

niagarahealth

Extraordinary Caring. Every Person. Every Time.

Architecture for Health Managing Complex Problems

November 21st, 2022

UIA-PHG





I acknowledge the land I am standing on today is the traditional territory of many nations including the Mississaugas of the Credit, the Anishnabeg, the Chippewa, the Haudenosaunee and the Wendat peoples and is now home to many diverse First Nations, Inuit and Métis peoples. I also acknowledge that Toronto is covered by Treaty 13 with the Mississaugas of the Credit.



Protect – Develop – Restore Health

The three-fold model acknowledges the interconnectedness of human, animal and environmental (natural and built) health.

What does the built environment need to provide people so that people can grow and flourish? What is the healthiest relation between nature and the built environment and how can architects foster and protect that relationship? It is the responsibility architects, built environment professionals and policymakers to lead the way.

Design that Protects Health: Protecting human, animal and environmental health.

Design that Develops Health: Developing better Protecting human, animal and environmental health.

Design that Restores Health: Restoring Protecting human, animal and environmental health.



The Learning Objectives for this presentations – and the SNH Project:

DESIGNING MEGAPROJECTS WITH EMERGING TECHNOLOGIES AND CHALLENGES

The South Niagara Hospital project will be a new Greenfield 1.2 million square foot facility with 469 inpatient beds with a full emergency, surgical, and diagnostic program. It will also accommodate post-acute care and ambulatory care today, with a view to a future focus on predominantly acute services. It will be one of a network of healthcare facilities supporting Niagara Health's vision to build a healthier Niagara.

The new hospital will host a number of new technologies, but also will have to respond to the continuous emergence of new technologies after opening day. This presentation will focus on the how to best future proof your facility for whatever the future may bring: technology, new infectious diseases, climate change ...

Niagara Health focus on future proofing was supported by a continuous focus on research at all levels of the project roadmap: Governance, Project Management, Design Management, Change Management, and Procurement Management.

A takeaway from the presentation will address “how do you set up your project to be successful not only on day one, but far into the future”, and “how do you manage something you don't yet know – like emerging technologies”.



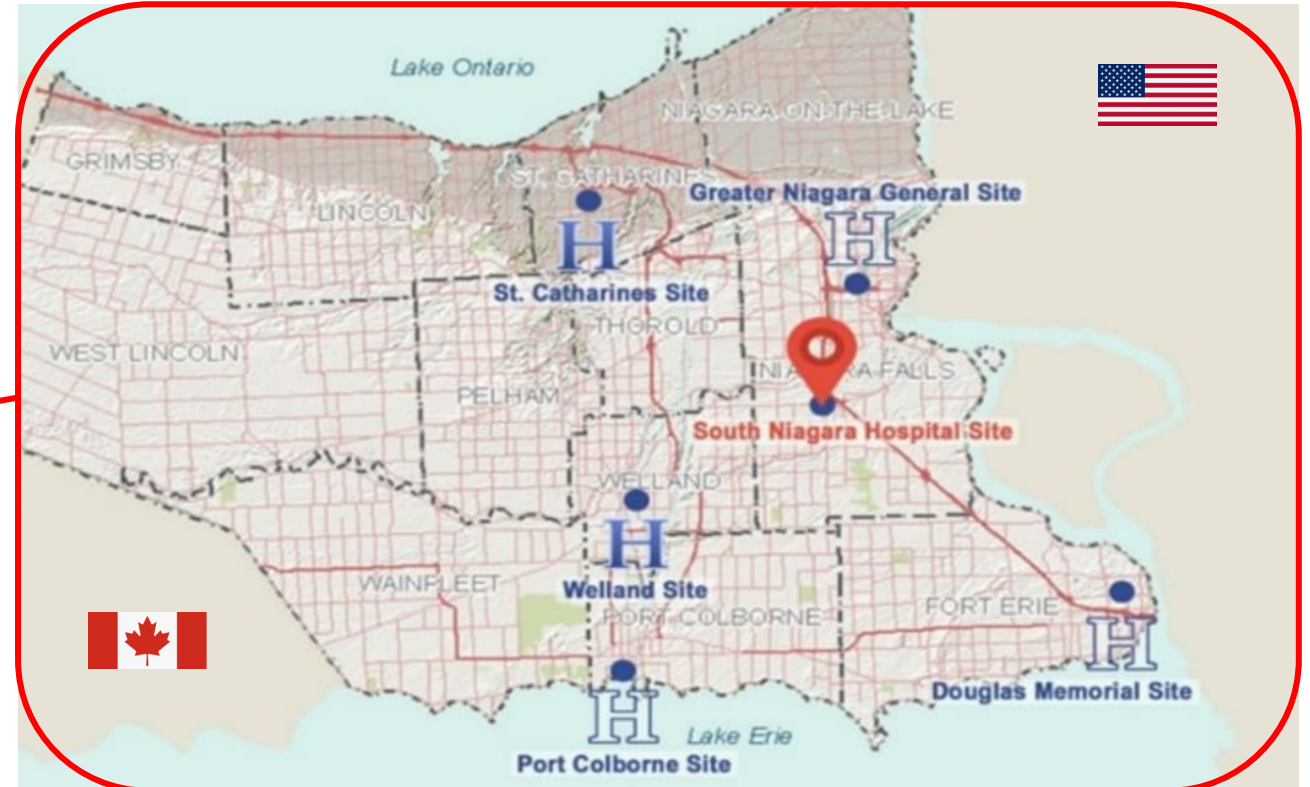
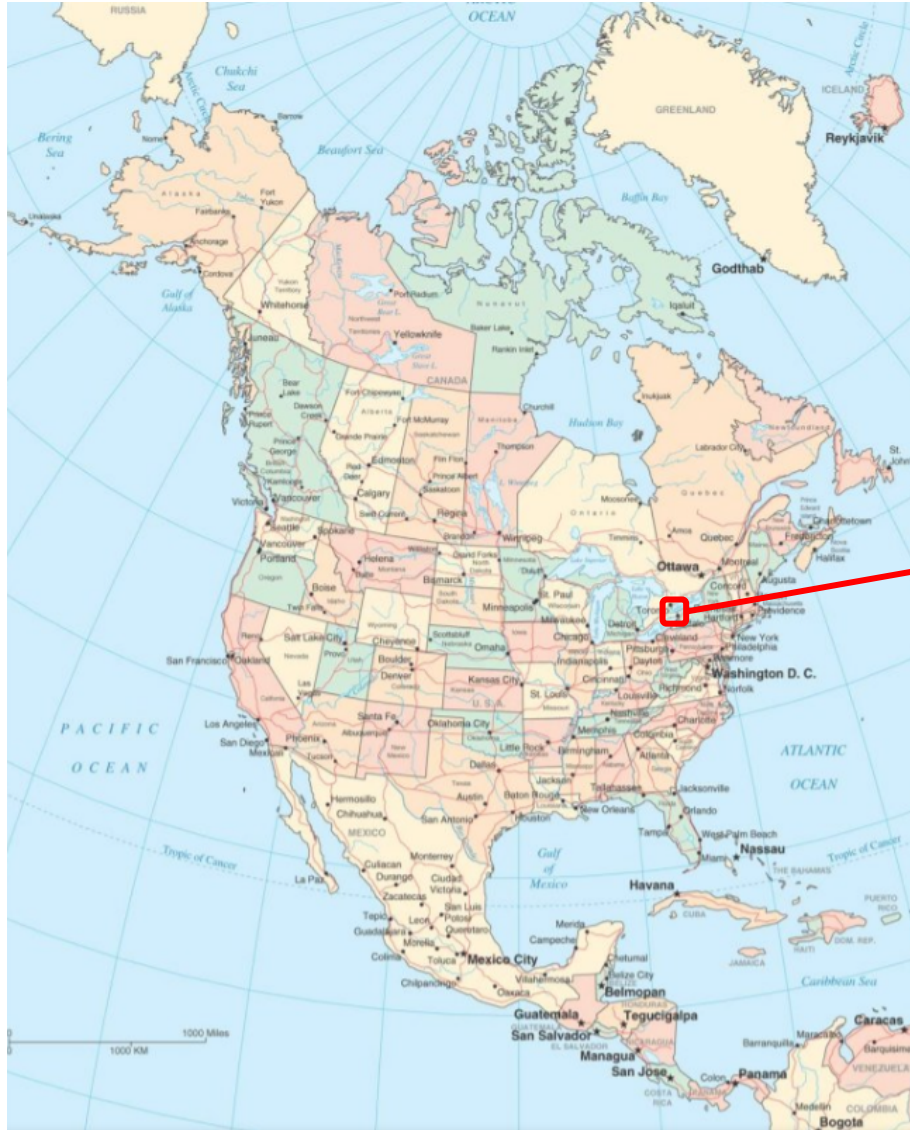
The Learning Objectives for this presentations – and the SNH Project:

Research Techniques and Lesson Learned

The project used both a mixture of **Evidence Based Design (EBD) Research** as well as **Research-Influenced Design (RIF)**. When one is speaking of emerging technologies, a project team will have to use a mixture of research technique to create the overall project design.

One lesson learned is that these projects gain speed as they approach the construction phase, and as they gain speed, they reduce the time for the project team to do any research into setting or influencing the final outcomes. As such, **the research portion of the project must occur early in the planning stages and be used to guide the development of the program and design.**

Another lesson learned is that Niagara Health's Project Team used the **80/20 rule**. 80% of a healthcare project is directed by best practices and standards - in Canada that is the Canadian Standards Association. With this 80%, **we do not have to reinvent the wheel, what we do need to do is to focus on the 20% - that is where we will make the difference and help us achieve our big goals – including future proofing our project. Identify this 20% early and stay on top of it.**





South Niagara Site



469 Beds

30 Critical Care Beds

170 Complex Care Beds

269 Medical Surgical Beds

8 Operating Suites

42 Hemodialysis Stations



Approx. 1.2 Million Square Feet



Centres of Excellence

Complex Care

Wellness in Aging

Stroke

Geriatric and Geriatric Psychiatry

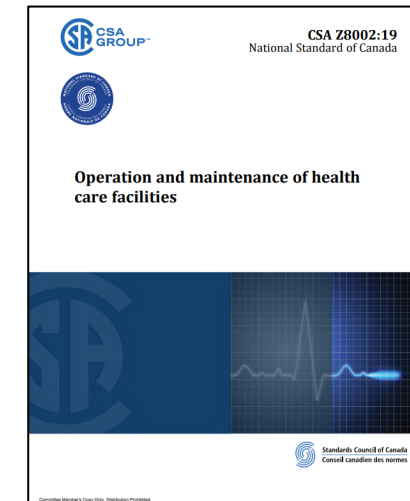
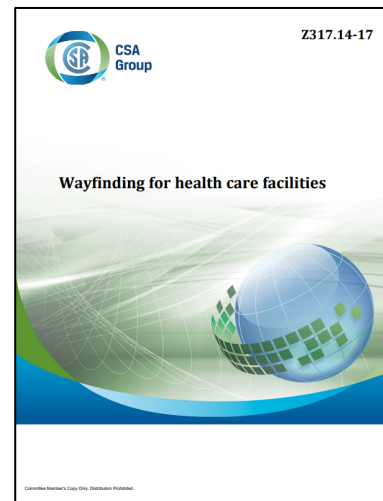
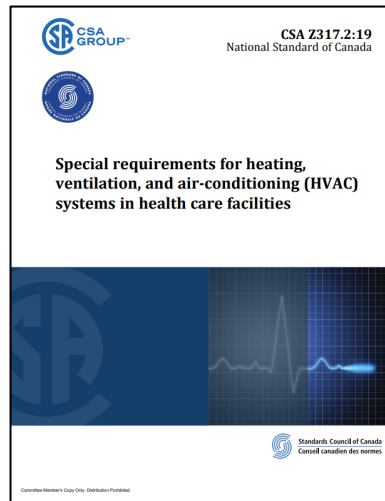
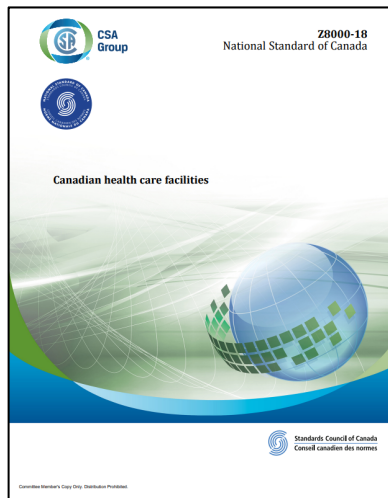
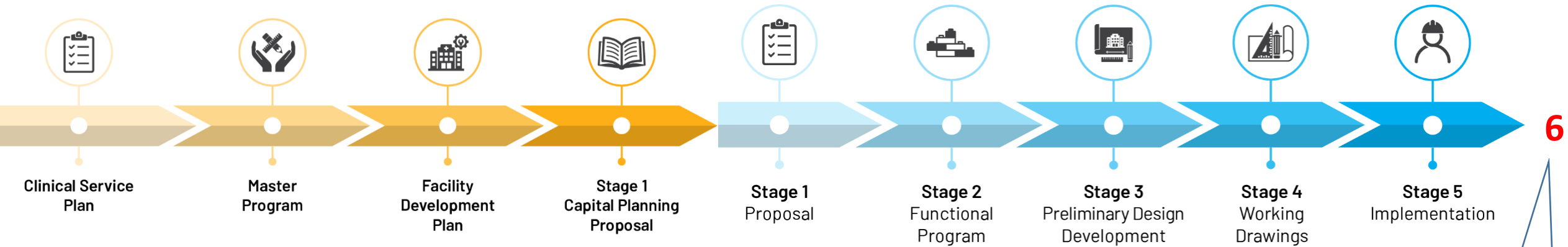
First WELL® certified healthcare facility in Canada



Illustrative Design 2021: Stantec Architecture



Ministry of Health (MOH) Capital Planning Process (80/20)



Where is Stage 6: Operations?



Team Learning – Shared Vision



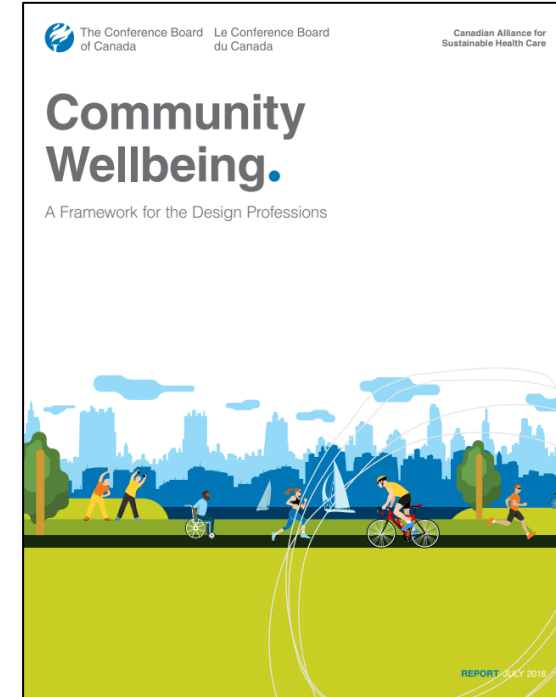
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Protect – Develop – Restore Health



Source: DIALOG.





4.2 DESIGN THEMES

1 Community Health and Wellness

A campus that is more than a hospital: a place for prevention, healing, and recovery.

While we are good at treating people when they are sick, we are not great at catching the cause of illness upstream twenty years earlier. How does a hospital become a place of prevention, healing and recovery for the communities it services and for staff, patients, and caregivers who visit it? Which aspects of the building and campus design can we influence to have a positive impact on our wellbeing? These questions inform the first design theme of the Visioning process. As the stakeholders searched for answers, a robust, achievable and innovative idea of community health and wellness emerged.

What we heard!

- Create a healing environment: bright, connected to green, with a gym, healthy food options, etc.
- To support great treatment of health, focus more on prevention.
- Build partnerships! The hospital itself cannot provide everything.
- Collaborate with the City to provide community services within the proximity of the hospital
- Provide opportunities for education on-site: nutrition classes, art therapy, exercise, etc.



The Wellness Institute, Seven Oaks, Winnipeg, Manitoba

2 Focus on Patient, Family & Staff Experience

A hospital that focuses on user-experience and on fulfilling the needs of its community – patients, families, caregivers, staff, visitors, and neighbours.

Hospitals can be stressful environments for many who visit, patients and family members. Staff and physicians who spend many hours working are also affected by the built environment in which they operate. What constitutes a welcoming environment? Are there quiet spaces, places for repose, celebration and at a time for grieving? Are there opportunities to build a sense of belonging and involvement? These questions and suggestions have informed this second theme with a focus on the experience of the community as people visit, stay and work at the hospital.

What we heard!

- Create a welcoming entrance and environment throughout.
- Create a diversity of spaces for different users: quiet spaces, interfaith rooms, social spaces, etc.
- Consider the specialized needs of each user: places for families, comfort for patients, etc.
- Provide amenities for staff, such as a daycare and showers facilities, others such as a gym, and cafeteria open to visitors, caregivers and staff.
- Provide visual access to the exterior as well as natural light.



Waiting Area, Memorial Sloan Kettering Josie Robertson Surgery Center, New York



DESIGN THEMES (CONT'D)

3 Excellence in Senior Health and Wellness

A hospital that reflects Niagara's demographic and is sensitive to the needs of its aging population.

Work done under the Clinical Vision plan gives the Visioning project a robust overview of the demographic profile of Niagara's population. Further, it identifies clinical requirements that are needed. Through the engagement process, this project was able to reconfirm and validate those suggestions through a community wellbeing lens. Providing timely and reliable access to services and care for seniors will be important. At times care would be best accessed within the community, close to home. Identifying services and mechanism to provide a continuum of care to guide and track seniors over time through an array of health services is another crucial aspect of senior health and wellness.

What we heard!

- Design for geriatric care, considering the increasing aging population in the region.
- Suggestions for separate entrances, waiting areas, and gathering places for seniors.
- Develop a continuum of care for seniors.
- Provide reliable access to the hospital, through transit, and ride-share partnerships.
- Make it easy for seniors to get to the hospital, and conversely, bring care out to the community.
- Provide opportunities off-site for healing and wellness, closer to home.
- Provide access to nature for healing, repose and recovery.



Bridgepoint Health, Toronto, Ontario

DESIGN THEMES (CONT'D)

4 Accessible, Safe and Inclusive

A hospital that is inviting and accessible to all – easy to get to and navigate throughout. A place where people feel safe and included, no matter their background.

Accessing services at a hospital needs to be safe and comfortable for all. People from all walks of life, different abilities, cultural backgrounds, identities, and economic backgrounds visit the hospital. Some might face difficulty in physically accessing the hospital, others might encounter stress in an unfamiliar surrounding, and for another language might be a barrier. How does the built environment acknowledge and respond to gender non-conforming identities? What are some indoor and outdoor settings which help build a sense of belonging?

What we heard!

- Incorporate principles of Universal Design, beyond Accessibility for Ontarians with Disabilities Act (AODA) standards.
- Build a partnership with the City and Region for transit connection and transit hub
- Incorporate territorial acknowledgment and consider all cultures in the hospital design.
- Remove the stigma of coming to the hospital and create a safe and inclusive environment.
- Give special consideration to mental health and dementia patient needs.
- Provide a range of indoor and outdoor spaces for patients, staff and family members.



Signs of Welcome at Hamilton Health Sciences, Ontario

DESIGN THEMES (CONT'D)

5 Environmental Leadership

A hospital that is at the forefront of environmental conservation, resilience and climate change adaptation.

Hospitals can have a positive contributing impact on the wellbeing of the community and the environment. Ways to reduce energy use are increasingly being utilized by institutions such as hospitals. The site for South Niagara Hospital is based on the urban periphery, transit access, and transportation demand management strategies can reduce car-dependency. Strategies for sustainable procurement of commodities such as pharmaceuticals, medical instrument and food are being recognized to create environmental and health benefits(WHO) and are aspects which require additional thought and study.

What we heard!

- Strive for lower energy use and water consumption.
- Explore ways to reduce car dependency.
- Explore for sustainable procurement of health-care commodities.
- Reflect Niagara's ecology in the design of internal and external environments.
- Reduce waste and consider the life-cycle of all materials.



6 Efficient and Innovative

A hospital that is a forerunner in operational efficiency, designed to work today and into the future.

What is the hospital of the future? While technology will drive innovation in clinical servers and efficiencies in back-office operations, patient and staff experience for wellbeing is also increasingly becoming important. Whereas some of the smart technologies will lead the way in patient care and quick response time by attending staff and physicians, the need for welcoming and healing environments are now equally important. Single-patients rooms, nurse substations, a hospital enabling a continuum of care, and a place embracing nature to heal and provide respite are few of the key ideas which are gaining traction as communities build new healthcare institutions.

What we heard!

- Utilize innovative technologies to simplify processes: high tech with high touch.
- Streamline physical connections to reduce wait times and for ease in navigation.
- High Tech with High Touch.
- Be a knowledge provider.
- Develop a clear and simple wayfinding strategy for easy navigation.
- Create a restorative environment to reduce healing time and hospital stay for patients.



Hvidovre Hospital – SafeBuzz Wayfinding, Copenhagen, Denmark



A Healthier Niagara



Extraordinary Care

We provide the highest level of quality care by advancing a culture of safety and service excellence



Extraordinary Teams

We count on our extraordinary teams to deliver extraordinary caring and we are proud to work with the absolute best



Extraordinary Future

By investing in our hospital – through people, equipment and technology – and working strategically in our community, we will create the future our patients deserve



Extraordinary Innovation

We will collaborate and try new ways to deliver the best care to our patients and their families where needed

SOUTH NIAGARA PROJECT GOALS



Patient, Family, and Staff Experience

A design that supports and responds to the key elements of individuals satisfaction, health and wellness in a person's experience or journey through the facility.



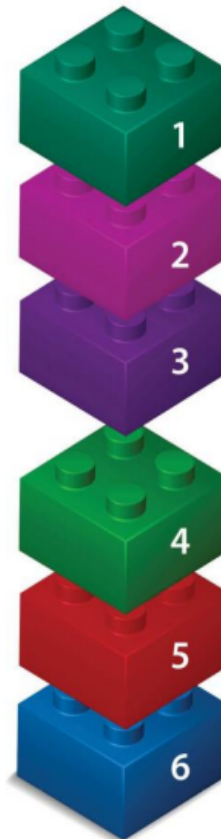
Operational Excellence

A design that supports patients, families, caregivers, staff and physicians in receiving and providing safe and quality care in the facility and beyond into the community. Where all individuals are equipped with the appropriate tools and access to information required for the right care at the right place and time.



Environmental Leadership

A design that supports the health of natural ecosystems at all levels - global, local and individual, and contributes towards reducing our carbon footprint, energy consumption and waste.



Connectedness



A design that strengthens social connection and processes within and across staff, physicians, patients and community partners. A design whereby patients, families and caregivers have access to community-based services, and supports seamless transitions within the community.

Accessibility and Inclusiveness



A design that supports all elements of accessibility and inclusiveness with a particular focus on Niagara's older adults.

Adaptable, Flexible, and Responsive



A design that meets the current needs and anticipates future needs in order to flourish the health of all individuals and environments in Niagara.

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6.0// FUTURE DIRECTION AND IMPLEMENTATION STRATEGY

6.1 NEXT STEPS

The final section of this report - Part C identifies specific critical future directions and implementation strategies to bring the vision developed by the NH community to life.

Divided into two parts, the first part of PART C identifies the need for further studies and design reports. These studies and reports aim to address the various themes of South Niagara Vision as well as the five domains under the Community Wellbeing Framework. The second part addresses essential implementation requirements which includes direction on administration and governance, monitoring and updates, the need for ongoing engagement, and the necessity to establish strategic partnerships.

6.1.1 Design Reports and Guideline Documents

While Part B of the Visioning Report incorporates specific design metrics which reflect the various 'themes' identified through stakeholder engagement, this section identifies additional opportunities. Identified under the heading of each 'theme' these opportunities range from further design reports to guidelines, and to design strategies for the physical development of the hospital building, its site and surrounding context.

Theme 1: Community Health & Wellness

- **Incorporate Community Wellbeing Framework** as a made in Niagara approach to further guide South Niagara Hospital campus planning master plan. The Community Wellbeing Framework addresses various building design and site design requirements and will be a crucial guide to inform the evolving design approach for the new hospital.

- **Facilitate the creation of a Continuum of Care Facility** on-site or within an accessible travel distance. The creation of a health campus was a recurring idea during stakeholder engagements. While the hospital site might have a limited capacity to host health and community supportive facilities, adjacent properties within the vicinity of the may be possible. A facility like this could provide rehabilitation services to recovering patients, have exercise space and equipment geared towards senior and patients with chronic illness, a place to access and interact with Public Health services, and be a social hub promoting wellness for the Niagara region community.

Theme 2: Focus on Patient, Family, and Staff Experience

- **Develop a Public Space Strategy** within the campus for indoor and outdoor spaces. The

design of public space plays a fundamental role in the comfort and experience of a place. Spatial quality, accessibility, natural light, views to nature, and proximity to open spaces, have the potential to influence the health and wellbeing of patients, care givers and staff.

- **Develop a Wellness Space Inventory** to guide space programming for the hospital. During the engagement process with NH staff and other stakeholder identified a diverse range of space such as smaller quiet areas, a place to repose, family areas, and amenities such as gyms and daycares. Engage staff and patient groups to guide the development of this space inventory.

Theme 3: Excellence in Senior Health and Wellness

- **Develop Universal Design Guidelines and Standards** for a senior friendly hospital. A substantial number of Niagara Health service



Family Resource Centre, Children's Hospital Colorado, Aurora



Creating a familiar environment, inclusive design strategy by St. Plav's, Norway



Project Statement & Goals

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SOUTH NIAGARA SITE

ABOUT

[Overview](#)

[Statement & Goals](#)

[FAQs](#)

Together, we are designing a new kind of healthcare that puts the focus on your health and well-being.

The South Niagara Site will embody a campus environment that fosters a community of connected care, will advance the boundaries of healing, and transform your experience in healthcare.

Project Reports

Since 2016, planning for the South Niagara Site has created a number of in-depth planning reports to guide the overall design direction for the new hospital. Many of these reports were undertaken and updated in 2019, and will form the foundation of the Stage 3 work beginning in 2020.

[Clinical Service Plan \(2016\) - Please contact Project Team for viewing.](#)

[Functional Program \(2016-19\) - Please contact Project Team for viewing.](#)

[Workplace Strategy \(2018 - 2019\)](#)

[Community Well Being \(2018-19\)](#)

[Campus Plan \(2019\)](#)

[Environmental \(2019\)](#)

[Wayfinding \(2019\)](#)

[Patient Journey Maps \(2019\)](#)

[Information, Communication and Automated Technology \(ICAT\) \(2019\)](#)

These reports collected research (ie. Lessons learned, best practices, and strategic insights), identify opportunities and constraints, present preliminary design guidelines and performance metrics for the South Niagara Site.



Protect Health



Illustrative Design 2021: Stantec Architecture



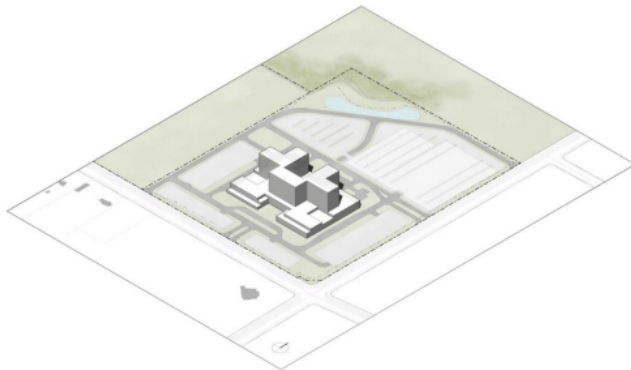
Protect – Develop – Restore Health



NIAGARA HEALTH
REPORT NUMBER: 191-07593-00

ENVIRONMENTAL PLAN SOUTH NIAGARA HOSPITAL

CONFIDENTIAL



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1.2 PROJECT SUSTAINABILITY GOALS

NH has identified eight environmental requirements which will guide the design and operational requirements encoded in the Project-Specific Output Specification (PSOS) developed in Stage 3, serving as the control document for the Design Build Finance Maintain (DBFM) process. These environmental requirements, summarized in Figure 4 below, include typical green building concerns such as energy, water and waste, as well as emerging considerations such as carbon emissions, health and wellness, and access to and integration with nature. This holistic approach to sustainability necessitates detailed exploration of NH' priorities and project-specific opportunities and constraints to develop performance targets and design recommendations that fully embrace its broad vision.

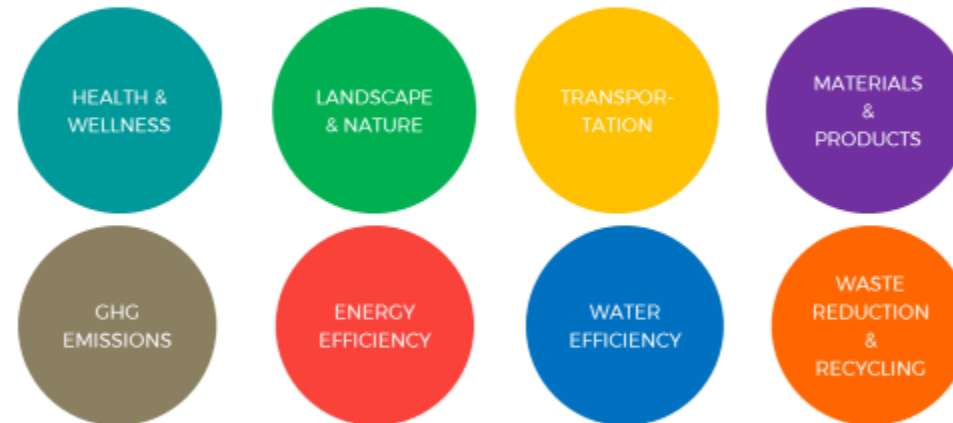


Figure 4: NH Environmental Requirements

Green building certification through the LEED and WELL rating systems, described in the next section, form one small part of the sustainability goals for the new hospital. The redevelopment team intends to leverage the evaluation tools and processes of these certification systems to guide design decision-making and identification of typical best practices for sustainability. Certification is not a sufficient goal in itself, however, and NH intends each of these environmental requirements to shape unique operational practices and ongoing performance monitoring throughout the life of the hospital.



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South Niagara Hospital - Climate Hazard, Risk and Resiliency Assessment

Understanding the risks of climate change and planning for the future



Niagara, Ontario

GENE ENTRANCE



Develop Health



Illustrative Design 2021: Stantec Architecture



Protect – Develop – Restore Health

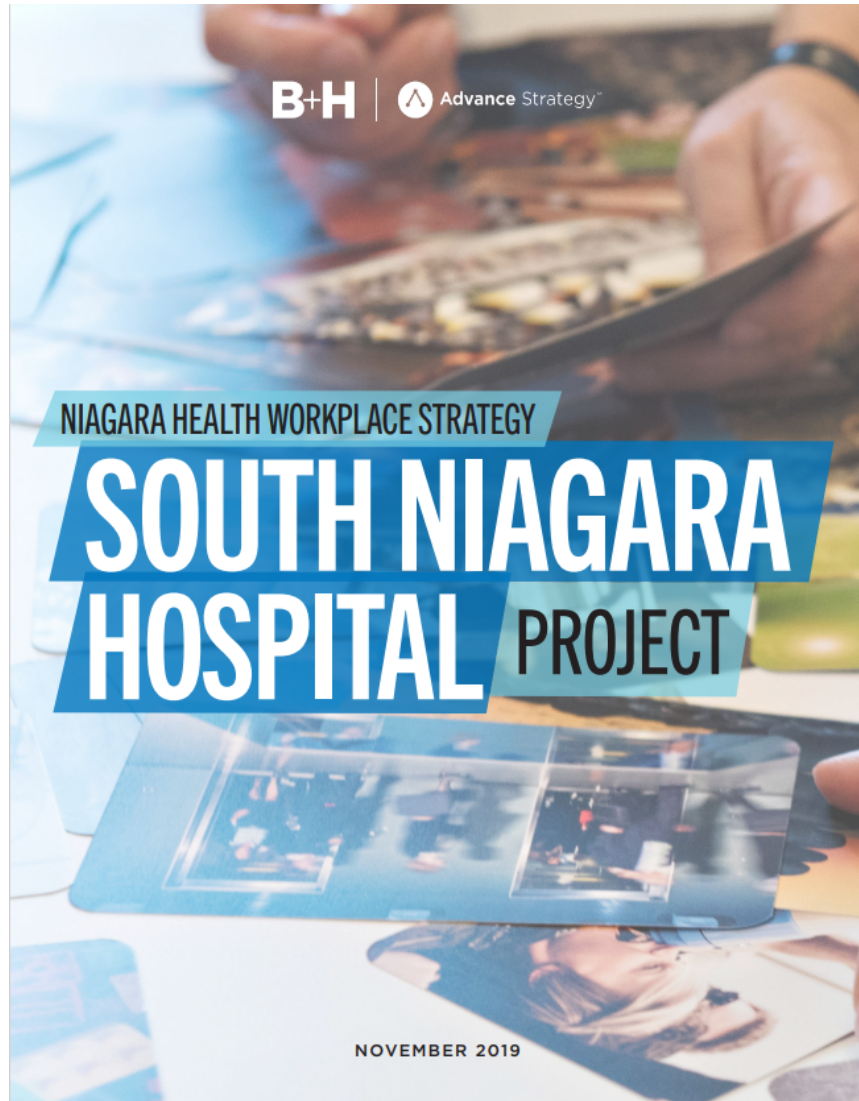


WELL® Certification

Niagara Health has registered the South Niagara Hospital Project with the International WELL Building Institute to work towards becoming WELL® v2 certified.

Working toward being the first WELL® Certified Healthcare Facility in Canada

Niagara Health has recently registered the South Niagara Hospital Project with the International WELL Building Institute to work towards becoming WELL® v2 certified.



01

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SOUTH NIAGARA HOSPITAL PROJECT



Restore Health



Illustrative Design 2021: Stantec Architecture



Protect – Develop – Restore Health



Operational Excellence

A design that supports patients, families, caregivers, staff and physicians in receiving and providing safe and quality care in the facility and beyond into the community. Where all individuals are equipped with the appropriate tools and access to information required for the right care at the right place and time.



Here are a few ways we are working towards our goal:

- 100% single patient rooms for improved privacy, and space for caregiver/family
- Preparing for future growth and demands through the use of hybrid and generic rooms that can be adapted to meet the hospital's needs
- Advanced pandemic and surge planning (increase demand for hospital resources) that provides site flexibility from isolation and outbreak areas to decontamination
- Improved integration of technology including, 100% wireless infrastructure, nurse call system, Niagara Health (NH) Navigator and Virtual Care integrations
- WELL® Certification – a building standard that prioritizes the health and well-being of the staff, patients, and visitors by focusing on 10 concepts: air, water, nourishment, light, movement, thermal comfort, sound, materials, mind, and community



Indigenous Health

Indigenous Task Force



SNH Functional Program: Indigenous Health

SNH RFP Requirements: Indigenous Artists / Architects

SNH PA Requirements: Workforce / Engagement Plan

Niagara Health celebrates Indigenous Inclusion Month

Posted Sep 9th, 2022

This month, we are celebrating our second Indigenous Inclusion Month at Niagara Health. We are committed to making the hospital a safe, culturally welcoming space for Indigenous people that meets their healthcare needs and respects their traditions.

Niagara Health has dedicated the month of September to learning about the experiences, rich traditions and teachings of Indigenous peoples in Canada. Niagara Health's Diversity, Equity and Inclusion Committee developed this initiative to educate, inspire and spark conversations about providing safe, high-quality care to everyone who enters the hospital.

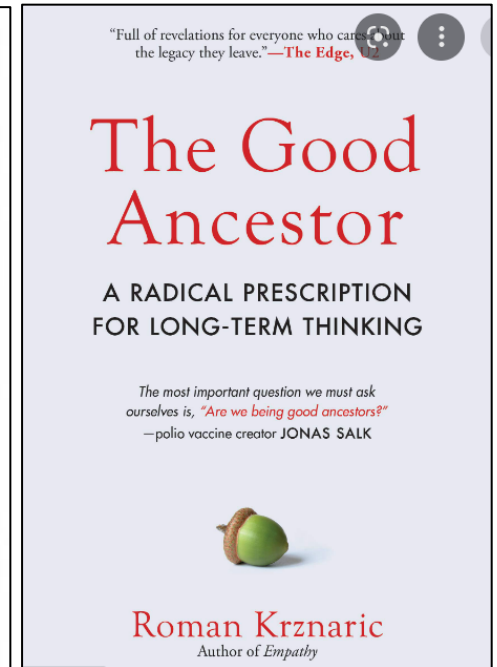
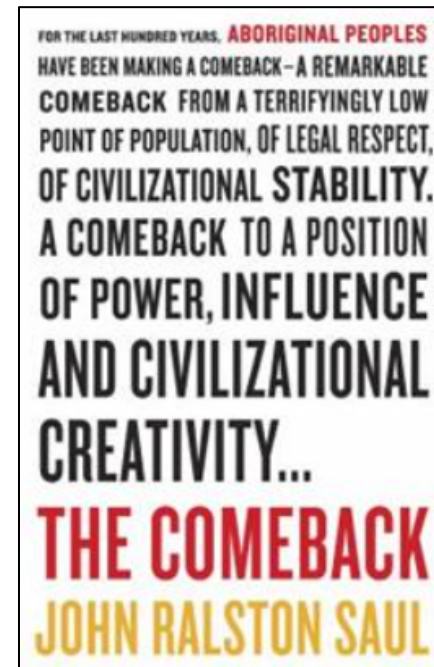
Indigenous involvement in establishing culturally sensitive healthcare is critical as Canada moves toward reconciliation. Niagara Health is learning and growing to ensure the hospital serves all patients by bringing together Indigenous worldviews and health and wellness philosophies, which include maintaining a balance of physical, mental, emotional, and spiritual elements, with Western healthcare models.



New Indigenous Advisor building bridges to improve healthcare

"Niagara Health is in a great position right now and everyone is open to change. I'm going to walk with you. I have no idea where it's going but I'm all in."

[Read story](#)





Patient Journey

Niagara Health Visualizations

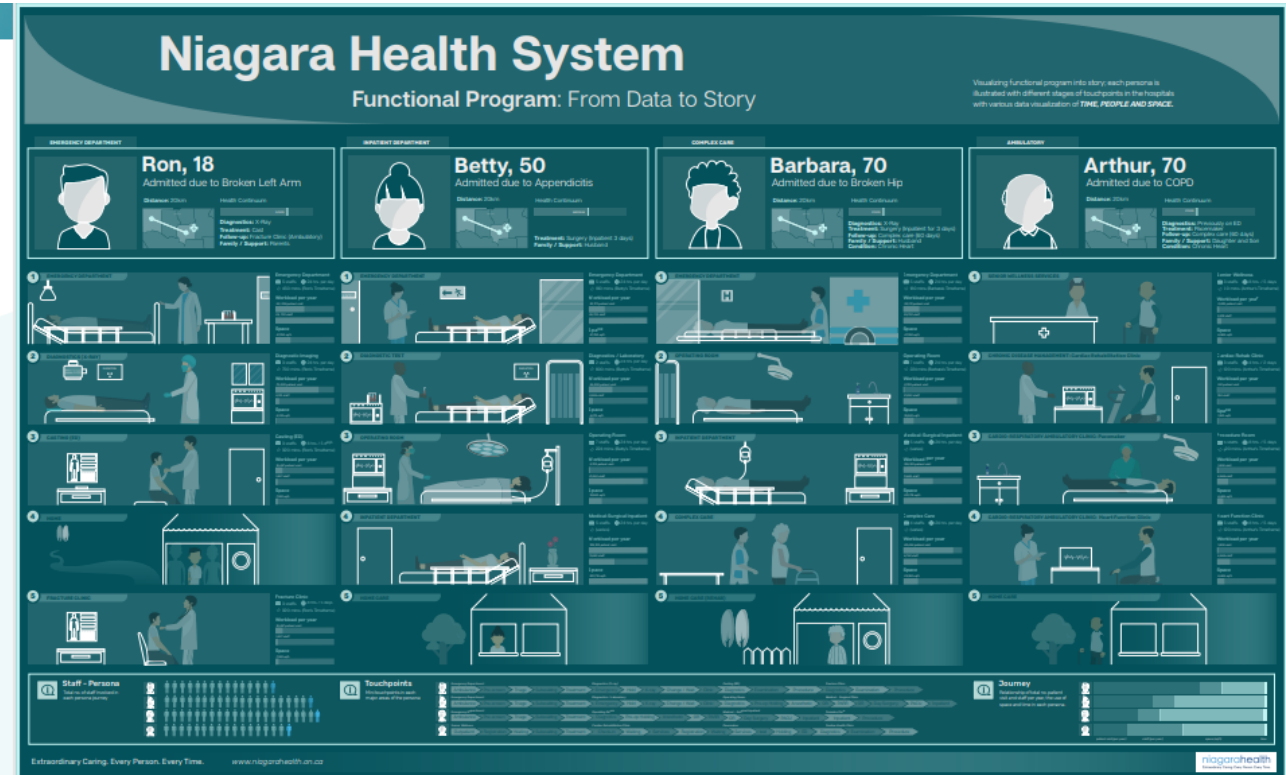
V1.0 NIAGARA HEALTH
July 11, 2019

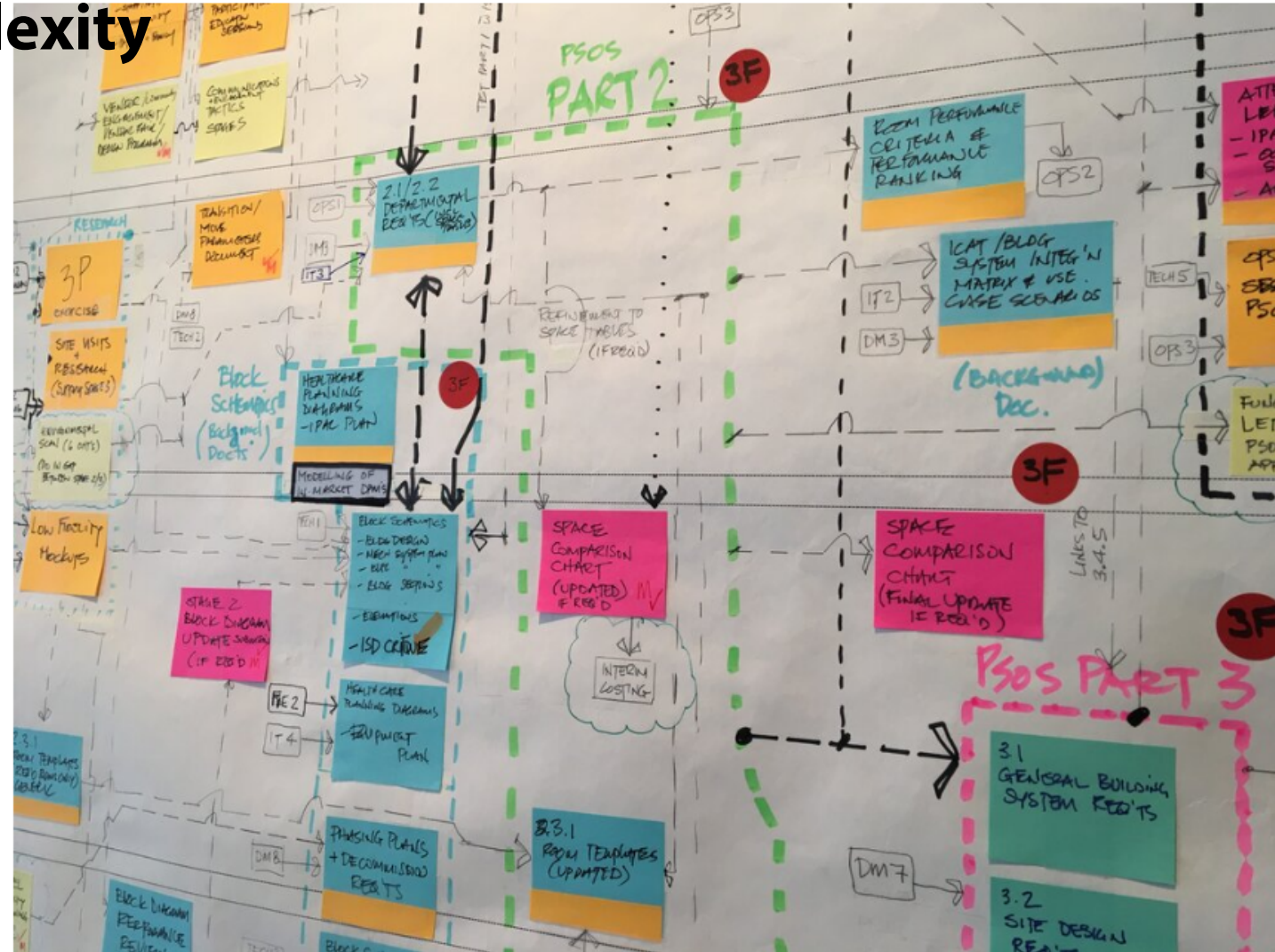
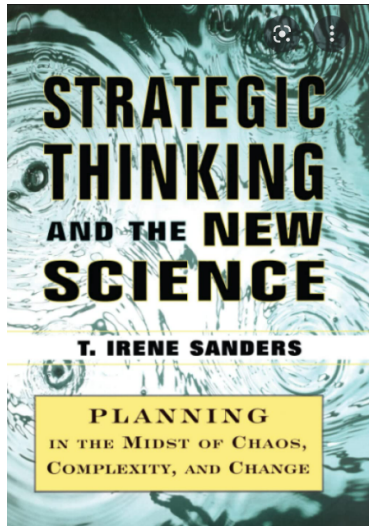
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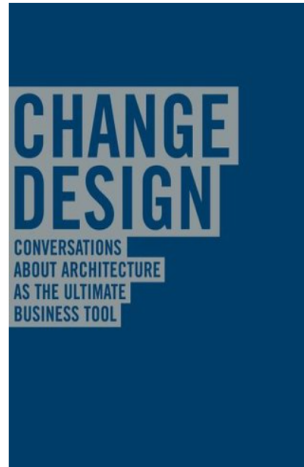
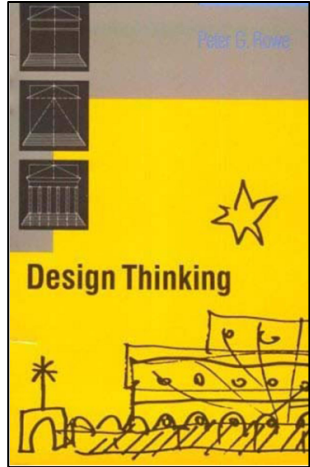
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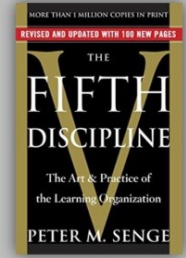


Design Thinking



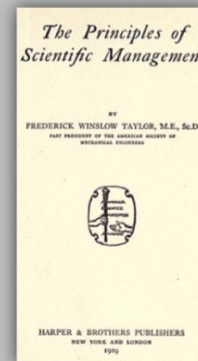
Dimensions of a Learning (Professional) Organization

System Thinking
Mental Model
Personal Mastery
Team Learning
Shared Vision



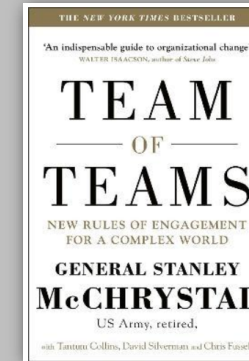
Shift from Scientific to Design (Thinking) Management

Manufacturing



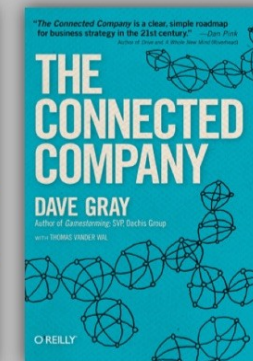
1919

Defense



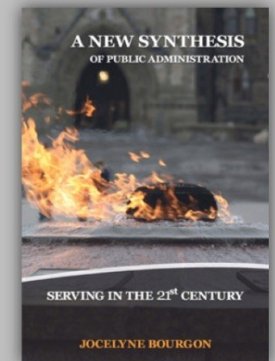
2017

Service



2012

Public Admin



2011

Simple to Complicated to **Complex**



Managing Complex Projects ... and more

Foresight: It is Never needed More!

Questions

Cliff Harvey
Chief Planning Officer
Niagara Health

Cliff.Harvey@NiagaraHealth.on.ca

