Perkins&Will

Innovation Incubator Fall 2019 — Aidan Carruthers

Social Equity Indicators

Metrics for a more equitable future

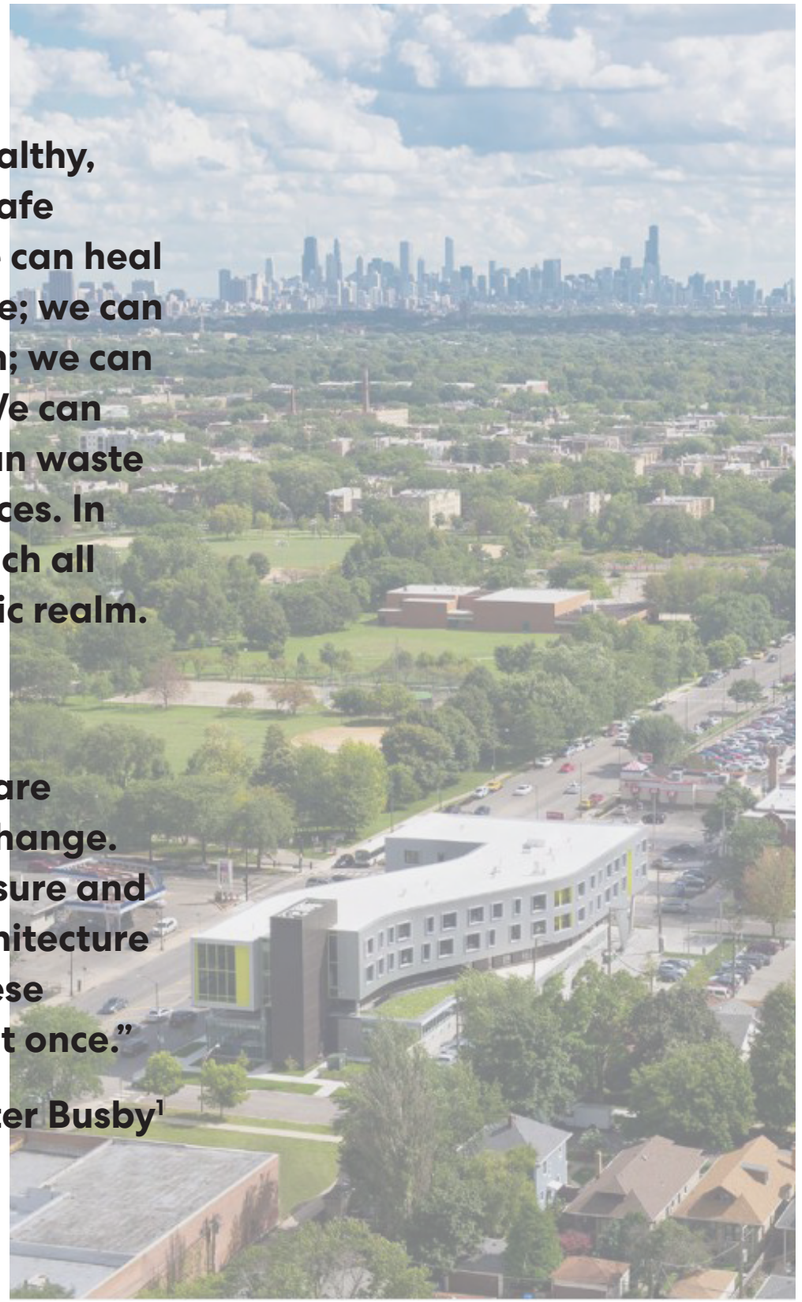
June 29, 2020

Contents

“We can make healthy, productive, and safe environments; we can heal people and nature; we can nurture education; we can house the poor. We can add to, rather than waste the earth’s resources. In short, we can enrich all facets of the public realm.

All of this is our responsibility as architects, as we are agents of social change. We can only measure and respect great architecture if it does all of these things, well and at once.”

- Peter Busby[1]



Introduction

WHY SOCIAL EQUITY

Point 1

The building and development industry has successfully found ways to measure its environmental impacts and through reporting/certification the industry has encouraged more sustainable architecture.

Point 2

What we have done for Sustainability we can do for Social Equity. Perkins and Will needs to start developing, tracking and reporting metrics regarding soccial equity and affordability. We need a “LEED” for Social Responsibility,

The claim that we design for the greater good is also enshrined in the Vancouver Studio’s core values: Enviornmental Stewardship, Social Responsibility and Purposeful Design. However, during a recent studio Design Lunch, when asked if we are meeting our studio’s objectives regarding Social Responsibility the overwhelming response was:

“No, maybe...I don’t know.”

While our studio has done an amazing job of measuring and tracking our enviornmental and sustainability goals through numorous metrics and indicators, there is very little emphasis placed on social equity and almost no targets or metrics applied.

Growing inequality and the affordability crisis are some of the top concerns of cities around the world. In order to build for the greater good and act as advocates for our communities we need ways to measure social equity and affordability.

The objectives of this study are as follows:

1. Collect existing metrics for Social Equity and Responsibility
2. Compare these metrics to project data we are already collecting. Determine if there are data sets we need to add.
3. Set minimum standards and studio goals based on these metrics. for Social Equity.

Inequitable Cities

There is a global awareness of increasing inequality the world over. In 2016 the UN released two different reports that focused on increasing global inequalities and the “imperative of inclusive development”.[2 3] In our cities today there is a denial of opportunities, be they in education, health or other basic services, unequal labour market participation and employment opportunities, and unequal participation in political, civic and cultural life. Furthermore these inequalities are both between nations and within nations.

Stagnating incomes for the vast majority of the population, coupled with increasing accumulation of wealth for the top 1% has lead to increasing inequality in much of the developed world, particularly in the US. Thomas Piketty’s work clearly describes how in the last half century there has been a redistribution of income towards capital and away from labour.[4] These inequalities not only lead to social exclusion and increasing social tensions, they also limit economic growth, while also reinforcing existing power structures that prevent full participation.

Parallel to unequitable income distribution is the gradual financialization of housing since the 1980s which has transformed housing from it’s social function of providing shelter into a commodity to be traded and sold. Global real estate makes up 60% of all global assets, where residential real estate accounts for 75% of that total.[5] In “hedge cities” and super prime real estate markets where global finance is invested the increasing cost of housing means that homeownership and renting are becoming increasingly unaffordable for middle and lower income households.

As residential property increasingly becomes a form of financial investment properties aren’t owned by named individuals but by companies and remote investors. Residential units are left empty, predatory practices of hiking rents and evicting those unable to pay, or large scale speculative redevelopment often supported by local governments through investments in public infrastructure all become increasingly common place.

Displacement through gentrification and redevelopment is also prevalent in many cities where affordable housing stock is removed and replaced by luxury developments. In these instances not only are the individuals loosing housing they often have to relocate to more peripheral areas with fewer services and amenities.

These inequalities and the precarity of many people’s living conditions were agravated by the 2008 financial crisis. The current public health crisis has laid bare the ways in which we did not address these structural inequalities following the Great Recession. Furthermore, the Black Lives Matter campaign for social justice has underlined to what extent the social contract that underpins our society has been broken.

Much work needs to be done to address these inequities in our society and our built environment. What follows is an attempt to consolidate indicators regarding social equity as a tool to re-focus and re-frame our design process. And while as designers we may not have the power to control program and costs, we can act as advocates for the more vulnerable communities in our cities.

Methodology

Literature Review

The literature review was the primary method of research conducted. This consisted of three parts. The first was a larger analysis of how social equity is defined and measured by the global community with regards to human development, human rights and wellbeing. The second was the largest part of the research which consisted of collecting existing social equity indicators from established certification systems such as LEED, BREEAM and WELL. These existing indicators were analyzed for their ability to measure social equity and where gaps might exist. A series of tables were created to review and analyze the intent of the indicators, the type of measure used, and where applicable, the threshold for succesful application.

Additional indicators were collected from other existing frameworks including the Community Wellbeing Framework.[6] These indicators helped to fill some gaps in the existing certificaiton systems when focusing on social equity.

Internal Review

In tandem with the larger literature review I conducted a study of the existing indicators and tool-kits created by Perkins and Will in order to understand where gaps in project evaluation currently existed from a social equity standpoint.

The Living Design Framework and Sustainable Performance Review (SPR) were the main focus of this review as they are the metrics that we apply to all of our project work to measure our success in meeting firmwide targets as part of the 2030 challenge and other internal goals such as resilience design and the reduction of precautionary materials use.

The Urban Design Framework[7] was a key resource in helping to define an approach for evaluation and selection of social equity indicators. Furthermore, the UD Framework is now what is used to measure all Urban scale projects. The Social Equity Toolkit was another resource that was used as a starting point for the engagement and assessment phase of project work.

Definitions

Definitions are developed based off the literature review in order to create a shared understanding of what social equity is and how the definition can help frame the themes and indicators that are developed as part of the project scope.

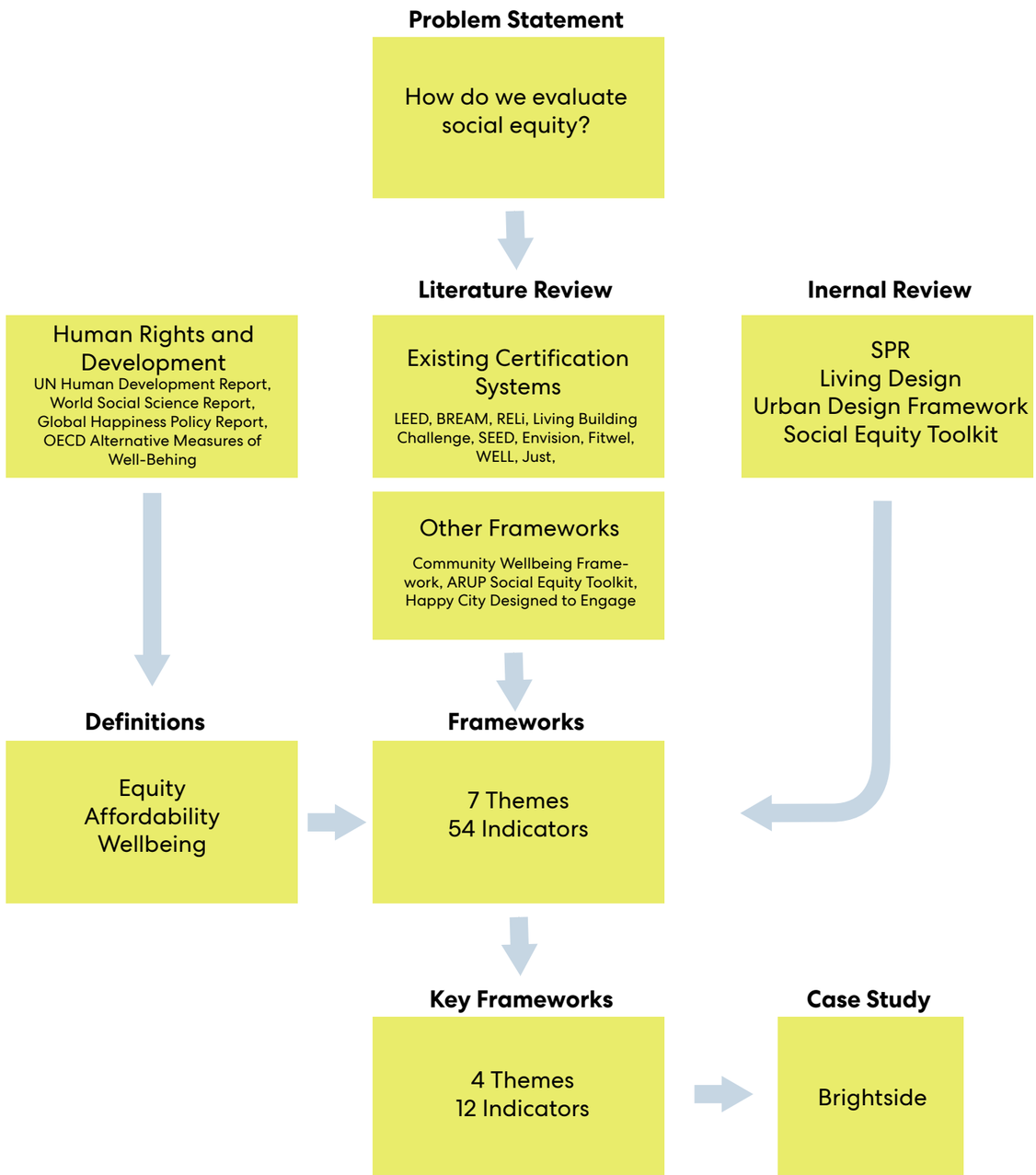
Frameworks and Indicators

Following the collection of existing metrics and defitions associated with social equity I then clustered them into seven themes based on overarching similarities in intent or type of equity issue that was addressed. This was an iterative process as many of the indicators were related to more than one theme. While the majority of the indicators were based directly off of existing certification systems a handful were developed based on gaps that appear to be missing when designing for social equity in our cities.

These indicators were then assessed based on the scale of their application, the impact they could have on addressing issues related to social equity, whether or not Perkins and Will was already utilizing the indicator, and if it was measureable or not. This assessment helped to filter 54 indicators accross 7 themes to 4 themes and 12 indicators.

Case Study

In order to complete an initial test run of the indicators selected they were applied to a case study of a large mixed used project. As this project has already completed the Design Development stage some of the indicators have been completed retro-actively rather than used as prompts that would help as part of the design process. In order to better understand what indicators are most useful for encouraging social equity in our project work it would be necessary to test them on a wider range of project types and sizes, as well as on projects that are at the very early stages of the design process.



Definitions

In order to have a productive discussion about social equity with regards to design and architecture and how we measure success, we must first share a common lexicon/vocabulary. Below are a collection of terms that are used frequently in discussions of social purpose and responsibility but which can have a multiplicity of meanings. This is by no means an exhaustive list, nor are these definitions universally agreed upon.

Equity

Equity and equality are both similar in their goal of creating a fair and just society. However, some distinctions can be made that are useful in determining the preferred indicators of success. While equality is focused on treating everyone the same way regardless of need or circumstances, equity is concerned with providing for different needs to allow for equal outcomes (see figure 1). Note that what society deems equitable changes depending on place and time.

Melissa Leach describes how within the framework of equity there are different elements of distribution, "equity of what" and "equity of whom".[8] Figure 2 provides a summary of both the types of equity. Furthermore, the processes surrounding equity can be categorized into three parts:

1. **Distributional** – who gets what "how resources, costs and benefits are allocated or shared amongst people and groups"
2. **Procedural** – how decisions are made (how we decide who gets what) "how decisions are made, and the extent to which different people and groups are able to influence these or have their perspectives represented or incorporated"
3. **Recognitional** – how we decide who the different groups are. "acknowledgement of and respect for identity, values and associated rights. Recognitional equity especially emphasizes cultural and political domination and discrimination as forms of inequity and injustice"

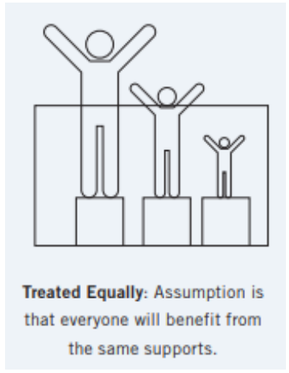


Figure 1. Equality vs. Equity from the Perkins and Will Social Equity Toolkit

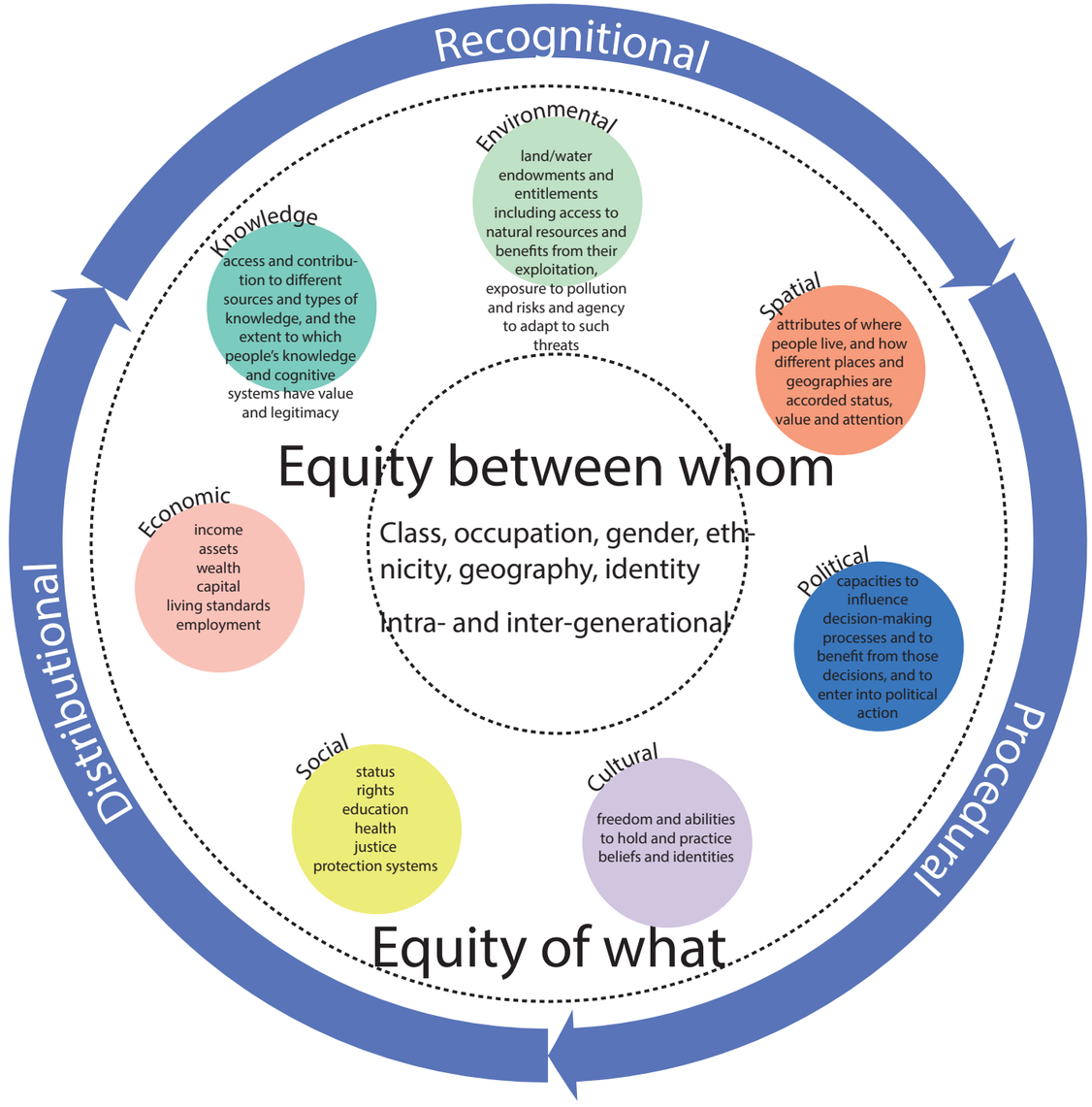


Figure 2. Equity of what and equity between whom, adapted from Melissa Leach et al. 2018

Affordability

There are many different measures of affordability which, like equity, are dependent on both place and/or time. Furthermore, affordability is not an inherent characteristic but rather a relationship between housing and people.[9] In order to have a productive conversation about affordability we need to consider the following questions:

1. **Affordable for whom?**
   What is affordable for a double income household in the 90th percentile versus a single mother working a minimum wage job?
2. **On what standard of affordability?**
   Are there an adequate number of bedrooms for the size and composition of the family (see Canada's National Occupancy Standard)? Or alternatively perhaps someone's standards for affordability are too high.

Today the most common measure used to determine if housing is affordable is the 30% of income standard. If a household pays 30% or less of their income on housing it is deemed to be affordable. This benchmark has changed over time. 30% was adopted by the US Department of Housing and Urban Development (HUD) and Canada in the 1980s. Before the 1980s the benchmark was 25% which was derived from the concept that a week's income should cover a months rent that goes back to the 1800s.[10]

Criticism of the 30% shelter to income ratio (STIR) is largely concerning the fact that it doesn't account for different household sizes and particular needs.[11] Furthermore, this percentage is less useful for higher-income households who may pay 30% of their income for housing by choice but could find fare less expensive housing if they chose to do so.

The primary alternative to STIR is the residual-income approach (not fixed but is a sliding scale). The residual income approach calculates housing affordability based on whether a household can pay for their basic needs on top of the cost of housing. It is harder to calculate as it requires more information on household composition and what accounts for basic needs, which can vary from place to place. For example, the cost of transportation may be higher in Atlanta than in New York. And a family with a young child will have the cost of childcare to consider. However, it provides a more holistic picture of what different households financial challenges are, which allows for more precise policy.

Each city will have it's own set of definitions and policy for what consists of affordable housing. For example in city of Atlanta, Georgia affordable housing means housing units for households at or below 50% of area median income (AMI). In contrast, in Vancouver, Canada units sold at 20% below market value or buildings that are 100% rental, are deemed to be affordable housing.

As previously discussed there is a global affordability crisis which is in large part driven by the financialization of the housing market. Alongside these global trends in the transformation of housing from utility to commodity there are four key drivers causing housing affordability[12]:

1. **Low wages and increasing housing costs:** Median incomes are not keeping pace with median housing or rental costs making housing less affordable.
2. **Construction Costs:** The cost of construction is increasing due to the cost of labour and materials rising.
3. **Government Regulation**: Zoning restrictions that set limits on density and/or land use often contribute to a limited supply of housing. Furthermore, local inhabitants may push back against new development in their neighborhoods, making it difficult to change policy. Finally, a lengthy approvals process can further slow down the supply of housing, even while demand continues to increase.
4. **Reductions in Public funding:** Federal housing assistance programs have not kept pace with increasing needs.

Affordability is an ongoing question to which multiple solutions need to be applied. When considering how to measure affordability all of these factors and the above definitions should be taken into consideration.

*Note: Wellbeing definition is forthcoming

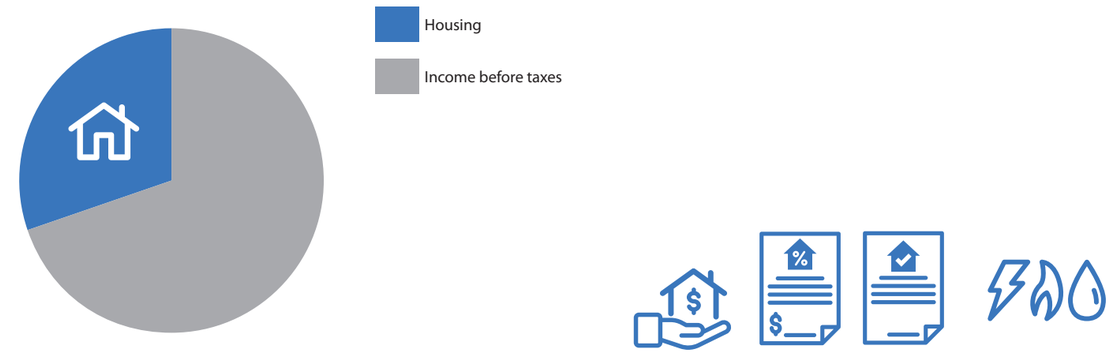


Figure 3. Ways of measuring affordbaility

Existing Certification Frameworks

While many of the existing building certification frameworks touch on social issues they are often only a small piece of the larger sustainability lense that is applied. As Melissa Leach[13] has observed there is a tendency to focus on the environmental side of the sustainability equation and forget the social or economic impacts. Many would argue that environmental and building performance indicators are directly tied to social responsibility, as climate change mitigation will have a direct impact on how liveable our communities are today and will be in the future. However, by not addressing how these benefits are distributed and accessed by the entire population we often design spaces that benefit those most able to adapt to enviornmental and economic problems.

Of note certifications that directly address social equity include BREEAM's Community indicators related to social wellbeing and the local economy . RELi's primary focus is on resiliency which recognizes that social coehsion directly impacts a community's ability to adapt and withstand natural events and disasters.

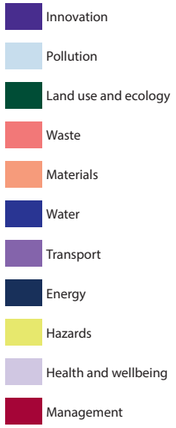
Not indicated here but of particular importance to social equity are the SEED, Envision and JUST certifications which are focused primarily on social issues and were heavily drawn upon when proposing possible indicators for social equity. Furthermore, LEED has recently developed three pilot credits focused entirely on social issues.

When comparing these existing certification frameworks a handful of themes emerged that helped to form the proposed social equity indicators. These included:

- Complete Communities
- Health and Wellbeing
- Environmental Protection and Sustainability

Certifications that focused on the urban scale unsurprisingly had a greater focus on designing neighbourhoods that would meet all of the needs of the inhabitants and form complete communities . In comparison WELL and Fitwel focused on the occupant's health and wellbeing. Those certifications that focused on the building scale often touched on all three but in less depth.

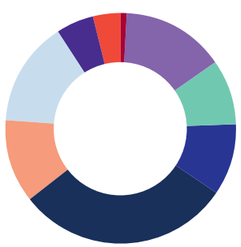
BREEAM
New Construction



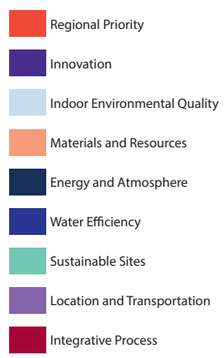
BREEAM
Communities

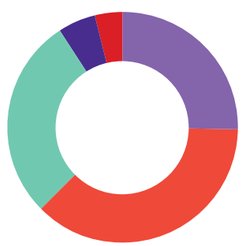
Living Building
Challenge

RELi



LEED
Building Design and
Construction





LEED
Neighbourhood Development

WELL

Fitwel

Living Design and SPR

The Living Design framework is a recent initiative by Perkins and Will to respond to the global challenges that face us today. The framework is made up of five interdependent parts: Inclusion, Resillience, Sustainability, Regeneration and Well-Being.[14] As part of the process the Sustainable Performance Review (SPR) and the associated indicators are being adapted as part of the Living Design Index, see figure 4.

When reviewing the Social Cohesion Actions Indicators for the open DEAR submittals, responses from different projects taken at random include:

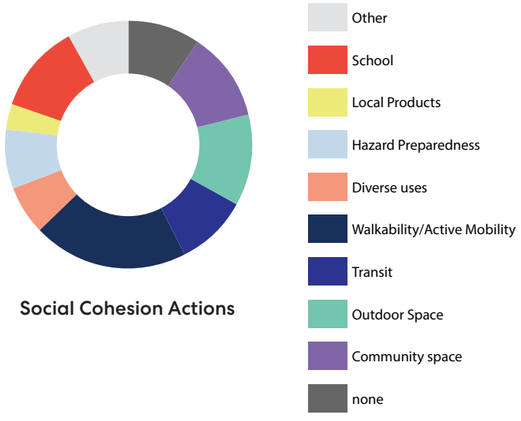
- **5055 Joyce Street:** Resilient Drinking Water Access
- **ARUP:** Interior design is flexible to enable business continuity during extreme weather. The central social spaces provide areas of refuge during extreme weather
- **Hästen 21:** Bicycle storage, and changing rooms. Low emitting and fuel efficient vehicles, electric car parking. Public roof terrace. Street renovation.

These actions, while of benefit to the project, appear to be a "check the box" response rather than describing integral guiding principles for the design of the project.

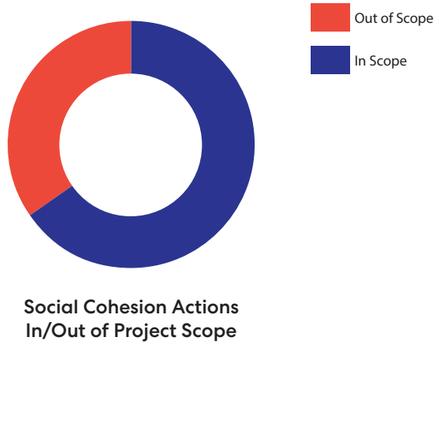
In order to better understand the ways we are designing for social cohesion I categorized the actions taken by the project teams. Walkability and transit together make up for about one third of actions taken. Diverse uses, community space, and outdoor space make up another third, although not all of these spaces are public. Together the vast majority of these actions do not provide directly for affordable housing or economic opportunities which are of particular importance when ensuring equitable communities.

Furthermore many of the social cohesion actions listed were outside of the project scope, such as an interiors project that is situated in a walkable community. While these site attributes are positive for the future occupants and users we want our projects to address social equity challenges and needs directly through their design and construction.

Overall the scale and breadth of the five Living Design elements do not seem well represented by the current indicators.



Social Cohesion Actions



Social Cohesion Actions
In/Out of Project Scope

Living Design Indicators (Beta)

Story & Method	Regenerative & Resilience	Site & Water	Energy & Atmosphere	Health & Materials	Living Design Index (Beta)
12	12	16	16	9	65 beta
Sust.Story ✓	Risk Analysis ✓	Reduction 36%	Reduction 58%	P - List Review ✓	
Certification (Beta) ✓	Risk Mgmt ✓			P - List Free Materials (Beta) 0	
Lab (Beta) ✓	Social Cohesion Actions ✓			Low - VOC (Beta) 0	

Inclusion Resilience Sustainability Regeneration Well-Being

Figure 4. Living Design Index

Figure 5. SPR Social Cohesion Actions

Shelter-in-Place, Social Cohesion, Equity and Local Economy Actions	
Complete Part III: Social Cohesion + Equity, Economic Vitality Indicators.	
From the Resilience Workbook, copy, paste (and edit if required) the name of up to 5 or more	
1	
2	
3	
4	
5	

Criteria for Selection

Themes

Based on the existing frameworks and indicators collected through the literature review the Social Equity Indicators have been clustered into seven overarching themes:

1. **Community Assessment & Engagement**
2. **Economic Factors & Housing Provision**
3. **Community Spaces & Services**
4. **Universal Access, Inclusion, & Safety**
5. **Individual Health & Wellbeing**
6. **Environmental Justice & Resiliency**
7. **Supply Chain**

These themes aim to address as many aspects of equity as possible, as they relate to the built environment. While this list is not exhaustive it should provide a solid basis for further analysis and application.

Impact

There are clearly systemic inequties and injustices in our cities today. These inequities are more visible than ever with the Black Lives Matter movement and the havoc Covid 19 is wreaking globally. Many individual families are not able to provide for their basic needs. Furthermore, this is largely due to systemic societal ills including racism and a neoliberal market system that limits equitable wealth distribution. Cost burden and Maslow's hierarchy of needs helped to determine indicators that are the most important.

As with environmental issues the larger the scale of application the greater the possible impact and ability to address social inequities. For this reason indicators that are most applicable to larger scale projects are favoured. These include economic and housing indicators. as well as public facilities and services. However, effort has been made to collect indicators that can be applied accross all scales.

What is most clearly missing from many of our projects is a community needs assessment, conducted in tandem with an engagement process in order to connect directly with the people we are designing for. This process of engagement and outreach should direct our attention to the other social equity themes that are most improtant to the population being served. Due to this oversite Community Assessment & Engagemetn indicators are perhaps the most important and impactful.

Project Types and Scales

Our project work covers every scale of the built environment, from urban design to interiors. This range makes it difficult to use the same indicators for all projects. In the process of categorizing and collecting a wide range of indicators allow us to address social equity at different scales.

When considering what indicators to select for further application and study urban and building scales were favoured.

Existing vs New Indicators

In selecting indicators to focus on, priority was given to those that differed from things that we already do, or using indicators accross scales that hadn't been measured before.

Measurable

Social equity is a complex topic to measure. Many of the indicators collected were prescriptive and procedural, rather than performative. In particular the Community Assessment & Engagement indicators are primarily a series of processes and studies that will determine the needs and challenges faced by the community to be addressed as part of the design process.

Social Equity Indicators

Theme	Indicators	Scale	Impact	Existing	Measurable
Community Assessment & Engagement	Community or Audience Served	U/B/I	H	N	N
	Challenges and Needs Assessment	U/B/I	H	N	N
	Local Policy Goals	U/B	M	N	N
	Engagement	U/B/I	H	N	Y
	Methods for Measurement	U/B/I	M	N	N
	Stewardship/Programming	U/B/I	L	N	N
Economic Factors & Housing Provision	Preventing Displacement	U/B	H	N	Y
	Housing Diversity	U/B	H	Y/N	Y
	Affordable Housing	U/B	H	Y/N	Y
	Family Housing	U/B	H	N	Y
	Commercial Diversity	U/B	H	N	Y
	Affordable Commercial	U/B	H	N	Y
	Jobs-Housing Balance	U/B	M	Y/N	Y
Community Spaces & Services	Public Open Space	U/B	H	Y/N	Y
	Public Facilities Area per inhabitant	U/B/I	H	Y/N	Y
	Affordable Program Area	U/B/I	H	N	Y
	Diversity of Uses	U/B	H	Y/N	Y
	Child Care	U/B/I	H	N	Y
	Health Services	U/B	H	N	Y
	Walkability	U/B	M	Y/N	Y
	Public Transit	U/B	M	Y/N	Y
	Amenities	B/I	L	N	Y
Univeral Access, Inclusion, & Safety	Design for Accessibility	B/I	H	N	Y
	Design for Inclusivity	B/I	H	N	N
	Design for Safety	B/I	M	N	N
	Wayfinding	B/I	L	N	N
	Gathering Spaces	B/I	M	N	Y
	Semi Private Spaces	B/I	M	N	Y
	Social Corridors	B/I	M	N	Y

Theme	Indicators	Scale	Impact	Existing	Measurable
Individual Health & Wellbeing	Air	B/I	M	Y	Y
	Light	B/I	M	N	Y
	Materials	B/I	H	Y	Y
	Nutrition	B/I	M	N	N
	Thermal Comfort	B/I	M	N	Y
	Sound	B/I	M	N	Y
	Movement	B/I	M	N	N
	Mind	B/I	M	N	N
	Disease Control	B/I	M	N	N
Environmental Justice & Resiliency	Access to Nature	U/B/I	M	Y/N	Y
	Flood Risk Assessment	U/B	M	Y/N	Y
	Environmental Protection	U/B	M	Y/N	N
	Local Planting	U/B/I	M	Y/N	Y
	Hazard Preparedness - Mitigation	U/B/I	M	Y	N
	Hazard Preparedness - Adaptation	U/B/I	M	Y	N
	Design for Extreme Weather	U/B/I	M	Y	Y
	Passive Design Strategies	B/I	M	Y	N
Supply Chain*	Resilient Organizations	U/B/I	L	N	N
	Local Labor	U/B/I	M	N	Y
	Develop Local Skills and Capabilities	U/B/I	L	N	N
	Living Wage Jobs	U/B/I	M	N	Y
	Supplier Social Responsibility	U/B/I	M	N	N
	Regional Materials and Products	U/B/I	M	N	Y
	Socially Responsible Products	U/B/I	M	N	N
	Life Cycle Costing	U/B/I	M	N	N

*Note: indicators are forthcoming

Community Assessment and Engagement

Intent

In order to respond to the needs of community we need to understand the demographic context of any given project. This includes the needs of the intended users/audience, as well as the larger community and project stakeholders.

Including the community in the project gives that community a greater sense of ownership and inclusion which can lead to greater success of the project itself. Scope of the project may be a limiting factor, but at a minimum the negative impacts can be reduced.

Scale:

Urban or Building or Interior

Documentation:

Endorsement, checklist, engagement session, assessment

References and Certifications:

SEED, BREEAM, Envision, RELi, LEED

Perkins and Will Social Equity Toolkit (SET), Community Wellbeing Framework,

1.1 Community or Audience Served *SEED *Envision *BREAM *SET

Prior to assessing the needs of the community we need to know the demographic, cultural and socio-economic qualities of that community. Different countries, states/provices and cities will had different types of data and a range of quality/granularity to that data. Examples of data are provided below. While census and housing data will help to describe the community population, effort should also be made to provide a description of the historical and cultural characteristics of the community or audience served in order to contextualize the project.

Census Data: Population, Race, Education, Income, Household size

Housing Data: Average Rent, Cost Burdened, Household characteristics

Measure	Threshold
Profile was created for the community or audience served	→ Y/N

1.2 Challenges and Needs Assessment *SEED *SET

Based on the community profile what are the key, context specific challenges and/or priority needs of the community? What are the social inequities that influence people's lives and what are the root causes of these inequities? These issues can include social, economic and environmental challenges. Projects, accross scales, should identify the top priority needs that the project will then hope to address through the design. Furthermore, as part of the assessment potential unintended consequences should be outlined for consideration. Ideally the needs assessment should be conducted as part of a community engagement process. Below are examples of challenges or needs, please refer to the SEED Network list of issues for further information.

Social: Accessibility, Child Care, Civic Engagement, Equity, Health, Housing/Shelter, Mobility, Recreation/Play, Well-Being, Water Access

Economic: Access to financing, access to services, affordable housing, economic development, employment, living wages

Environmental: Access to Energy, Access to Nature, Biodiversity, Concious Consumption, Local Sourcing, Preservation of Wildlife, Sanitation

A needs assessment was conducted for the project to identify three priority needs	→ Y/N
Were the needs met	→ Y/N

1.3 Local Policy Goals *BREEAM

Undertake a study of local policy that indicates the needs of the community. This should include at least one of the following: local and neighbourhood development plans, strategic master and zoning plans, transit plans, sustainability plans, housing plans etc. Consider ways in which the city policy goals can help guide the design of the project and create alignment with the local authority.

A needs assessment was conducted for the project to identify local policy goals	→ Y/N
Were the needs met	→ Y/N

1.4 Engagement *SEED *RELi *Envision *BREEAM *SET

When engaging the community it is important to consider who is impacted by the scope of the project, as well as stakeholders, decision makers and community leaders. As much as it is possible effort should be made that all of these people are represented during the engagment process. Recognize that there will be barriers to participation, in particular for those with the greatest societal burdens.

When deciding on the outreach and engagement process for the project consider what the timeline will be and what constraints exist, such as previous commitments, funding limitations or legal constraints. Be transparent about where stakeholder influence is possible, this allows for an understanding of patterns and system problems. Refer to the Perkins and Will Social Equity Toolikt for strategies for effective inclusive engagement.

Inform: Participants are educated about the rationale for the project and how it is integrated with the community/institutions goals and policies.

Consult: Information is collected and advice is sought from stakeholders to better inform the work on the project

Collaborate: A partnership with community members/stakeholders and project staff is created for developing and implementing the planning/ design process

Shared Decision Making: Decision-makers delegate decision-making power to stakeholders or give them a formal role in making final decisions to be acted upon.

Measure	Threshold
Number and type of engagment session	→ 2 engagement sessions

1.5 Measurement of Success *SEED *SET

Often the needs and/or challenges of a community will not perfectly align with existing indicators or design elements that have a specific measure and threshold for sucess already determined. Furthermore, asessing the needs and challenges of a community can often be qualitative, rather than quantitative. Due to these realities it can be hard to measure the degree of success in meething the needs of the community that were laid out as part of the previous community assessment. Success can be determined both by who was engagend and how the engagement process was conducted, as well as, whether or not the needs indicated were met. In the instances where the methdology and measure for determining success does not already exist the project team should develop a framework and desired outcomes. A timeline for reporting back should be created in parallel to the engagment process, design and completion of the project. Refer to the SEED evaluator for a documentation process.

Measure	Threshold
N/A	

1.6 Stewardship/Programming *RELi

In order to facilitate social equity and cohesion the design process will include the creation or participation of a community organization or some form of public programming. Alternatively the project can help to establish economic equity and stability by creating a socially responsive entity such as a B-Corporation, Non-profit, or worker/consumer cooperative.

Measure	Threshold
N/A	

Selected Indicators:

COMMUNITY OR AUDIENCE SERVED	
Was a community profile generated based on demographic and socio-economic data?	Y/N

NEEDS ASSESSMENT	
Was a needs assessment conducted:	Y/N
What are the priority needs?	Were the needs addressed?
1. affordable housing	Y/N
2. child care	Y/N
3. living wages	Y/N

ENGAGMENT PROCESS		
Was the community served engaged?		Y/N
How many engagement sessions took place?		X
What type of engagement was used?		
☐ Inform	☐ Shared Decision Making	
☐ Consult	☐ Other:_____	
☐ Collaborate		

Economic Factors and Housing Provision

Intent

At the center of population health, community socio-economic wellbeing, and resiliency are housing, income, labour force activity and education. While architecture cannot always directly control for the program, by recording how each project is performing when it comes to meeting these needs will help us assess our impact as well as a means to advocate for communities we work in.

The key areas of measurement are diversity and affordability. For greater social inclusion we need both a range of avaialbe types or sizes of residential and commercial units as well as a range of tenure types.

Scale:

Urban and building scale

Documentation Format:

Index, Ratio, Percentage

References and Certifications:

RELi, BREAM, LEED, Envision,

Urban Design (UD) Framework, City of Vancouver Family Housing[15] Commercial Affordability[16]

2.1 Preventing Displacement

Urban redevelopment while often heralded as an opportunity for growth can aggravate inequalities and cause displacement of existing inhabitants. In order to put design measures in place to prevent displacement we need to know how many existing occupants there are on the project site. If possible the design should find ways to rehouse or retain the occupants on the project site. When possible, retention of any existing structures can also help prevent displacement and also help to keep the neighborhood character intact.

Measure	Threshold
% of original occupants retained on site	→ 20% *Note that this is an untested measure and threshold
% of original building(s) retained on site	→ 20% *Note that this is an untested measure and threshold

2.2 Housing Diversity *UD Framework

Complete, resilient communities mean that there is a range of sizes for different households and stages of peoples lives as well as a range of tenures that allows people from diverse economic backgrounds and needs to have access to housing.

Unit Type/Size: Micro, Studio, 1 bed, 2 bed, 3 bed+, TH, Live/Work

Tenure: Private, Non-market (co-housing, social housing), Purpose built Rental, Community Land Trust, Publicly owned long term lease, Rent to Own

Simpson-Gini Index	→ 0.6

$$1-\sum_{i=1}^{k}\frac{n_i(n_i-1)}{n(n-1)}$$

2.3 Affordable Housing *UD Framework

As was outlined previously there is currently an affordability crisis in many cities around the world. Providing quality, affordable housing for everyone is a human right. When calculating affordable housing either the 30% standard or the cost-burden ratio should be used. Note that this may be different from the municipality's definition of affordable housing. Furthermore when considering design the ideal is to distribute units so that they are not clustered together and visually identifiable as affordable housing.

Percentage of affordable housing units	→ 25%

2.4 Family Housing *City of Vancouver

Many families are finding it difficult to find units with enough bedrooms to adeuqately house their families. Often the most profitable units with the highest sale price per square foot are studios or single bedroom units, which means that unless there are zoning requirements multiple bedroom units make up a far smaller proportion of today's avialable housing stock. The goal of this indicator is to encourage the development of multi-bedroom suites which are conducive to families and allow for more flexibility. The longer people can stay in a community the greater the social cohesion. The percentage of family housing units ideally would be driven by an assessment of the existing city housing stock versus the number of households that require 2 or more bedrooms.

% of Family Units	→ min 25% 2+ bedroom and 10% 3+ bedroom

2.5 Commercial Diversity

Less discussed than affordable housing, but of growing importance is commercial space diversity. Research shows that due to the ability for large retail uses to be able to lease space up front there is a tendency for chain stores to displace local, smaller retailers.[17] Providing a range of sizes and tenure types can help create security for local and small businesses.

Unit Type/Size: Small (500 sq ft or less), Medium (500 sf-2000 sq ft), Large (2,000 to 10,000 sq ft), Extra-large

Tenure: Private Lease, Non-market (co-operative coomercial), Purpose Community Land Trust, Publicly owned long term lease, Rent to Own

2.6 Affordable Commercial

As neighbourhoods are redeveloped and gentrified existing commercial spaces become more expensive and new leased retail spaces are often larger, which make them less afordable and/or not appropriate for smaller businesses. Larger, non local tenants are often considered less risky by owners and investors financing commercial space development. Providing affordable commercial space encourages entreprenurial individuals, and increases the opportunity for emerging business, artists and organizations to succeed.

2.7 Jobs-Housing Balance *UD Framework

Complete communities that provide place for people to live and work reduces the amount of time and resources spent commuting as well as overall resilience.

Measure	Threshold
Simpson-Gini Index	→ 0.6
$1-\sum_{i=1}^{k}\frac{n_i(n_i-1)}{n(n-1)}$	
Percentage of affordable commercial units	→ 25%
Ratio of housing to jobs	→ 1.5

Selected Indicators:

PREVENTING DISPLACEMENT			
Are there existing buildings on site?	**Y/N**		
Are they currently occupied?	**Y/N**	**# of occupants:**	**X**
Percentage of occupants that will be retained on site?		**%**	**50%**
Percentage of area of existing building to be retained		**%**	**20%**

COMMERCIAL		
What is the commercial space diversity? (Simpson-Gini Index)	**X**	**0.6**
Percentage of affordable commercial?	**%**	**20%**

HOUSING		
What is the housing diversity? (Simpson-Gini Index)	**X**	**0.6**
Percentage of family units? (2+ bedrooms)	**%**	**25%**
Percentage of affordable housing?	**%**	**20%**

Community Spaces and Services

Intent

Equitable communities are those the provide access and services that allow for equal opportunity and prosperity. These can include the open space and civic space, childcare, healthcare, transporation, education, community gardens and recreation.

Scale:

Urban to Building scale

Documentation:

Index, Program Area, Uses, Perscriptive

References and Certifications:

LEED, Living Building Challenge (LBC)

Community Wellbeing, Perkins and Will Urban Design (UD) Framework

3.1 Public Open Space *UD Framework *LEED

Public open spaces make up the social backbone of our cities. These outdoor spaces encourage interaction with the larger community as well as providing space for leisure, recreation, physical activities and access to nature that is free and accessible to everyone no matter their socio-economic status. These spaces include, but are not limited to: parks, plazas, gardens and urban forests.

Note that semi-public spaces are not equivalent to public space as these spaces are often private property and are frequently under surveillance/ monitored and can reinforce unequitable power dynamics where only certain individuals are deemend as acceptable users.

Measure		Threshold
Public Open space per inhabitant (m²)	→	10m²
Percentage of Open Space of total site area	→	min 30%

3.2 Public Facilities *UD Framework

Public facilities are vital for the social equity of our cities as they provide services and amenities that are free and open to everyone no matter their background or socio-economic status. As our living units become smaller these spaces will take on increasing importance acting as the living room of our cities. Public facilities include: libraries, churches, community centers, gyms, playgrounds, pools, schools, daycares, hospitals, emergency centers, and welfare social services.

Public Facility area per inhabitant (m²)	→	8m²

3.3 Diversity of Uses *LEED *UD Framework

A community that can provide for the diverse needs of its inhabitants will be inherenetly more equitable. Access to these uses within walking distance also reduces the barriers of commuting, whether it is financial or time prohibitive.

Land Use Diversity: Use the Simpson Diversity Index to measure the diversity of landuse types such as residential, commercial and civic.

Diverse Uses within Walking distance: More commonly used for the scale of the building where diversity is a measure of the number/type of services are within walking distance. Diverse Use types include:

- Civic and Community Facilities: senior care, child care, community/ recreation center, museum, perfroming arts, school, government office, medical clinic, place of worship, police or fire station, post office, library, park, social services center
- Community Anchor Uses: commercial office for 100+ full-time equivalent jobs
- Community-Serving Retail: Convenience store, farmers market, hardware store, pharmacy, other retail
- Food Retail: supermarket, grocery with produce section
- Services: bank, theater, sports envertainment venue, gym, health club, hair care, laundry, dry cleaner, restaurant, cafe, diner

Simpson-Gini Index	→	0.6

$$1-\sum_{i=1}^{k}\frac{n_i(n_i-1)}{n(n-1)}$$

Number of diverse uses within walking distance (800m)	→	7 diverse uses

3.4 Affordable Program Area *Community Wellbeing

A community is more resilient and blah when there are a range of uses available. Vibrant. Depending on the scale of the project this can be measured as the following:

3.5 Child Care

Child care is often extremely costly, sometimes as much as rent, making it a significant burden for households. Where possible either locate the project site within walking distance to an child care facility or include child care within the project boundary.

3.6 Health Services *Community Wellbeing

Access to health care services contributes directly to the health of the individuals in any given community. Rural and underserved urban populations are often not within walking distance of a healthcare provider whether it is a clinic or a hosptial. Where possible either locate the project site within walking distance to an existing health provider or include for a health-related service within the project boundary.

3.7 Walkability *LBC *LEED *UD Framework

Proximity to transit, retail and public open space helps to promote sustainable, affordable and equitable neighbourhoods with minimal barriers to access and participation.

Transit, Retail and Park Proximity: Distance to daily destinations as a percentage of new building area

Diverse Uses within Walking distance: Refer to Diverse Uses Indicator

3.8 Public Transit *LEED

Transit can make up a significant cost of a household's monthly budget. Public transit can reduce both the financial and time burden of commuting. Well connected communities allow for greater social cohesion while also providing health benefits and reducing greenhouse gas emissions.

3.9 Amenities *Community Wellbeing

Amenities in both residential and commercial buildings provide occupants the chance to relax, run errands, socialize, exercize etc. These shared spaces can help to encourage social cohesion. And as unit sizes get smaller, amenity spaces can provide flexibility.

Measure		Threshold
Affordable Program area	→	min 20%
Walking distance of child care	→	10 minute walk radius (800m)
On-site child care facility	→	1 spots for every 20 residential units
Walking distance of health-related services	→	10 minute walk radius (800m)
GFA 400m walking distance to transit, park and 4000+ m² commercial space	→	80%
Number of diverse uses within walking distance (800m)	→	7 diverse uses
Walking distance to bus, streetcar, or rideshare stop	→	400m from entrance
Walking distance to rapid transit, light/ heavy rail stations, commuter rail or ferry	→	800m from entrance

Selected Indicators:

WALKABILITY & ACTIVE MOBILITY		
Percentage of GFA within 400m of transit, park and commercial	**%**	**80%**
How many services are within 400mm walking distance?	**=SUM**	**7**
Food retail (supermarket, grocery store)	**X**	
Community-serving retail (convenience store, farmers market)	**X**	
Services (bank, theatre, gym, hair care, laundry, restaurant)	**X**	
Civic and community facilties (child care, school, medical clinic)	**X**	
Community anchor uses (commercial office for 100+ employees)	**X**	

DIVERSE USES		
What is the land use diversity of the site? (Simpson-Gini Index)	**X**	**0.6**
How many services are provided on site?	**=SUM**	**7**
Food retail (supermarket, grocery store)	**X**	
Community-serving retail (convenience store, farmers market)	**X**	
Services (bank, theatre, gym, hair care, laundry, restaurant)	**X**	
Civic and community facilties (child care, school, medical clinic)	**X**	
Community anchor uses (commercial office for 100+ employees)	**X**	

PUBLIC FACILITIES AND SERVICES		
Public Open space per inhabitant	**m²**	**10m²**
Public Facility area per inhabitant	**m²**	**8m²**
Percentage of program area that is public or affordable	**%**	**20%**
Is child care provided on site?	**Y/N**	

Universal Access, Inclusion, and Safety

Intent

No one should be prevented from using facilities or accessing services due to physical ability. Our work should aim to reduce as many barriers as possible to allow for everyone a chance to participate regardless of their age, physical ability, race or gender. Design for inclusion and safety.

While there is significant overlap in many of the indicators provided, highlighting each of them allows for a slightly different focus and level of attention that might not otherwise be provided when considering universal design for our buildings.

Scale:

Building or interiors scale

Documentation:

Policy document, photographic verification, Program area and dimensions

References and Certifications:

LEED, WELL, Fitwel, BREEAM, Rick Hansen Foundation Accessibility Certification (RHFAC)[18]

Designed to Engage[19], Community Wellbeing Framework, Canadian Museum for Human Rights[20], Designing Safe Schools[21], Global Street Design Guide[22]

	Measure	Threshold
4.1 Design for Accessibility *RHFAC *Community Wellbeing *WELL *LBC Designing spaces that are accessible for everyone is a key if we want to build equitable spaces. With an aging demographic, accessibility is of growing concern for the public and us as designers. This allows people, no matter their physical ability, to participate in all apsects of life whether it is at work, at home or at play. When assessing meaningful accessibility of the entire project site including: vehicular access, exterior approach and entrance, interior circulation, interior services and environment, sanitary facilities, wayfinding and signage, emergency systems, additional use of space, residential units, trails and pathways.	Americans with Disabilities Act (ADA), or the Architectural Barriers Act (ABA)	Type C visitable units 20% requirement
4.2 Design for Inclusivity *WELL Inclusive spaces are those that provide for the needs of all inhabitants no matter their age, gender, physical or mental ability, and socio-economic status. When designing washrooms, consider gender neutral/single user stalls that anyone can use. Also consider providing family bathrooms that account for the need of accompaniment or assistance in the bathroom such as children, the elderly or individuals with mental/physical disabilities. Specific design considerations include changing tables, children's sinks, motion sesnor lights and skid resistant floors. Another amenity to consider are lactation rooms for new mothers, In general buildings should be designed for flexibility that can include a wide range of uses and daily needs where people feel welcomed and safe.	Policy document, photographic verification,	
4.3 Design for Safety *WELL *LEED *Designing Safe Schools Safety considerations should take into the day to day opperations of our cities and buildings, as well as large scale events whether they are man made or natural. When designing for mobility think about the safety and comfort of pedestrians and cyclists, including lighting, removal of obstructions, and buffer areas to protect people from vehicular traffic and widths of walkways/bikelanes. Visibility is important to allow people time to react and percieve hazards. In areas more prone to violence and conflict security features should be considered. This includes fewer entrance points, surveillance methods wayfinding features, window tactics , safe zones and checkpoints. Refer to Individual Health and Wellbeing for interiors and health safety concerns and to Environmental Justice and Resiliency for saftey concerns in the event of a natural disaster.	Policy document, photographic verification,	

4.4 Wayfinding *Canadian Museum for Human Rights

Providing wayfinding helps people feel safe and secure no matter their background or ability, including those that are blind, deaf, or have a physical disability. Exterior signs should help to indicate entrances and accessible drop off locations, consider how signage will be lit at night so that it is still visible. Cues should be given for circulation and the effort required (stairs, ramps, elevators). Interiors wayfinding design includes tactile floor indicators, lighting for signage visibility and communication of amenities for visitors. Consider redundant sensory cues, whether they are visible, audible and/or tactile in case an individual misses one sign or wayfinding measure. Desgin of the signage itself should include a degree of colour contrast, symbols and signs for people from different language backgrounds, consistency of location and YAH maps (You-Are-Here) to help navigate and plan routes. Many of these design considerations are applicable for interior spaces and exterior spaces.

Measure	Threshold
Policy document, photographic verification,	

4.5 Gathering Spaces *Community Wellbeing *BREEAM

Places for occupants to socialize and gather are important to create a sense of community and an inclusive environment. They allow inhabitants to build relationships with their neighbours which both contribute to more welcoming and supportive communities, reduce lonliness and also create greater resilience for times of crisis or disaster. These spaces should allow residents and neighbours to interact no matter their socio-economic status, cultural factors, or ability. When considering the design and location of these spaces allow for visual connection with the public realm, provide adequate and comfortable seating for people to gather and rest. Also design for flexibility to allow spaces to change or adjust depending on the current needs of the users. It is important that these spaces are context specific so that they are useful and meaningful for the inhabitants. Consider engaging with the users to align with their needs.

Interior gathering space for occupants	→	0.4m² per full-time occupant

4.6 Semi Private Spaces *Designed to Engage

Often homes or commercial spaces don't provide for a gradual transition from more private areas to public ones. Spaces that provide occupants with a greater sense of control, comfort and agency over their interactions allow for better engagement with their communities. When considering the design of our buildings provide spaces that are exclusive for the residents or occupants of the building in order to develop relationships and trust. Furthermore, try to limit the number of households who are sharing these semi-private spaces. In addition to these resident only spaces also consider spaces that allow for interactions between the building occupants and the larger community. Together these spaces should be a combination of indoor and outdoor uses, such as seating at entrances, community gardens, and other recreational spaces.

Numeber of households per semi-private space	→	12 households

4.7 Social Corrdiors *Designed to Engage

Social corridors are informal spaces that allow for encounters with other building inhabitants that can help foster community and social cohesion. The width of these spaces can vary depending on the size of the building and number of occupants. As these spaces can eat away at saleable area developers may be retisant to include them, consider them as part of the building amentities or if possible adjust policy to allow for FSR exemptions of area provided for social encounters. When designing social corridors they are best located adjacent to natural light, or ourdoor spaces. Also consider sound proofing to ensure unwanted noise doesn't travel into adjacent spaces.

Measure	Threshold
small developments social corrdiors = 5ft wide (fit 3-4 ppl) large developments social corridors = 7ft wide. (fit min. 5ppl)	

Selected Indicators:

UNIVERSAL ACCESS		
Was a needs assessment conducted regarding universal access?		**Y/N**
What percentage of site area is universally accessible?	**%**	**80%**
Please describe how the project is designed for universal access:		
1. easy-to grip elements		
2. motion detector lighting		
3. knee space provided in millwork and tables		

SOCIAL INCLUSION	
Was a needs assessment conducted regarding social inclusion?	**Y/N**
Please describe how the project is designed for social inclusion:	
1. gender neutral washrooms	
2. breast feeding room	
3. seating provided in lobby for elderly and disabled	

GATHERING AND SOCIALIZATION		
Indoor gathering space by inhabitant/full-time employee	**m²**	**0.4m²**

Individual Health and Wellbeing

Intent

The quality of the spaces we inhabit has significant impacts on our health and wellbeing, both physically and mentally. Healthy buildings provide many benefits such as increased productivity, and less sick days etc. From an equity standpoint everyone deserves to occupy spaces that benefit their individual health and wellbeing.

These indicators focus on indoor environmental quality, as well as personal health choices such as food and movement. Allow for a wide range of personal needs and choices many of which are “assessed by subjective evaluation”, eg. Different diets, different thermal comfort

Scale:

Building or interiors scale

Documentation Format:

Prescriptive, Program Area, Precautionary List

References and Certifications:

Fitwel, WELL, LEED, Living Building Challenge(LBC), RELi

	Measure	Threshold
5.1 Air *WELL		
Everyone should have access to clean air. At the urban design scale this can include finding ways to reduce emissions from motor vehicles. When determining how to address air quality from a building or interiors perspective considerations include: indoor air quality testing, smoke free environments, the use of low emitting materials, design for natural ventilation, operable windows, and microbe or mold control. Existing certifications also address air quality throuch construction using pollution management control.		
5.2 Light *WELL		
Quality of light and access to regular daylight are fundamental to an individual’s health. From an urban design scale the size of a block and the allowable height/ spacing of buildings can dramatically influence how much light inhabitants have access to when indoors or outdoors. At the building scale, size and location of glazing and shading can impact the amount and quality of natural dailight inhabitants will receive throughout the year. Finally, interiors can take into consideration operable shading devices, glare reduction, lighting control and circadian lighting design.		
5.3 Materials *WELL *LBC *LEED *RELi		
Due to the lifetime of our buildings the quality of the materials we use and the possible health impacts is of significant concern. Volatile organic compounds (VOCs) include a large number of chemicals that are frequently used in building materials such as insulation, paints, adhesives, furniture and furnishings etc. Beyond consideration for what materials we specify in our buildings measures related to materials can also be taken for waste management, site remediation, cleaning products and pesticide use.	Precautionary List Red List (LBC) Safety protocols for disposal and recycling of hazardous waste.	
5.4 Nutrition *WELL *Fitwel		
When designing our neighborhoods and buildings access to nutrition including food and water should be considered. Community gardens are an opportunity to provide direct access to healthy food and contribute to the resilience of our cities. Designated spaces for eating can encourage more mindful eating habits. Other design elements to encourage healthy eating include: choice architecture practices, food advertising, nutritional transparency, price incentives, water fountains, healthy option vending machines, food portion sizes, healthy ingredients, and access to fruits and vegetables.	Designated eating spaces for occupants.	→ seating for 25% of regular occupants
	Food production within 800m of project boundary Policy document, photographic verification,	→ Dwelling: 1.4m²/unit Non-Dwelling: 0.09m²/employee School: 0.05m²/student

5.5 Thermal Comfort *WELL

Thermal comfort is a subjective measure that can differ from person to person, where the optimal temperature range is 36-38 °C [97-100 °F]. Productivity, health and well-being are all tied to thermal comfort. Urban design can help mitigate the heat island effect in cities through preserving and developing natural landscapes. At the scale of the building mechanical or natural systems can be utilized to provide the optimal thermal enviroment for the vast majority of occupants. Where possible thermal zoning or individual thermal controls can provide a variety of conditions for people with different desired temperatures. When designing for thermal control consider the six core thermal parameters including: air temperature, humidity, air movement, mean radiant temperature of surrounding surfaces, metabolic rate, clothing insulation.

Measure	Threshold
Performance test and design specifications	

5.6 Sound *WELL

Sound pollution from both exterior and indoor sources can cause inhabitants to be distracted, disturb sleep paterns, increase stress, and be a cause of general discomfort. Sources of undesired noise include traffic, HVAC equipment, appliances, and noise from adjacent activities. Elements to take into consideration during the design include: sound mapping and maximum background noise levels; sound barriers for the building envelope and between interior spaces; specifying materials that absorb sound. When noise can't be reduced consider sound masking applications.

Measure	Threshold
Performance test and design specifications Average SPL (dBA/ dBC)	→ Open workspace/ dining area = 55 dBA, 80 dBC Enclosed office/ Residence (daytime) = 50 dBA, 75 dBC Conference Rm, Classroom, Residence Bedroom (nighttime) =45 dBA, 70 dBC

5.7 Movement *WELL *Fitwel

Much of our lives today are sedentary whether it is seated at a desk at work, or on the couch after a long day. Low physical activity has been shown to lead to serious health problems such as obesity, type 2 diabetes, cardiovascular risks and premature death. We need design that encourages physical activity and movement. At the urban scale this means walkable communities, bike lanes and outdoor spaces for play and exercise. At the buidling scale consider designing stair access that is central and inviting, as well as indoor space for exercise. Wayfinding and signage can also encourage people to use stairs rather than elevators. Bike facilities, lockers, and showers encourages active commuting. Interior design can specifcy ergonomic and active furnishings.

Measure	Threshold
Physical Activity Space	→ 370m² space OR 37m² per dwelling unit or classroom 18m² + 0.1m² per employee
Bicycle Parking	→ 30m from main building entrance.
Refer to Collective Amenities and Services for urban design measures.	Visitor bike parking: 2.5% peak visitors Occupant bike parking: 5% regular occupants

5.8 Mind *WELL *LEED *Community Wellbeing

Mental health is an often overlooked consideration in our built environment. Mental health considers not just the needs of those suffering from a mental health condition, but also how to provide an envrionment that is the most conduscive to creating a sense of well-being for all inhabitants. Access to nature can help relieve stress, support focus and increase performance. Quality views and natural light can also contribute to a sense of well-being and increase satisfaction of our surroundings. Another feature to consider is interior spaces that provide the opportunity for contemplation, relaxation and restoration. These rooms should include for the following; accessible design; lighting, sound and temperature control; flexible seating options; calming color palette; visual privacy. Finally, programming and prevention measures should also be considered.

Measure	Threshold
Access to nature	→ 25% or more of building area is natural open space. 75% of which is planted, OR 0.5+ hectare of natural open space is within 300m walking distance
Interior restorative space	→ min. 7m² + 0.1m² per occupant, up to a max of 74m².

5.9 Disease Control

The recent global health crisis, Covid 19, has meant that we need to consider how to design our cities and buildings through the lense of a pandemic. This includes using materials that are resistent to disease. It also includes designing for flexibility that allows occupants to keep their distance. We can also design signage that provides direction for health protocals such as physical distancing requirements, proper handwashing and cleaning techniques.

Environmental Justice and Resiliency

Intent

Environmental destruction, climate change and natural disasters will impact the entire global population, however the largest effects will largely be felt by those least prepared to deal with them. Designing for environmental justice includes preserving the nature we have, rehabilitating those that we can. Equity also relates to how much access people have to the natural enviornment no matter their race, background or socio-economic status. Often natural amenties are not evenly distributed in our cities accross all communities. Furthermore when parks and natural amentities are added to communities it can often lead to displacement of the existing community.

The resiliency of our communities is also directly tied to designing for equitable cities. Hazard preparedness and mitigation should be designed to prevent catostrophic damage to communities in the case of a natural event.

Finally as climate change transforms the weather patterns and current climate of our cities we need to design spaces that will be able to transform overtime and deal with more extreme temperatures.

Scale:

Urban to Building Scale

Documentation:

Perscriptive, Performative

References and Certifications:

Living Building Challenge (LBC), LEED, WELL, RELi

6.1 Access to Nature *LBC *WELL

There are many health benefits derived from direct access to nature including those of daylight, fresh air and

biophilia relationship of human-nature relationships

6.2 Flood Risk Assessment

Projects should not be located below sea level or on a flood plane that are subject to flooding at a 1% or greater chance in any given year. 500 year floodplain. As weather and climate change have increased the frequency of flooding the 100 year floodplain is problematic for design purposes and instead the 500 year floodplain should be used.

6.3 Environmental Protection *LBC *LEED

When selecting a project site it is better to located buildings in already developed areas in order to maintain existing natural ecosystems. Urban sprawl is threatening the ecology of our planet. Beyond the immediate damage created from the destruction of the natural environment, it also leads to less sustainable and livable cities due to the increased urban heat island, as well as more resources and infrastructure required to transport people and products. Impacts to biodiversity and at risk ecosystems should be reduced as much as possible.

6.4 Local Planting *LEED

When considering the landscape design of a project conduct a study of local plant species that can be used. By planting native species they should be better adapted to the weather of the project site and require less mainentance and watering. Planting local species should also contribute to building an environment for local fauna to inhabit. Minimize grass and lawns which are often water intensive and dont provide ecosystem benefits for a multitude of species. Also consider planting a range of plants that have are different heights and cover to allow for a variety of habitats. Also consider historical or indigenous gardens and healing spaces.

6.5 Hazard Preparedness - Mitigation *RELi

Emergency planning should be undertaken as part of the design process in order to reduce the impact in the case of an event. Access to services including first aid, emergency supplies, water, food, communications and energy should all be considered. Both immediate needs and long term needs should be addressed as part of an emergency response plan. Make sure to consider all physical and mental abilities and needs, for example

Measure		Threshold
Access to nature	→	25% or more of building area is natural open space. 75% of which is planted, OR 0.5+ hectare of natural open space is within 300m walking distance
Avoid building on the 500 year floodplain		
Locate project on land previously developed.		
Presperve/protect greenfield land from development and construction activities	→	40%
Reduce landscape water requirement	→	min 30%
Emergency supplies including water and food	→	Mission Critical Facilities - 96 hours (4 days) All other facilities - 32 hours (1.5 days)
Emergency communication capacity	→	Back up power/ batteries for 24 hours

low-glycemic food options for people with diabetes.

6.6 Hazard Preparedness - Adaptation *RELi

Are there design features that can allow for adaptation in the case of an event? Buildings that can be transformed for the needs of the community will be of utmost improtance. Examples of adaptation design features include extra rooms that can be made into bedrooms, additional service access points for electricity and water, urban agriculture, etc.

6.7 Design for Extreme Weather *RELi

As extreme weather events become more prevelant we need to consider how our buildings can adjust or adapt when these events occur such as extreme rain, sea rise, storm surges, etc. When building infrastructure for back-up power and temporary generators make sure to locate the equipment above the 500 year floodplain. If equitment can't be raised then dry flood protection measures cand be taken. Natural based systems can also reduce the impact of extreme weather events.

location of equipment → above the 500 year floodplain

maintain temperatures during heat waves and cold seasons → Hospitals and Nursing homes: max 27° C (81° F)

General residential/ commercial buildings: max 32°C (90°F)

6.8 Passive Design Strategies *RELi

Passive design strategies are effective for both extreme weather events as well as changing temperature patterns. In the case of an event where there is limited access to electricity, passive design features allow occupants to adjust their spaces according to personal need specifically for natural ventilation and lighting. Passive strategies also have the added benefit of reducing energy consumption which in turn should help to reduce environmental damage and climate change. Strategies include: daylighting controls, celestories/skylights, direct and indirect solar gain, thermal storage wall, cool roof, cross ventilation, east/west shading, evaporaton cooling towers, solar shading etc.

Case Study - Brightside

Corporate and Commercial

Design Development

Client:BOSA Properties Inc.
Location: Surrey, British Columbia
Program: Mixed Used Residential
Size: 94,400 square metres (1 million sq ft)
Construction Cost: $355 million (all phases)

Primary Goals

Client

Successful mixed-use
Create a masterplan that foster activities and use of the site throughout the day

Density
Develop Rezoning to maximize density on the site

Community
Enhance Bosa brand of community builder and create a sense of “community with its own character” bringing a new approach of public space to Surrey Center typical development.

Design Excellence

Exterior wall system
Explore opportunity for Bosa & Axiom Construction to develop prefab or modular exterior wall system highly insulated and economical

Efficiency/modularity
Maintain efficient optimize structural layout for “hyper affordability” on the towers.

Pedestrian oriented public realm
Create a pedestrian oriented heart to this neighborhood.

PERKINS AND WILL SPR (MINIMUM GOALS)		
Energy	**Will project meet 2030 commitment?** **EUI Target: 130 kWh/m²/yr**	⊗
Water	**Will project meet a minimum 40% Potable Water Use Reduction?** **Water Target: 40 % reduction**	✓
Materials	**Will project meet Perkins+Will Material Performance goal?** **Materials Target: 30 materials compliant with Precautionary List**	✓
Resiliency	**CLIMATE PROJECTIONS** **Increased frequency and intensity of winter rainfall (increase by 11%), 19% rainfall decrease in summer** **56% decrease in local snow pack** **Increased heating days above 25°C** **Sea level rise anticipated, but will not necessary impact site location**	**VULNERABILITIES** **Greater winter stormwater flows** **Declining potable water sources** **Increased cooling needs during summer months** **Lengthen growing season**

ENHANCED SUSTAINABILITY AND RESILIENCE GOALS		INNOVATION + RESEARCH
Energy and Carbon	• Target Step 2 of the Provincial Energy Step Code • Increase energy efficiency to reduce consumption • Use HRV system on ventilation • Mindful consideration of building cooling strategies: exterior shading of residential with balconies • Reduce window to wall ratio to improve envelope performance	• Thermally broken balconies design in non-mandatory conditions (Cost, Trade off, EUI Impact)
Water	• Capture greywater for irrigation • Delay stormwater discharge to minimise peak runoff	
Materials		
Site and Landscape	• Use permeable paving surfaces in existing lane • Eliminate on-site parking	
Social	• Eliminate requirement for centre lane to provide a park space in the center of the site	
Standards	• LEED Gold for the Office Component	

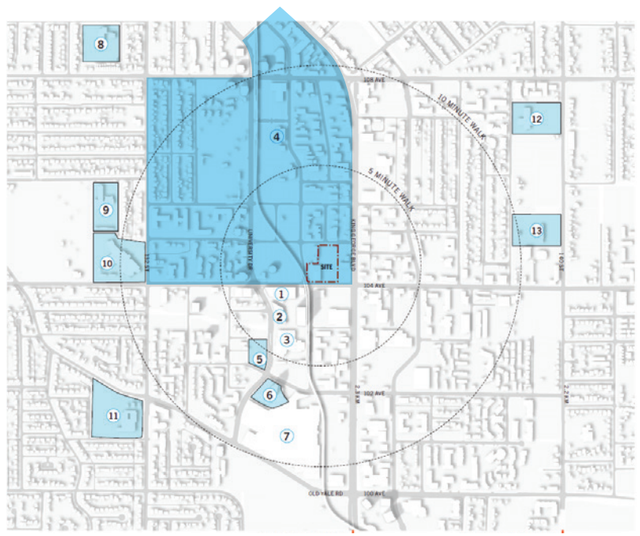
Community Assessment and Engagement

COMMUNITY OR AUDIENCE SERVED	
Was a community profile generated based on demographic and socio-economic data?	N

NEEDS ASSESSMENT	
Was a needs assessment conducted:	N
What are the priority needs?	Were the needs addressed?
1.	Y/N
2.	Y/N
3.	Y/N

ENGAGMENT PROCESS	
Was the community served engaged?	Y
How many engagement sessions took place?	1
What type of engagement was used?	

- ☐ Inform
- ☐ Shared Decision Making
- ☑ Consult
- ☐ Other:_____
- ☐ Collaborate



Census Tract

Community Profile:

Population (2016): 3,929

Total private dwellings: 2,238

Population density per sq km: 5,415.6

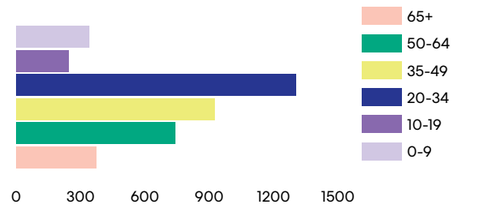
Census Tract area: 0.73 km²

Median Income of 1 person households (2015): $31,765

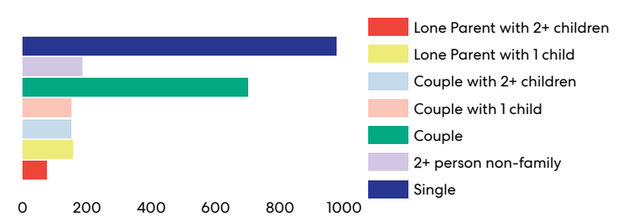
Median Income of 2+ person households (2015): $57,523

Median monthly shelter costs for owned dwelling: $1,153

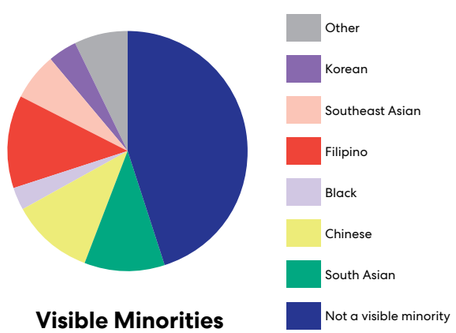
Median monthly shelter costs for rented dwellings: $904



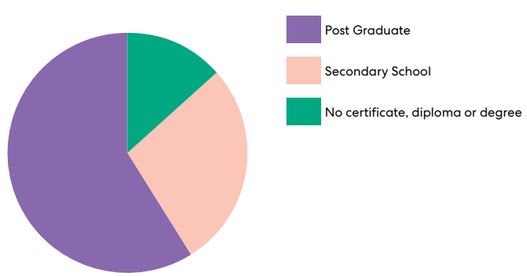
Age



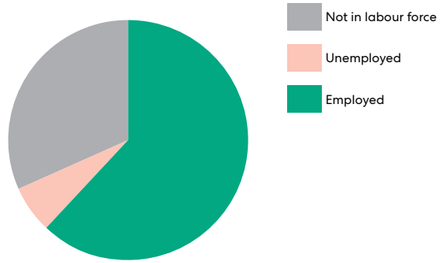
Household Type



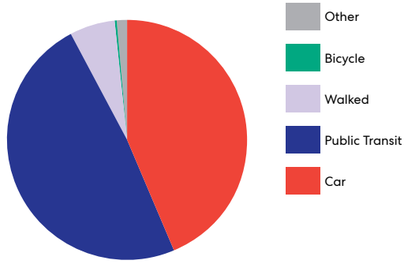
Visible Minorities



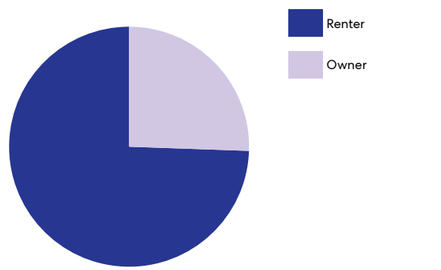
Education
population 25+ years old



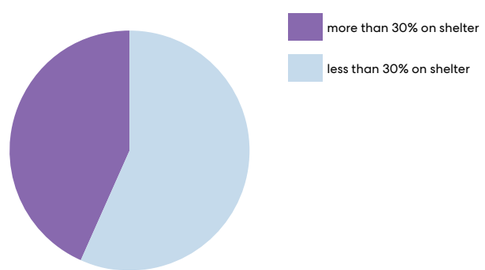
Employment Status
population 15+ years old



Mode of Commuting



Renter/Owner



Cost Burdened

Economic Factors and Housing Provision

PREVENTING DISPLACEMENT			
Are there existing buildings on site?	Y		
Are they currently occupied?	Y	# of occupants:	15
Percentage of occupants that will be retained on site?		0%	50%
Percentage of area of existing building to be retained		0%	20%

HOUSING		
What is the housing diversity? (Simpson-Gini Index)	0.73	0.6
Percentage of family units? (2+ bedrooms)	36%	25%
Percentage of affordable housing?	0%	20%

COMMERCIAL		
What is the commercial space diversity? (Simpson-Gini Index)	0.5	0.6
Percentage of affordable commercial?	0%	20%

Community Spaces and Services

WALKABILITY & ACTIVE MOBILITY		
Percentage of GFA within 400m of transit, park and commercial	95%	80%
How many services are within 400mm walking distance?	10	7
Food retail (supermarket, grocery store)	1	
Community-serving retail (convenience store, farmers market)	2	
Services (bank, theatre, gym, hair care, laundry, restaurant)	5	
Civic and community facilties (child care, school, medical clinic)	2	
Community anchor uses (commercial office for 100+ employees)	0	

DIVERSE USES		
What is the land use diversity of the site? (Simpson-Gini Index)	0.22	0.6
How many services are provided on site?	N/A	7
Food retail (supermarket, grocery store)	X	
Community-serving retail (convenience store, farmers market)	X	
Services (bank, theatre, gym, hair care, laundry, restaurant)	X	
Civic and community facilties (child care, school, medical clinic)	X	
Community anchor uses (commercial office for 100+ employees)	X	

PUBLIC FACILITIES AND SERVICES		
Public Open space per inhabitant	3.3²	10m²
Public Facility area per inhabitant	0 m²	8m²
Percentage of program area that is public or affordable	0 %	20%
Is child care provided on site?	N	

Universal Access, Incusion, and Safety

UNIVERSAL ACCESS		
Was a needs assessment conducted regarding universal access?		N
What percentage of site area is universally accessible?	100%	80%
Please describe how the project is designed for universal access:		
1. **Project is designed for 100% universal access**		
2.		
3.		

SOCIAL INCLUSION	
Was a needs assessment conducted regarding social inclusion?	N
Please describe how the project is designed for social inclusion:	
1. **gender neutral washrooms in offices**	
2. **amenity spaces for family, children and elderly**	
3. **wellness centre**	

GATHERING AND SOCIALIZATION		
Indoor gathering space by inhabitant/full-time employee	1.11²	0.4m²

Conclusion

When considering how social equity can be included in the the Living Design Index the most important indicators that I would recommend consist of the following:

- **Needs Assessment** - Was a needs assessment conducted?
- **Engagement** - How many engagement sessions did your project undertake?
- **Affordability** - What percentage of the built area is affordable, including housing, commercial and public space?

Together these indicators should help us to adjust how we percieve the design process and prioritize buildings that are accessible and inclusive of the entire population, particularly those most in need.

Our Role as Urbanists and Designers

Are we, as an architecture studio, the best suited to consider questions of social equity? If not us, who? As city builders it is our moral and ethical responsibility to act as the negotiator between the inhabitants, the City, and the Developers. Beyond this we have a unique set of skills that make us the best possible visionaries for our city.

There is a clear and present appetite within the firm and the profession at large to address the topic of social equity. Besides Climate Change, social inequity is one of the biggest threats to the development of an just and resilient global society.

Next Steps

In order to complete an initial test run of the indicators selected they were applied to a case study of a large mixed used project - Brightside. As this project has already completed the Design Development stage some of the indicators have been completed retro-actively. Furthermore, the community assessment and engagement indicators are valueable as prompts not just as indicators that would help as part of the design process.

In order to better understand what indicators are most useful for encouraging social equity in our project work it would be necessary to test them on a wider range of project types and sizes, as well as on projects that are at the very early stages of the design process.

Parallel to this it would be useful to gather feedback on how successful Urban Design projects have been at hitting desired thresholds for social equity thus far. Is the framework used primarily for final project assessment or is it used throughout the design process?

Social equity is an extremely complex and challenging topic. Furthermore, many of the factors that will make a project equitable require either a client who is socially responsible or policy that requires socially equitable city building. These barriers to success are things to keep in mind during the design process but should not discourage us, the designers, from advocating for more socially equitable spaces.

Living Design Indicators (Beta)

Story & Method	Regenerative & Resilience	Site & Water	Energy & Atmosphere	Health & Materials	Living Design Index (Beta)
12	12	10	10	9	65 beta
Sust.Story ✓	Risk Analysis ✓	Reduction 36%	Reduction 58%	P - List Review ✓	
Certification (Beta) ✓	Risk Mgmt ✓			P - List Free Materials (Beta) 0	
Lab (Beta) ✓	Social Cohesion Actions ✓			Low - VOC (Beta) 0	

Social Equity

9

Needs Assessment ✓

Engagement **1**

Percentage of Affordable **10%**

Figure 6. Living Design Index and proposed Social Equity Indicators

7.5 Supplier Social Responsibility

When designing our neighborhoods and buildings access to nutrition including food and water should be considered. Community gardens are an opportunity to provide direct access to healthy food and contribute to the resilience of our cities. Designated spaces for eating can encourage more mindful eating habits. Other design elements to encourage healthy eating include: choice architecture practices, food advertising, nutritional transparency, price incentives, water fountains, healthy option vending machines, food portion sizes, healthy ingredients, and access to fruits and vegetables.

7.6 Regional Materials and Products

When designing our neighborhoods and buildings access to nutrition including food and water should be considered. Community gardens are an opportunity to provide direct access to healthy food and contribute to the resilience of our cities. Designated spaces for eating can encourage more mindful eating habits. Other design elements to encourage healthy eating include: choice architecture practices, food advertising, nutritional transparency, price incentives, water fountains, healthy option vending machines, food portion sizes, healthy ingredients, and access to fruits and vegetables.

7.7 Socially Responsible Products

When designing our neighborhoods and buildings access to nutrition including food and water should be considered. Community gardens are an opportunity to provide direct access to healthy food and contribute to the resilience of our cities. Designated spaces for eating can encourage more mindful eating habits. Other design elements to encourage healthy eating include: choice architecture practices, food advertising, nutritional transparency, price incentives, water fountains, healthy option vending machines, food portion sizes, healthy ingredients, and access to fruits and vegetables.

7.8 Life Cycle Costing

When designing our neighborhoods and buildings access to nutrition including food and water should be considered. Community gardens are an opportunity to provide direct access to healthy food and contribute to the resilience of our cities. Designated spaces for eating can encourage more mindful eating habits. Other design elements to encourage healthy eating include: choice architecture practices, food advertising, nutritional transparency, price incentives, water fountains, healthy option vending machines, food portion sizes, healthy ingredients, and access to fruits and vegetables.

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