by the US GREEN Building Council. Description and criteria for the LEED™ system can be viewed at http://www.usgbc.org/programs/leed.htm or received from the US Green Building Council at 90 New Montgomery Street, Suite 1001, San Francisco, CA 94105 or dialing 415-543-3001. Offerors shall provide (3) copies of supporting documentation that demonstrates its participation in the LEED™ Rating system (i.e. a notebook detailing how the building earned the LEED™ Bronze Certification).

5.17.1 General: This solicitation requires that energy conservation features be designed into the facility. These features, if not in conflict with specific requirements of this Solicitations, shall be those described in the "GSA Energy Conservation Guidelines for New Buildings" Handbook.

5.17.5 Environmental Design Requirements:(A) Energy Conscious Facility Design: Fundamental design decisions related to energy conservation shall be made during conceptual planning stages. The new design shall utilizes passive design techniques to minimize heating and cooling loads. When necessary, the Offeror shall use window reveals sized to allow maximum window shading in summer and minimize shading of windows in winter months. Siting of the facility in relation to sun and prevailing wind paths and vegetation, efficient design of building form and envelope in response to the climate, reduced cooling load through use of day lighting, and reduced solar heat gains through proper design of solar shading devices should be combined with proper selection of building materials and of HVAC system design for an integrated energy conserving facility. The new facility shall meet Energy Efficiency Standards set by ASHRAE 90-1 (1989) for Buildings. The building design and all construction features (materials, methods of installation, including mechanical and electrical systems) should provide concepts that will reflect and provide reduced energy consumption within the other requirements and constraints of this solicitation.

Recycled Materials Uses/Comprehensive Procurement Guidelines

5.17.7 Use of Recycled Materials: Under Section 6002 of the Resource Conservation and Recovery Act (RCRA), the EPA has set guidelines for Federal State and local procuring agencies, using appropriated Federal funds, to purchase items composed of the highest percentage of recovered materials practicable. The EPA requires that its facilities follow the guidelines of the Comprehensive Guidelines for Procurement of Products containing Recovered Materials, Final Rule 40 CFR 247, Federal Register, Monday, May 1, 1995; Recovered Materials Advisory Notice (SWH-FRL-5198-8) Federal Register Monday, May 1, 1995; Comprehensive Procurement Guide II, 62 Federal Register 60961, November 13, 1997; and Recovered Materials Advisory Notice II, 62 Federal Register 60976, November 13, 1997. If CPG products are not used, provide documentation. The following exceptions are allowed: (1) when the cost is unreasonable: (2) inadequate competition exists: (3) items are not available within a reasonable period of time; or (4) items do not meet the solicitation performance standards.

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