Sustainability Scorecard

The Mission Sustainability Commission advocates for policies and actions that improve the community in the areas of social equity, environmental health, and economic prosperity. As property and business owners make additional investments to further improve the community, it is important that those investments are made with an eye to the future.

The Sustainability Commission would like to foster a spirit of collaboration in this process where community and business interests meet. The Commission has developed the Sustainability Scorecard that includes a list of criteria that communicate the values of holistic sustainability. The project is scored in categories like land use, transportation, materials used, energy and water conservation, indoor environmental quality and more.

These criteria are applied to both new construction and redevelopment. When a project is being considered, City staff and the Sustainability Commission will invite business and property owners to use the Scorecard.

Using the Sustainability Scorecard

Step 1: Self-Scoring
As a project is proposed in the Community Development Department, planning staff will provide the scorecard to the project team. The development team should rate the project against the scoring system developed in the Scorecard and submit that to the Sustainability Commission for sub-committee review.

Step 2: Project Presentation
The property or business owner is invited to share details about the project and the initial score at a Sustainability Commission meeting.

Step 3: Verification and Recognition
The Sustainability Commission will verify the project score, and recognize efforts taken to improve the overall sustainability of a project with promotion to the Mission City Council and the public.

MISSION kansas
SUSTAINABILITY COMMISSION

Project: _____
Expected completion: _____
Project Team: _____

Building Scorecard (Revised December 2018)

Please complete all sections that are applicable to this project. Check any boxes for areas that apply to the work, and use the blank area to explain further. You may also assign point totals for each section; though these will be reviewed and a final score determination will be made by the Mission Sustainability Commission. Additional explanations and clarifications for each item can be found in the building scorecard supplemental document.

1. Will this project pursue any sustainable building certifications? Include rating details.

2. Site Development, Land Use, Location and Transportation Impact

□ a. Pre-design site assessment □ b. Preserve natural resources □ c. Manage storm water
□ d. Landscape irrigation □ e. Manage plants/ vegetation □ f. Manage soils/ erosion control
□ g. Site waste management □ h. Walking/ bicycle paths □ i. Bicycle storage
□ j. Changing/ shower facilities □ k. Carpool/ car share □ l. EV charging
□ m. Bus access □ n. Heat island mitigation □ o. Reduce light pollution

Points scored - _____ out of **20**

3. Materials and Resource Use

□ a. Reuse existing building □ b. Construction material management
□ c. Construction waste management □ d. Sustainable/ local materials
□ e. Occupant waste management □ f. Occupant recycling/ composting

Points scored - _____ out of **20**

4. Energy Conservation, Efficiency, and CO_{2e} Emission Reduction

□ a. Energy Modeling □ b. CO_2e modeling □ c. Energy metering/ monitoring
□ d. Automated demand response □ e. Building envelope/ insulation □ f. Mechanical systems
□ g. Electrical/ lighting systems □ h. Appliances/ equipment □ i. Onsite renewable energy
□ j. Refrigerant management □ k. Control air pollution

Points scored - _____ out of **20**

5. Water Conservation and Efficiency

□ a. Water metering □ b. Fixtures/ fittings □ c. Appliances/ equipment
□ d. HVAC water use □ e. Water treatment devices □ f. Reduce irrigation
□ g. Rainwater □ h. Graywater

Points scored - _____ out of **20**

6. Indoor Environmental Quality and Comfort

□ a. IAQ management plan □ b. Air handling filtration □ c. Increase ventilation
□ d. IAQ during construction □ e. Thermal comfort □ f. Indoor pollutant control
□ g. Material emissions control □ h. Acoustics □ i. Daylighting/ views
□ j. Accessibility/ Community for All Ages

Points scored - _____ out of **10**

7. Commissioning, Operations, and Maintenance

□ a. Inspections □ b. Mechanical commissioning □ c. Energy commissioning
□ d. Building controls systems □ e. O+M documentation □ f. Maintenance staff training

Points scored - _____ out of **10**

8. Additional Comments

Any additional sustainable attributes that will be incorporated in this project.

Bonus Points (if applicable, 5 maximum) - _____

Total Points Scored - _____ out of **100**

Rating Achieved - _____ (Bronze 20-39, Silver 40-59, Gold 60-89, Platinum 90+)

City of Mission, Kansas Sustainability Commission Building Scorecard – Supplemental Document

This scorecard is a way to encourage projects to consider sustainability throughout the entire lifecycle of a building. It is designed with the 2015 International Green Construction Code (IgCC) in mind, and is meant to reward voluntary efforts to make projects more sustainable than currently required. It is a project of the Mission Sustainability Commission, an advisory body to the City Council that aims to be a good steward of natural resources, make Mission, Kansas a desirable community, be advisors to the City Council, and increase visibility of sustainability in our community. This supplemental document provides some definitions and further explanation related to the Mission Sustainability Commission Building Scorecard. The scorecard is intended for developers, architects, builders, building owners, tenants, or anyone wishing to be more sustainable. This scorecard can be a helpful guide for anyone pursuing new construction, renovation, or upgrading a few light bulbs.

Although this can be a helpful resource, it is not intended to be an all-inclusive guide. Please see the additional resources section at the end of this document for links to further information.

How to Complete the Scorecard

We encourage users to check all boxes applicable to the project. The goal is to reward buildings that surpass minimum building code requirements and incorporate sustainability. In the commentary section, include a description of the features/strategies, and whether they fall short, meet, or exceed code requirements. If the project includes any attributes that are not included in this scorecard, describe them in detail in the additional comments section.

1. Sustainable Building Certifications

Note if this project is pursuing any sustainable rating including IgCC, LEED, WELL, ASHRAE 189.1, Green Globes, EnergyStar Building, ICC-700, etc. Include details of which rating system and the level/score the building will achieve. See additional resources at the end of this document.

2. Site Development, Land Use, and Location, and Transportation Impact

Each building should consider how its location, natural geography, and occupant access are encouraging sustainability. Additional details on many of the items are available in the most current International Green Construction Code.

a. Pre-design site assessment – Projects could take an inventory of the building site baseline conditions including areas to protect, native plants/ trees, invasive species, terrain/ topography, hazard areas, storm water hydrology, and site features to be preserved. Make a plan to minimize the negative effects of altering the site.

b. Preserve natural resources – Any site near flood hazard areas, surface water bodies, wetlands, conservation areas, parklands, agricultural land, or previously undeveloped land, could limit the disturbance of these natural resources. In the comments, please explain what natural resource is present, and how this project aims to preserve that portion of the site.

c. Manage storm water – Projects could consider how this project will address the increased/redirected runoff and water contaminants like coal tar. The project could identify a water management system for rain events, snowmelt, etc.

d. Landscape irrigation – To reduce potable water use, projects could limit the amount of irrigation required for site landscaping. This can be accomplished by using native plants which require less watering, and designing a more efficient irrigation system. Irrigation systems could be installed to aim away from building/ pavement, create less overspray, incorporate smart controls/ sensors, group plants of similar water needs, include pressure regulators, and include efficient nozzles. Decorative fountains and water features should be designed to limit water usage by recirculating, treating, and limiting evaporation of water. Creative solutions may involve using collected rainwater for site water use.

e. Manage plants/ vegetation – Projects should preserve existing vegetation, protect trees, eliminate invasive species, and landscape with native plants. Plants depend on good soil, therefore managing soils goes hand-in-hand with managing vegetation.

f. Manage soils/ erosion control – Projects should protect the topsoil, limit importing soil, prepare and restore the soil nutrients, and stabilize the earth to prevent erosion. Erosion could occur during construction and throughout the lifecycle of the building. Go beyond the standard erosion control requirements.

g. Site waste management – Projects should avoid depositing site waste, such as land clearing debris, vegetation, or previous hardscape materials from the site into the land fill. Waste could be diverted from the traditional waste stream by reusing, recycling, composting, or upcycling. In the comments, describe any site waste that will be removed for this project and where it will go.

h. Walking/ bicycle paths – Projects could incorporate paved walkways and bicycle paths to encourage pedestrian and bicycle access to existing paths/ infrastructure. IgCC requires at least one independent path for bicycles, strollers, pedestrians and other non-motorized locomotion connected to a building entrance and a street or existing walkway/ bicycle path. Include a description or site plan showing the location of the paths.

i. Bicycle storage – Projects could provide long-term and short-term bicycle storage with adequate accessibility, lighting, space, and location near a building entrance. Describe the location and number of spaces of bicycle storage provided for this building.

j. Changing/ shower facilities – If building occupants have access to a changing/ shower facility, this could encourage pedestrian and bicycle commuting.

k. Carpool/ car share – To decrease energy use of accessing a building or commuting, the site could encourage carpooling or car sharing through methods like parking spaces reserved for high occupancy vehicles. Companies such as Zipcar or CarToGo provide occupants an opportunity to borrow a car.

l. Electric Vehicles – Projects could provide preferred parking and/or charging stations for low-emission, hybrid, and electric vehicles.

m. Bus access – Projects could encourage building occupants to access bus transit by locating the nearest bus stops and providing convenient pathways to encourage people to use the bus and alternative transportation.

n. Heat island mitigation – Temperatures can be significantly warmer in cities than in surrounding rural areas due to the heat island effect. To reduce the heat island effect, a building could consider hardscape materials, light reflectance, shading by structures, shading by trees, pervious pavement, solar reflective roof coverings, and vegetative roofs.

o. Reduce light pollution – Exterior lighting could be designed or installed to limit up-light, light trespass, and glare. Solutions include proper fixture selection, efficient layout, and automated controls. Consider reducing lighting of facades and areas beyond the site boundary.

3. Material And Resource Use

Building materials should be sustainable. Conserving material resources involves material selection, recycling, reuse, renewability, limiting toxicity, and durability, including resistance to damage caused by moisture. Consider the life cycle of materials, transportation, and waste material.

a. Reuse existing building – It is beneficial to reuse existing buildings to limit demolition waste. Buildings can be reused in total, or materials can be reused on new projects.

b. Construction material management – Most products have specific instructions for storage and handling. Instructions generally include moisture control, temperature regulations, and stacking instructions. Care should be taken to not let products be damaged in order to prevent wasting materials and reduce the chance of mold growth.

c. Construction waste management – Projects could develop a construction material and waste management plan to recycle or salvage construction materials and waste.

d. Sustainable/local materials – Projects could select materials that are sustainable and local. In addition, materials should be free from harmful chemicals such as lead, cadmium, and mercury. Material selection could include used/ reclaimed materials or content that is recycled, recyclable, bio-based, sustainably sourced, rapidly renewable, or indigenous. Alternatively, projects could undertake whole building life cycle assessments or provide environmental product declarations.

e. Occupant waste management/ recycling/ composting – Recycling areas could be provided for occupants after the building is completed. Describe the services offered, location of collection areas, and signage.

4. Energy Conservation, Efficiency and CO_2e Emission Reduction

Energy and atmosphere are perhaps the most common items considered in sustainability. There are many building attributes that work together to achieve energy efficiency. The items below should all be considered to reduce energy consumption, install efficient systems, and utilize renewable energy when possible. Consult the International Green Construction Codes for additional specific information for these items.

a. Energy modeling – Energy modeling uses computerized calculations to predict the energy consumption of a building due to a wide variety of inputs. International Green Construction Codes require a zero energy performance index (zEPI) of 50 or less. The IgCC provides a calculation which compares the proposed performance to a baseline building.

b. CO_2e modeling – Equivalent carbon dioxide (CO_2e) emissions can be modeled in a similar way as energy modeling, by adding the type of energy sources used for a building.

c. Energy metering/ monitoring – To identify where energy is used in a building, it is helpful to install energy meters and sub-meters. These can be used to monitor and efficiently operate loads from many different building systems. By continuously monitoring and reporting, energy meters can identify areas or systems of the building that are operating improperly or inefficiently. By performing simple maintenance, buildings can save money on utility bills. Describe any efforts the project uses to track electric power, gas, liquid and solid fuels as well as heating and cooling as applicable.

d. Automated demand response – Utilities can operate more efficiently if buildings offer to shed energy on peak load days. Enrolling in an automated demand response allows the utility to shift building energy usage to another time to limit additional energy production needed at peak times.

e. Building envelope/ insulation – To conserve energy related to heating and cooling a building, the building façade and insulation should be considered. Shading combines with the insulation performance of all exterior elements (walls, roof, windows, etc.) to create a building envelope. Projects also could seal all windows and doors, and prevent air leakage for the entire building.

f. Mechanical systems – Heating ventilation and air conditioning (HVAC) systems are often the largest consumers of energy in any building. There are many types of HVAC systems, some are more efficient than others depending on the building location and usage. There are federal standards for energy efficiency detailed in the International Energy Conservation Code (IECC).

g. Electrical/ lighting systems - Many strategies exist to reduce the energy used by electrical and lighting systems. Daylight can be used to reduce required lighting during the day. Controls systems and occupancy sensors can turn off interior and exterior lights when they are not required. It is also important to consider all of the electrical plug loads, and what can be done to reduce energy from appliances plugged into electrical outlets.

h. Appliances/ equipment – There are federal requirements for energy efficiency in many appliances. In addition to these federal requirements, ENERGY STAR labelled appliances can reduce overall energy use.

i. Onsite renewable energy – Another way to reduce utility energy is to install renewable energy systems on the project site like solar or wind energy.

j. Refrigerant management – Refrigerants can be detrimental to human health and the atmosphere if they are not used or disposed of properly. It is illegal to use CFCs and HFCs are also bad for the environment. When possible, select natural refrigerants such as water or propane to reduce atmospheric damage. Also, any existing refrigerants should be disposed of properly.

k. Control air pollution – Buildings can pollute the air directly or indirectly by using energy from utilities burning fossil fuels. Buildings should consider reducing air pollution or planting trees to offset releasing CO_2 into the atmosphere.

5. Water Resource Conservation, and Efficiency

Water is a limited resource, and it should be conserved and protected in all buildings. Potable water (suitable for drinking) is a precious commodity that humans require. Items in this section are strategies to decrease water use and increase water quality. Check the International Green Construction Codes for specific examples.

a. Water metering – Water meters track the water usage of a project. If alternative water sources are used (i.e. reclaimed water, well water, or other potable water) each water source could be metered individually. Metering can identify any abnormal conditions in order to correct and prevent wasting water. Water sub-meters can be helpful when there are multiple tenants or pieces of equipment that consume large quantities of water.

b. Fixtures/ fittings – Installing water efficient fixtures can significantly reduce building water consumption. Some fixtures have a WATER SENSE label which is similar to ENERGY STAR for energy efficiency. To reduce water use, consider maximum flow rates for all water fixtures within a building (lavatory, kitchen, drinking fountains, etc.). In addition, automatic or metered fixtures can save water by preventing a fixture from remaining on when not in use.

c. Appliances/ equipment – Many appliances in a building may require a water connection. Projects could consider maximum flow rates for clothes washers, icemakers, steam cookers, and dishwashers. Plumbing design and equipment layout could also focus on conserving water.

d. HVAC water use – The building HVAC system can consume large amounts of water if not designed and installed properly. Any equipment that uses water including condensate drainage, humidification systems, hydronic loops, heat exchangers, and cooling towers should have protections in place to reduce water usage. In addition to reducing water, the HVAC system should maintain good water quality in all systems.

e. Water treatment devices – Any water treatment device should limit the amount of wasted water. Check green building codes for specific requirements for water softeners, reverse-osmosis water treatment systems, and onsite reclaimed water treatment systems.

f. Reduce irrigation – Selecting vegetation and plants that require less irrigation helps to reduce the overall water usage for the entire project. If irrigation is required, ensure that the system is operated efficiently by only watering the necessary areas, and watering at an efficient time of day to reduce evaporation.

g. Rainwater – Collecting rainwater is a strategy to reduce municipal potable water use. Be sure to follow requirements in building codes for storing water and preventing water borne diseases.

h. Graywater – Graywater is water that has been used once and is no longer potable (i.e. water from hand washing sinks), however it may be reclaimed and used for non-potable water requirements (such as irrigation). Reusing graywater is another strategy to reduce overall water usage.

6. Indoor Environmental Quality and Comfort

Human comfort and quality of life has a direct impact on productivity and health. It is important to remember the building occupants for a truly sustainable project. The items below can help create a better interior environment for the building occupants. International Green Construction Codes can provide specific guidance.

a. Indoor air quality (IAQ) management plan – Managing the indoor air quality inside a building starts during construction and continues into occupancy. It is important to have a plan in place before the project begins.

b. Air handling filtration – All air handling equipment should have sufficient filters to clean the air supplied to occupied spaces.

c. Increase ventilation – Indoor air quality can be improved by providing more fresh air to occupied spaces. IgCC requires projects to provide either natural ventilation (operable windows) or increased mechanical ventilation in excess of building code requirements.

d. Indoor air quality (IAQ) during construction – During construction it is important to protect the building and HVAC system from collecting dust and contaminants. It is also important to store construction materials in a responsible way to reduce mold. Check green construction codes for specific ways to do this.

e. Thermal comfort – Human productivity and comfort are affected by humidity and temperature within a space. It is important to provide a comfortable thermal environment and controls for occupants to be comfortable. IgCC requires compliance with ASHRAE 55.

f. Indoor pollutant control – Everyday products can contain many indoor pollutants. Projects should decrease the use of harmful indoor pollutants and locate pollutant sources in enclosed rooms, away from building occupants. Pollutant sources can include printers, copiers, and janitorial rooms.

g. Material emissions control – Choosing materials with low emissions can improve the indoor air quality. Volatile organic compounds are common in many building materials. Check green building codes for prohibitions and limits on volatile organic compounds in composite wood, adhesives, sealants, paints, flooring, and insulation.

h. Acoustics – Another factor that contributes to indoor environmental quality is sound. Productivity depends on good speech communication and limiting distracting noises. Projects could consider sound transmission, mechanical system noise, structure borne sound, and sound absorbing room surfaces.

i. Daylighting/ views – Occupants benefit from natural sunlight and being able to see outdoors. Consider access to windows or glazing that allow views for as many occupants as possible.

j. Accessibility/ community for all ages – Consider all people that may be occupants of your project site and building. Projects could also consider how they contribute to the Mid-America Regional Council's Communities for All Ages initiative. City of Mission participates in this program.

7. <u>Commissioning, Operations, and Maintenance</u>

It is important to check building systems to ensure they are working efficiently. Commissioning is a process to verify that all building systems are operating as intended. To maintain efficiency throughout the lifecycle of the building it is important to perform routine maintenance and ensure the building is operating properly.

a. Inspections – An independent commissioning agent can verify that all systems were installed correctly and meet the project requirements in all of the sections above. Consider a special inspection and commissioning report by an approved agency before building occupancy.

b. Mechanical system commissioning – Commissioning can be considered "fine-tuning" to ensure the building HVAC system is functioning at peak efficiency. Mechanical systems commissioning includes measuring the occupied spaces and each piece of mechanical equipment to verify proper operation. Check green construction codes for a list of mechanical items that could be commissioned.

c. Energy system commissioning – Similar to mechanical system commissioning above, energy system commissioning ensures that electrical generation and distribution systems are operating properly to ensure energy efficiency.

d. Building controls systems – Automated control systems can be a great benefit to controlling equipment and operating a building efficiently. However, they must be checked to ensure they are programed and installed correctly, or the outcome may be negative.

e. Operations and maintenance (O+M) documentation/ schedule – It is important for the owner or project manager to have access to important information related to operations and maintenance to keep the building functioning efficiently. Green construction codes require a user manual for each building system, and record documents be provided to the owner.

f. Maintenance staff training – The maintenance staff can be a huge factor in whether a project achieves its sustainability goals or not. Consider maintenance documentation to help the staff keep the project operating properly.

8. Additional Comments

This section is meant to address any sustainable building elements that do not fit neatly into the categories above. Please describe any items this project incorporates that contribute to a more sustainable community. This could include description of the design team and integrative process, building orientation decisions, community gardens, access to local food/ farmers, markets, increased durability, reduced maintenance, incorporating open outdoor space, occupant sustainability training/ education, increased occupant comfort, carbon monoxide alarms in every space, community engagement, or involvement with programs such as Community for All Ages, Walk/Bike/Ride KC, or Smart Growth. But don't feel limited to those, either. Document anything that improves the economy, people of our community, and/or the natural environment.

This is your chance to highlight any sustainable attributes that this scorecard does not cover. Feel free to attach additional documentation or narratives to add further detail for any comments that do not fit in the comments section.

Green construction codes and other sustainable rating systems

- International Green Construction Code (IgCC) 2015
  The IgCC is the first model code to include sustainability measures for the entire construction project and its site — from design through construction, certificate of occupancy and beyond. The new code is expected to make buildings more efficient, reduce waste, and have a positive impact on health, safety and community welfare.
  https://www.iccsafe.org/codes-tech-support/international-green-construction-code-igcc/international-green-construction-code/

- Leadership in energy and environmental design (LEED)
  LEED, or Leadership in Energy and Environmental Design, is the most widely used green building rating system in the world. Available for virtually all building, community and home project types, LEED provides a framework to create healthy, highly efficient and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement. There are several different rating systems (Building Design and Construction, Interior Design and Construction, Building Operations and Maintenance, Neighborhood Development, and Homes). Projects can achieve awards of certified, silver, gold, or platinum based on meeting prerequisites and a certain number of credits in each rating system.
  https://new.usgbc.org/leed

- ENERGY STAR Buildings
  ENERGY STAR is the simple choice for saving energy in buildings and plants. Buildings receive a percentile score from 1 to 100 based on energy usage compared to similar buildings across the country. To be eligible for ENERGY STAR certification, a building must earn an ENERGY STAR score of 75 or higher, indicating that it performs better than at least 75 percent of similar buildings nationwide.
  https://www.energystar.gov/buildings

- Green Globes
  Green Globes offers a different approach: one that provides in-depth support for improvements ideally suited to each project. Building owners and facility managers know their buildings and operations better than anyone else. We respect and leverage that knowledge with personalized assistance to produce best practices in sustainable design, construction and operations. Incorporating third-party assessors available throughout the certification process, we forge a partnership that allows experienced green building project teams to shine and reduces the learning curve for those new to green building. The building gets a rating from 1 to 4 globes.
  https://www.thegbi.org/green-globes-certification/

- ASHRAE 189.1
  ASHRAE is the American Society for Heating Refrigeration and Air Conditioning Engineers. Standard 189.1 provides total building sustainability guidance for designing, building, and operating high-performance green buildings. From site location to energy use to recycling, this standard sets the foundation for green buildings by addressing site sustainability, water use efficiency, energy efficiency, indoor environmental quality (IEQ), and the building's impact on the atmosphere, materials and resources. Standard 189.1 is a compliance option of the International Green Construction CodeTM (IgCC).
  https://www.ashrae.org/resources--publications/bookstore/standard-189-1

- ICC/ASHRAE 700-2015
  The ICC/ASHRAE 700-2015 National Green Building Standard™ (NGBS) is the first residential green building standard to undergo the full consensus process and receive approval from the American National Standards Institute (ANSI). A residential building can achieve bronze, silver, gold, or emerald rating.
  https://www.nahb.org/en/research/nahb-priorities/green-building-remodeling-and-development/icc-700-national-green-building-standard.aspx