

**Green Development Standards Workshop  
Meeting Notes Summary  
Friday May 19, 2017**

**Green Development Standards Updates & Discussion:** What has been undertaken over the last year; updates on standards/metrics; uptake on metrics; Issues encountered; How issues were addressed; Other updates from your jurisdiction

**The City of Vaughan—Ruth Rendon**

* The Planning and Sustainability departments have been leading the development of Vaughan’s Sustainability Metrics, but have been working with all the other departments throughout the development and implementation of the program. Vaughan City Council has endorsed the testing stage—a process that has taken two years to process data. Currently, the City is at a stage where they are developing improvements to current standards as well as processes and will be going back to Council in the fall of 2017 with recommendations for the next stage of the program.
* Throughout the whole process Vaughan has been ensuring that it is a collaborative initiative between all departments however there has been a focus on urban design/planning, public works, storm water and other departments who are also involved in the review of development applications. One of the goals of that collaborative process has been to increase the buy-in from technical staff in charge of implementing the GDS program; and to streamline the pre-application process.
* The Sustainability Performance Metrics (SPM) are integrated early in the Development Application review process for Site/Block & Subdivision Plans, this allows conversations to occur right from the onset before a lot of work has gone into the process by developers that that early process helps to provide the time and ability to developers to increase the sustainability metrics they integrate into their developments and increase their score as well.
* Vaughan is exploring a web-based checklist (similar to the one used for the City of Brampton) as that has been found to simplify the gathering of the necessary information—a feature that has been requested by the development community.
* The sustainability metrics focus both on the *greening* the external design features of a building as well as the internal features of the house include water and energy conservation. However, it is up to the developer to determine which of the metrics will be integrated into their application.
* In addition to the checklist, the developer also has to submit a Sustainability Summary, which includes: their Sustainability score, targets achieved and how the established targets could be verified by presenting associated component studies (this tool was originally developed by Brampton as well).
* This summary makes the developer more aware of the benefits of each metric and provides details that can be assessed and cross-referenced by the municipality to ensure compliance. The Summary also acts as a checklist for the intended reviewers (from various municipal departments) to verify targets/metrics and provide feedback on potential improvements to the proposed plan that would lead the developer to achieve recommended minimum targets, how they can increase their sustainability score overall and how they can achieve aspirational targets.
* Council will be considering establishing a minimum threshold likely in the fall of 2017. Based on their decision there will also be a focus on resource creation (to provide support to ensure the development community achieves the best combination of measures that would improve their overall score in the simplest way possible), and monitoring of the uptake of metrics and overall implementation of the program.
* Vaughan also continues to training and consultations with the municipal staff to ensure they understand their role in the GDS process.
* It is important to always improve upon how the Sustainable Performance Measures (SPM) are reviewed and verified; suggest and negotiate improvements to the checklist indicators/criteria; and verify final score for their final submission report back to council on how the objectives have been met.
* There has been some pushback from the developers’ planners because of the increased workload, but there is an overall acceptance to the implementation of the checklist.
* The City of Vaughan has relied heavily on the partnership with the City of Brampton and the Town of Richmond Hill throughout the process of development and implementation and approaches have been shared across municipalities. This has saved a significant amount of time and resources through the sharing of resources. An additional benefit of this partnership is that if efforts or progress was delayed in one of the jurisdictions, progress in the other municipalities would provide an incentive to advance progress. This has helped provide incentive for overcome periods where progress has lagged.
* An incentive approach is being explored to provide motivation for developers to move to the aspirational level. Incentives being considered are: reduced timelines for the application process; other incentives that are being explored include recognition/awards, development charge rebates, and how local improvement charges may be able to address up front costs. We are always looking for different opportunities to provide those incentives.
* Next Steps: Establish threshold numbers for the minimum and aspirational GDS requirements; a Council report will be going to council in the Fall of 2017; and the City is also looking into additional financial opportunities to support this effort.
* Vaughan also has a Placeholder Policies through the OP P related to the green development Standards, but are exploring if there are any necessary changes that need to be made to that sections for the next OP update.
* How has the GDS been reported on to City Council? There is a section in the Staff Report that references *Green Directions Vaughan* and *Terms of Council Priorities.; a*ll work needs to reference the latter, which requires a sustainability summary. All departments are required to submit a sustainability summary. Once the GDS becomes endorsed, the planning department would be required to submit the scoring component for all their projects.

**City of Brampton—Michael Hoy**

* Sustainability Guidelines were incorporated as an additional chapter within the City’s Development Design Guidelines. The City is currently updating the Development Design Guidelines, which provides more opportunities to embed more GDS language throughout the document.
* All development must reference and adhere to the Development Design Guidelines
* Sustainability Metrics are provided at the Block and Site Plan scale.
* The municipality is responsible for recommending a minimum number of sustainable metrics, the City has three different requirements the developers have a choice to abide by (Mandatory Requirements, Recommended Minimum, Aspirational). Council approved language states, Applicants are *encouraged* to achieve the minimum threshold. Therefore, it is not the case that they are formally mandated to or that approval will be subject to achievement of the minimum threshold. However, the onus is then placed on the developer to provide a rationale for why such a level is not achievable by them and that is often not a position a developer wants to be in.
* Work undertaken this year has focused on increasing the capacity and comfort of municipal staff to review the incorporation of metrics in development applications and opportunities to improve the inclusion of metrics.
* The Terms of references for EIR, Community Design Guidelines, Planning Justification Report have all been updated. Transportation and engineering sections have not yet been updated.
* Working on moving tree planting soil quality and street tree density requirements from minimum targets to mandatory requirements
* Training Workshops are ongoing and are focused on engineers and planners
* Future Updates of OP Policies include To increase the threshold number of minimum requirements and have this bronze level become mandatory.
* Progress Update: The majority of the projects accepted by council are Bronze level. 2-4 projects achieved “aspirational” status; these projects have been concentrated within the downtown core area.
* Next Steps: Further analysis on the effectiveness of the metrics needs to be addressed in order to make any future adjustments to checklist requirements.
* This program is regionalized--Peel is currently trying to work with Mississauga but this has been a very slow process. Legal briefing between municipalities is a means to promote Sustainability tools and metrics.
* Lessons Learned: Incorporate as much Green Development language into policies, setting clear goals and guidance to promote a culture around sustainability. The culture is what establishes the movement and support needed for the sustainability guidelines to be successful.
* A network of advocates (planners/senior management/council/legal) is necessary in creating the framework for the sustainability guidelines to be possible. If you don’t have that you are going to have to raise their awareness of how this is advancing in other municipalities to increase the mainstreaming and acceptance of this approach and direction.
* Advice: Your municipality is likely already doing many of these metrics; the green development standards just standardizes the process, raises awareness and rationale for them, plus embeds their consideration of these metrics right at the beginning of the process where there is the greatest chance of influencing the development. Just get it started and keep it going whenever you can. Keep in mind however that the work on this will likely not have an end date there are always improvements, new training advancements and catch up from other municipalities are at embedded in this effort. Be sure though to establish a plan, outline requirements and processes that establish who needs to be in charge and of what and reach out and gather input and feedback and engagement from other departments. That will be needed not only in the development stage but particularly at the implementation stage.

**Town of Richmond Hill—Michelle Dobbie**

* Before the Sustainability Metrix, Richmond Hill used the Interim Growth Management Strategy that required developers to incorporate eight specifications in order to receive service allocations from the municipality. Sustainability discussions and potential incorporation into the development project used to occur at the end of the approval process.
* With the implementation of the Sustainability Metrics, the discussion around sustainable measures is incorporated into the Pre-submission process. This ensures that environmental awareness is ingrained into the planning/development culture right from the very beginning.
* The Sustainability Metrics process is mandatory in Richmond Hill; proposals are not accepted if they do not incorporate the Sustainability metrics.
* Draft Plan requires developers to meet a score of 21 point. Site plans requires at least 32 points. There are a total of 45 metrics to choose from
* In 2014, the threshold scores were approved--Capacity Building workshops were essential within the municipality to ensure everyone was on board; since then, yearly ‘excitement’ workshops occur to continue informing planners.
* Since 2015, Richmond Hill has focused on advocating for certain metrics through engaging experts to comment on reports—comments include suggestions regarding most appropriate metrics for that development application.
* Uptake of applications that score at and above the minimum score is being documented in the Corporate Environmental Scorecard; a document that states which metrics the developers have chosen to incorporate into their plans to council.
* Between 2014 and 2016, 35 site plan proposals were subject to the metrics (Single detached houses and small extensions to buildings are not subject to the metrics), 18/35 surpassed the minimum required metric score.
* It has been suggested to council to increase the mandatory minimum score for site plans; to increase the threshold required to acquire a silver score status, and increase the selection of mandatory metrics.
* There is an increasing trend of developers achieving a “very good” scoring; there has been an increase of 16% between 2014-2016.
* It has been suggested to council to transfer metrics from the menu of sustainability metrics that can be selected into the ‘mandatory’ category based on the most commonly used metrics highlighted in this trend.
* Most Popular Metrics for Site Plans (~50%+ of Applicants): Reduction of light pollution (the municipality has a by-law that limits the amount of light pollution which has been influential); Designated space inside building for solid waste management (i.e.: 3 stool system in high-rise buildings); Maintaining existing healthy trees on property (There has been an overall increase in the number of trees, as developers have begun planting more trees than were previously on the site, or keep existing trees in situ); Increase in bike parking space and standards; Increase points of entry and accessibility
* Least Popular Metrics for Site Plans: Universal design metrics, which call for bigger units; Life-cycle housing which calls for mixed building units (an array of apartments, townhouses etc.,/ownership and rental); Rainwater reuse for irrigation (there has been found to be an increase in failure if the owner is not participating in maintenance and operations of reuse system); Developing an Energy Management strategy or undergoing a district energy feasibility study (Richmond Hill does not have a district energy plan so this could have influenced low uptake); and Reduce potable water for irrigation.
* Draft Plans: Between 2014 and 2016 there were 22 Draft plans submitted.
* Most Popular Uptakes for Draft Plans (~50%+ of Applicants): Increased soil quantity and quality metric uptake (urban tree guideline was made available for developers as a link in the metric guideline booklet); Maintaining existing Healthy Trees; Buildings under the “Green” rating system (sections of the building have been certified as Energy Star or LEED); Increase the presence of walkable streets; Reducing light pollution.
* Lowest uptake during the Site Planning: Storm water management; Recycled/reclaimed material (The standard is 15% reclaimed materials, the aspiration is to achieve 25-30% reclaimed materials); There have been limited measures regarding energy management; Building Energy efficiency has decreased ever since building code requirements increased significantly. This metric has the potential to develop into a Net-Zero type metric; Number of Universally Accessible Points of Entry
* Next Steps: Adjust thresholds scores; Working with the Environment and Infrastructure Department to update the waste standard (Implement the 3- shoot system as a standard to limit pollutions into the streams); Web-based form for Metrics instead of an excel sheet; Interested in having these GDS be regionalized and are willing to provide more information/support for municipalities interested in developing their own GDS.

**Town of Halton Hills—Gabriel Clarke**

* Halton Hills is a rural municipality that has many protected areas. Council has been committed to advancing sustainability and has aimed to become a leader in Sustainability with six policy-based plans to support that advancement.
* The Green Development Evaluation Checklist was developed in 2010 as a checklist, then moved to a voluntary approach and then a mandatory approach. In 2018, the Town will be undergoing their third revision for potential improvements.
* Enabling Legislation Bill 51 permits councils to review and control site plan in regards to “sustainable design” of a structure’s exterior features, promote sustainable development to support public transit, and be pedestrian-oriented. This Bill enabled the township to implement GDS.
* The Province has demonstrated interest and leadership in updating Policy Statements regarding active transportation, community design, GHG emissions & climate change, energy efficiency and conservation, green infrastructure and stormwater management requirements
* Halton Hills’ Green Development Standard Study (2014) is a public document in which municipalities are welcome to use as a resource.
* The Green Development Evaluation Checklist is a LEED-like point based system that involves categories in energy efficiency, water conservation, transportation, community design, natural environment, air quality, waste management, and innovation & communications. There are several metrics under each category with subsequent points allocated according to what the municipality favors.
* There are three checklists for development consisting of: Low-Rise Residential; Low-Rise Non-Residential; High Rise Residential. Renovations are not subject to the GDS.
* The points allotted to each metric depend on overall environmental benefits and the increased cost of incorporating metrics into the design.
* Developers are required to integrate a minimum of 40% of the total available points for each type of development. Mid-to high-rise buildings are the exception, as developers are required to meet a minimum of 36 points out of the available 88 equalling 41%.
* The point-based system was established through consultations and discussions with the developers.
* Implementation: At the onset of the pre-consultation application, the developer needs to declare that they have implemented the environmental point system into their proposed design and submit the Green Development Checklist; this ensures that the conversation around green development practices are a priority and occur right at the onset of the process.
* The design team must confirm that the site plan drawings clearly indicate the chosen environmental design components addressed in the checklist to ensure the developers comply with the minimum point requirement.
* Achieving Compliance: meeting the minimum standard is mandatory. Water capacity allocation is also mandatory as there is limited ground water in Halton Hills—GDS Checklist is a useful tool to ensure standards are adhered to.
* Results: 100% compliance from developers. Developers have taken the opportunity to market their housing projects as “Green,” “energy efficient,” and having “ low environmental footprint”. Developers have embraced this process and there has been a continued interest in developing Halton Hills by developers.
* Most popular green development checklist items used by developers (out of eight categories): Transportation; Energy Conservation; Air Quality; Natural Environment.
* Least popular green development checklist items used by developers (out of eight categories): Innovation; Community Design; Waste Management ; Water Conservation.
* Next Steps: Review of the Green Development Standards will occur in 2018. There have been discussions within council to incorporate pre- and post-environmental conditions in order to limit environmental degradation of natural capital before and after project completion. Additionally, net zero energy, net zero communities, and climate change adaptation components will be considered as additional options to the checklist.
* The Town of Halton Hills has not developed a framework, as of yet, that goes out to the development during the construction process to ensure compliance—this is will also be a work in progress.
* Lessons Learned: There needs to be a clear direction internally (from council and planners) and externally (to the community) as to what is desired and valued. Engagement with the development community is essential to the success of the Green Development Standards. The feedback received from developers to increase their flexibility to choose from a variety of environmental options allowed developers to meet municipal requirements without much pushback.

**City of Markham—Marina Haufschild**

* Currently, Markham does not have a green development standard but is in the process of developing one.
* Markham does have Design Implementation Guidelines: Developed in 1998, focuses on developing compact low-density communities. These Guidelines were progressive for its time—it is associated with LEED-ND Silver standards. This Guideline is going to be reviewed and updated within the next couple of years.
* Developers follow the Design Implementation Guidelines to develop community design plans—Markham has focused on influencing development standards at the community scale rather than at the community scale.
* Master Plan: Developed in 1994 focusing on mid-rise new urbanist principles (walkable streets, mixed uses etc.). Due to increased intensification, the municipality is considering high-rise and density parameters.
* Performance Measures Document: Developed in the late 90’s, focuses on Smart Growth and Sustainable Development Principles using four main themes: Green Infrastructure, Built form, Public Space, and Transportation. When community design plans are being developed and evaluated, it is compared to these four design measures in order to inform decision-making.
* The Performance Measures Document consists of several checklists formatted into “yes” and “no” questions. Checklists are reviewed by the Advisory Boards before the development plans are formally submitted. Developers receive report cards at the end of the year. This has proven to be beneficial in creating a collaborative relationship between the developers and the Mayor/Council.
* The Performance Measures Document will be referred to and built upon when developing the new extensive Green Development Standards Checklist.
* Sustainable Development Achievements in Markham:
* Residential compounds are being developed on top of commercial buildings located on main streets.
* Markham’s downtown is located within the city’s mobility hub (Viva/Rapid Transit, and Go stations)
* City Buildings are mixed (one building includes hotel, residential, retail and office space)
* There is a focus on active amenities in the suburban setting (sidewalks and a network of interconnecting nature trails)
* Increased amount of public parks which incorporate features influenced by predominant ethnic communities has been very popular
* Soil cells have been slowly introduced in private projects, most commonly found in the parking lots
* Green roofs have been well received on top of supermarkets/plazas
* Experimenting with permeable paving within residential communities
* A handful of developers are interested in solar and have been incorporating solar into their projects (on top of buildings, solar street lights)
* Markham has a net-zero building. It has not been verified as to how energy efficient it is compared to a typical building, but council confides in the developer’s reassurance of the building’s energy efficiency.
* Markham also has a District Energy System that is expected to be expanded (towards Langstaff, which is very highly intensified) and connected to new buildings being developed in the area. An expansion of the district energy system is planned to be located in Carnell, the hospitals is one of the first clients to be connected to this energy supply.
* The Green Development Checklist being developed serves as a tool to educate the council, other decision makers, and the developers. Markham wants to connect the checklist with other new initiatives being developed, such as: Markham’s Greenprint Sustainability Plan; Markham’s goal to be a Net Zero community by 2050—energy, water, and waste are all considered. Markham’s Community Energy Plan. New Design Guidance/Standards: Bird Friendly Guidance and a Streetscape Manuals are used as standards—these guidance manuals have technical details that highlight how to effectively incorporate healthy tree vegetation and exemplary landscaping practices.
* City of Markham Official Plan (2014): The Urban Design section in the Official Plan includes references to a checklist and all the subsequent policies that would help support the implementation of the checklist.
* **It is planned to go to Council with a report and to present the checklist in the fall of 2017.**
* New Subjects/Items looking to be incorporated into the Markham Checklist: Climate change resilience; Community engagement/educational materials for developers to use and give to home owners (especially as it relates to new technologies).

Next Steps:

* The checklist will be available for developers on the municipal website. Developers will be able to access this resource before the application process, as developers tend to have conversations with decision makers before formal paperwork is submitted. Checklists will be filled out and submitted online as Markham has a commitment to become paperless.
* Municipal Energy Plan includes a strategy to develop the City’s first net-zero community by 2030. Currently, Markham has been undergoing intensive conversations around this topic. The CEP is to be released later this year. Net Zero components will be added to Checklist to promote this citywide Ne Zero goal.
* Markham is undergoing a comprehensive by-law review where all policies would be integrated together.
* Looking into new parking and bicycle lane requirements in the by-laws (will also be incorporated into the checklist)
* Markham’s Low Impact Development Standards will largely include green infrastructure components as new development areas are abutting environmentally sensitive areas (Rogue watershed).
* There is a focus on developing a Natural Features Compensation Protocol and Interface Guidelines
* Markham has a goal to achieve Zero Waste. Currently, the municipality is focusing on prohibiting textiles leeching into the streams (Translucent plastic bags are being endorsed to ensure compliance).
* Checklist Scorecards: Scorecards are being incorporated into the project pre-application process, as it would help developers become aware of various types of sustainable features, influence them to incorporate more of these features into their designs that would not have otherwise been added, and make them aware of all the policies that would be applicable.

**Panel Discussion—Main Points**

* Richmond Hill: Tree canopy cover metric has received good uptake, especially over walkways. The Parks and Recreation Department, in conjunction with the TRCA, expect overall tree canopy to increase by 70-100%.
* Richmond Hill has an opportunity to re-evaluate policies to make streamlining GDS processes easier (develop a standard throughout and between regions)
* The metrics considered should be clear and concise, be used to decrease gaps in sustainable awareness of potential possibilities, and filter out developers not adhering to the requirements established by the municipality.
* An increase in sustainable practices would permit the technical teams within the municipalities to have more input in the development of the proposed plans.
* Trade-offs to the checklist occur as conversations around what constitutes a ”sustainable measure” are negotiated—this is a subjective process and is the most time-consuming.
* Benefits of the checklist: developers become aware of what the municipality wants; this would decrease the amount of time and resources the developers use throughout the application process.
* Checklist also increase consistencies between departments.
* Constant changes to the checklist tool and policies highlights where the focus in policies occur/need to occur. This indirectly increases the overall awareness of municipal plans.
* The municipality should be obligated to review and report on the checklist before the application process and after the construction to ensure compliance.

**Gabriella Kalapos, Clean Air Partnership - Green Development Standards Contexts and Policies**

* Green Development Standards began with the Energy Star Standard and LEED Certification being incentivised in a number of jurisdictions. This served to increase awareness and understanding from municipal councils but the uptake wasn’t achieving the hoped for results. This led to the advancement of mandatory green development standards.
* There is still the misconception in a few municipalities that municipalities do not have the authority to mandate green development standards. This is incorrect. Bill 51 provides municipalities with authority at the site plan level.
* It is true however that at present municipalities would likely not be recognized to have the authority to mandate above the Ontario Building Code.
* The new Growth Plan has outlined a clarification in municipal authority in regards to tackling Climate Change and achieving a low carbon economy.
* The Municipal Act allocates more authority to municipal discretion regarding Green Standards and Green Roofs, but the Ontario Building Code is still the recognized mandate at the building level. The Province will be undertaking a consultation in the summer/fall on the OBC. So there is still the opportunity to provide municipal feedback to the Province on the role municipalities can play in advancing the goal towards energy efficiency and net zero buildings.
* There are also changes that are being made to the OMB which is being replaced by a new Tribunal.

**Possible Next Steps**

* Opportunity to share legal options between municipalities or for pooling funding regarding outside legal opinions is a possibility.
* Getting Planning Commissioners that have advanced GDS to speak to their peers in other jurisdictions. The Planning Commissioners network can serve as a possible mechanism for that.
* Municipalities can reach out to municipalities that have advanced GDS to coordinate sharing between municipalities at different stages.
* Reach out to the developers and initiate a conversation between those that are supportive of GDS to speak to chapters and developers that are less supportive. The next Green Development Standards can focus on bringing together the municipalities and the developers to advance the conversations.
* Regional advancement of GDS attains the maximum value, ideally metrics should aim for consistency but should also be flexible enough to ensure that t is able to achieve to achieve local priorities. Ideally over time new metrics are added in order to continue advancement of the GDS. Each improvement fosters uptake from others and overall increases over time.
* For those who do not have the mandate from council to advance GDS they may want to wait until the new council in 2018 to ensure that the council commitment is there.
* Report to Council the use of already implemented Green Development Standards in other jurisdictions, this would give them the confidence to step up and develop their own as well.

Lisa King, City of Toronto

* Toronto adopted a voluntary green standard in 2008 and it became mandatory in 2010. It is a two-tier system: Tier one deals with issues that the city can require at site plan level, and tier two is a voluntary higher levels of performance with a development charges rebate being used to provide an incentive for tier 2.
* This two-tier system promotes a market transformation: Tier-two a mechanism for advancing the green standards market in building design, and tier one allows for the city to enforce guidelines within site plan control.
* There are five components to the proposed next stage of the Toronto Green Standard. Air Quality; **GHG Emissions & Energy Efficiency (which will be the main focus of this presentation)**; Water Quality & Quantity; Urban Ecology; and Solid Waste Management
* In partnership with TAF, the City underwent a Zero Emissions Framework in 2015. The City of Toronto has also been developing a citywide GGH model for how it can reach the 20150 GHG reduction target. Currently, there is approx. a 5.5-megaton GHG gap which needs to be addressed to meet the 2050 GHG emissions reductions. TransformTO means to help decrease this GHG gap and increase resiliency through highlighting different programs currently available that reduce overall emissions within various sectors.
* Regarding the Buildings and Construction sector, the New Framework focuses on higher energy efficiency, lower GHG Emissions, and improved building resilience. Within this section, the goal is to achieve Net zero carbon building status by 2030.
* A study was undertaken to scan global best practices regarding energy policies (codes and standards) in order to assist the city in developing a model and target-setting tool, which directly influenced the overall framework itself. This study resulted in 37 standard objectives as outlined and reviewed by a Steering Committee.
* Global Best Practice Study benchmarked each case study according to their energy use intensity for different building types.
* The top performers were Denmark, Norway, France, England/Whales, Germany, California, and Seattle.
* Performance Approaches: There are different measures of energy performance - Prescriptive performance lists requirements for mechanical, electrical, and envelope systems; and Performance-based measurements focuses on overall building performance. Reference Buildings allow for percentage comparisons
* An external Advisory Committee was brought together in 2016, which consisted of: developers, allies already interested in Green Development, the province, architects, energy modelers and the academic community. There was a lot of help and influence from Vancouver, as they already established their own requirements for energy performance in their building code.
* 5 building archetypes are targeted making up 85% of the projected new construction market
* Modelling
* Parametric Modelling is used on various building archetypes, with a potentially endless combination of building design components (according to building specifications ie: floor area, occupants etc.), to display the level of building optimization, cost, resilience and greenhouse gas reductions (expressed through the three metrics mentioned above) expected when the baseline building is upgraded to higher TGS high-performance buildings.
* Tier 2- consists of high-energy performance attributes, low window wall ratio, and incorporation of thermal bridging
* Tier 3- consists of a high building envelope level, a switch to natural heat pumps, possession of all up-to-date technologies, and a rating of at least R-10 insulation criteria. This level still contains mechanical elements (Boiler).
* Tier 4 - consists of thermal bridging, it is the closest to Net Zero but not quite since it relies on energy production from an outside location. Contains all up-to-date technologies but does not contain a boiler—it depends on heat pumps. R-20 or higher rated insulation level.
* **All three Tier levels set a GHG cap, a thermal energy demand cap, and an energy intensity cap**
* Co-benefit of High-Performance Buildings
* Thermal Resilience: the building is able to maintain stable unit temperature during freezing temperatures in the wintertime and hot temperatures during the summertime—this is a result of a very tight building envelope expressed in Tier 3 and Tier 4 type buildings.
* To upgrade a high-rise MURB building envelope consists of an increase of 2-7% overall capital construction cost
* The difference in cost between a tier 3 and tier 4-designed buildings is very small since Tier 4 contains the same amount of up-to-date technologies as tier 3; the difference in cost is attributed to the presence/absence of boilers.
* Incorporation of District Energy would be able to decrease GHG metric as long as the energy source for the district energy is low carbon.
* Goal: to make tier 1 and tier 2 a mandatory standard, higher tiers will likely be voluntary.
* Green Bank is interested in using GHG metric for approving funding towards buildings striving to achieve higher tiers.
* The City is waiting until the new Building Code requirements are released before advancing these targets.
* Important to Note: Incorporated Carbon is not taken into account when measuring GHG emissions