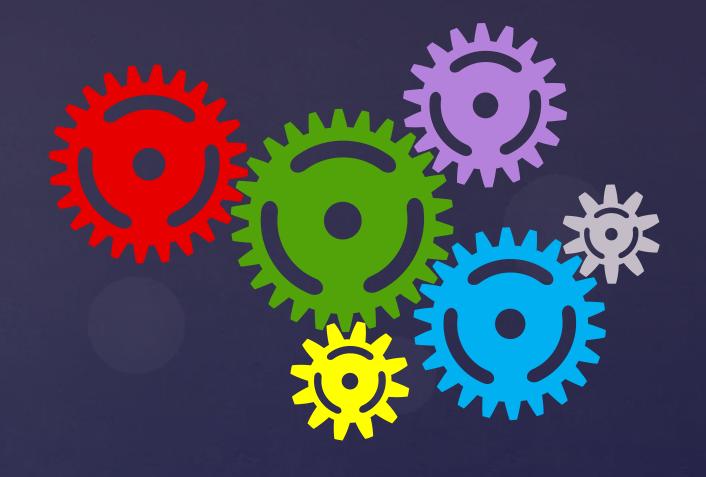


Implementing Design Thinking + Charrette Process in the Classroom

Deb Domres . Katharine Leigh . Amy Rubinson . Cassie White Colorado State University 26 February 2016



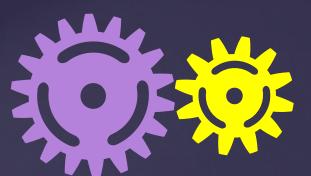
Welcome + Introductions

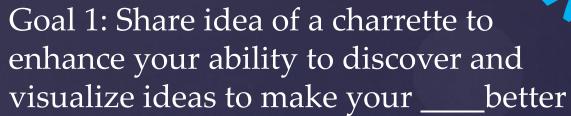


- Draws upon tools in both design and business venues, creating a framework that integrates user needs, powerful ideas, and enterprise success (Lockwood, 2009)
 - Gear 1: aims to achieve deep user understanding and establish a context for innovation and value creation – to gain context – what users do and how they feel
 - Gear 2: focuses on concept visualization as the goal implements tools
 during the strategic creation to explore a broad set of solutions. Creative
 tools, such as prototyping and ideation, enrich and generate novel solutions.
 - Gear 3: identifies through analysis which strategies will drive success, prioritizes activities in delivering those strategies, and defines how strategies fit together strategically, operationally, and economically (Lockwood, 2009)
- Through this, "broad concepts [align] with future realities through strategy formulation and design of the business model itself" (p. 40)



Three Gears Theory (Fraser, 2009)





Goal 2: Provide structure behind ideas

Goal 3: Share our charrette experience



Goal 4: Share the outcomes of the charrette

Session Goals





What is a Charrette?



...a charrette is defined as an intensive workshop in which various stakeholders and experts are brought together to address a particular design issue, from a single building to an entire campus, installation, or park...

Definition

Ingredients:

- Problem or Challenge
- Diverse Stakeholders
- Unlimited Ideas
- Flexible Space
- Visualization Tools
- Structure (time frame, outcome products, next steps)



Recipe for a Charrette



Design Thinking





...design thinking is a process—applicable to all walks of life—of creating new and innovative ideas and solving problems...not limited to a specific industry or area of expertise....

Definition



О

Define

What is the Problem set?
Define it by highlighting the key points.
Understand what the problem is, selling, promotion, display or message?
Do you understand what the client is asking?
What type of design, the format (Postes, Digital or printed) and what type of design do they want created
(Typography, symbolic ect.) Does the client Understand?
Do they know exactly what format the finalised product will come in?
Do they understand what they are being chanced for

Do they understand what they are being charged for?

Agreement of Terms, Agree to deadlines, the price average, and what standard of work they expect to recieve, and enterther it covers your back at the same time I Plans in the Brief Look at the brief, make sure that everything is covered, check if arything might not work, or is out of your control. Also see if the work needed is possible to do, and cost effective for the client.

Can you manage it ? Only you know your talents and limitations, if the workload is something you can take on, and will you finish it to the deadline set?



It is very importent to do constant research when creating your brief. It should be the starting point, something to start basising your ideas on. Think about the target sudience, what age group.

what kind of design represents them?

What is appropriate,
and what can the audience relate to ?

Research other designers we what is up and coming,
or what is happening in design now.

Research also relates to the brief.

look at other artists who would of done similar briefs, look at the colours, and the finished copythis can sometimes give you an idea what your end product should look like.





This is where you start developing some Idea, who your reparch, look at what you want to produce, and creating same original ideas roumed, this could he rough versors, or fully finished. Gather a few Ideas so not can variable

the colours or fonts, and a few different deatm idea, make sure ther are completely different,

so the client can have a few actions to draws from, namenber ther may not have

de same ideas sa rou, so misht lies something which you don't.



When you create a modal, or you have to print always make sure you run a prototype copy of your product or lefts. This could stee you a large amount of none; Check when printing all the colours will be correct, or if the mock up model you have created to help present an idea.

Works to full ability.

If you don't take him consideration.

testing your design, then don't expect your cleant to be willing to gamble with their money.

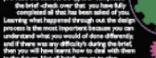




This is when you start looking at your designs, all the variations, and different designs you have. Selecting the few that you want to put for ward to your client to doose from creating many variations of (on average 3+ different design ideas, not including

variations) these will give you's general idea wat the client may want also you can see what

colours work, or what difference changing the fant can make.



in the future. Not all briefs can go to plan, but that is all part of the learning process, the important thing is to

This is the most important part of the whole design process.
After the client is happy with the design, and officially signed is off, insising sure you provided the correct file type, or completed

learn from the superience.
Adhinovisiging WHY the client chose that picture piece of design can also help you create a tiple which it unique, and a tiple that you can sell to clients.

Learn



and the vertations then It's time to select what designs, and which ins you want to linds and present to the client. Be attical on your work,

If it doesn't fit the brief, than don't include it. Remember the dient will want to see ways that the logo can be presented as well, this maybe surfacts, or creating billboard modi-ups



By Emily Fletcher

expertise		Design Thinking Models (Tschimmel, 2012)				
model (Kruger & Cross, 2008)	IDEO's 3 I Model	IDEO's HCD Model (Human- Centred Design)	Model of the Hasso-Plattner Institute	4 D / Double Diamond Model (British Design Council)	Service Design Thinking (SDT) Model (Stickdorn and Schneider)	
1 Gather data	Inspiration Identify design problem or opportunity. Deliver the design brief to define a common framework. Observe the target group's behaviour in the design task's context.	Hearing Collect stories from people. Prepare and conduct field research.	Understand Gather existing information through secondary research.	Discover, Search for new opportunities, new markets, new information, new trends, insights	Exploration, Understand customer culture and real service problem. Visualize the context. Design the process.	
2 Assess value and data validity 3 Identify constraints & requirements			Observe Qualitative research: observation, interviews, insights on users' needs	Define, First insights are reviewed, selected and discarded. Initial development of project ideas.		
4 Model behaviour and environment			Point of View Share insights among the group with storytelling. Synthesize a visual framework of the user's perspective.	Develop Develop and test solutions by multidisciplinary team. Brainstorming, sketches, scenarios, renderings or prototypes	Creation, Generate, test and improve ideas and concepts	
5 Define problems and possibilities 6 Generate partial solutions	Ideation Synthesis process. Transforms observations into insights. Brainstorming, visual representations. Insights lead to propositions.	Creating Workshop to translate insights into frameworks, opportunities, solutions and prototypes. Iteration between "abstract" and "concrete"	Ideation Identical to the Ideation of the 3 I model		Reflection Building on ideas and concepts, prototyping - closely related to previous stage	
7 Evaluate solutions 8 Assemble a coherent solution	Implementation Action plan for selected ideas. Use of Prototyping. Development of a communication strategy.	Delivering Action plan for selected ideas: rapid revenue/cost modelling; assess capability; implementation planning	Prototype Identical to the Implementation of the 3 I model Tests Identical to the Implementation of the 3 I model	Deliver. A final concept is taken through final testing, signed-off, produced and launched	Implementation. Communicating and testing the new concept. Improving the prototype.	



The Design Thinking "5 stages" process

1.Prepare

WHAT IS DESIGN THINKING

HOW IT WORKS

REAL CASES

Describe the problem, the future state, assess risks, identify stakeholders

2. Research

Understand people and the context, incorporate different perspectives, define patterns

3.Ideate

Brainstorm
solutions, Pridescribe
solutions,
create "napkin
pitch"

4. Assess and Experiment

Prioritize, assess assumptions, make POC

5. Launch

Execute on real customers, learn

Elaborated on Design Thinking, Prof. Leanne Liedtka, Darden School of Business



www.pm-progetti.it | michele.maritato@pm-progetti.it Michele Maritato, MBA, PMP, PMI-RMP, CBAP, CSM, PSM I, PSPO I, PMI-ACP

11



Co-creative ideation is followed by exploration that focuses on both qualitative and quantitative validation

Idea

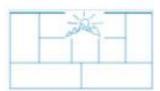


Generate fresh ideas to tackle critical business challenges



User research

- User studies
 Discustudies
- Diary studies
 Photographic
- investigation
- Bhnographic studies
- Surveys



Model Generation

- Business canvas
- Startup canvas
- · Change canvas



Design Thinking

- · Empathy Maps
- · Directed storytelling
- · Elito method
- + otc.

Explore

Explore first using qualitative methods...



...then using quantitative methods Research and explore in order to refine assumptions into measurable hypotheses



User Centered Design

- User personas & journeys
 User Goals & Tasks
- + eb



Customer Development

- Customer/Problem Rt Interviews (Problem Exploration)
- Problem/Solution Fit Interviews (The Mafia Offer)



Data Analytics

- Segmentation
- Market
 Customer Lifecycle
- Predictive



User Testing
 Competitor testing



DESIGN THINKING QUESTIONS

DESIGN THINKING is a human-centered approach to identifying and solving a wide range of problems, built on collaboration, creativity, and empathic understanding of human experience. The diagram below represents the iterative process of exploration and creation to finding solutions that are useful, usable, and delightful.

DEFINE: What are we trying to solve? How we define the challenge has a big importion what we do next. Be precise in your words, and frame the question as. "How might we ...?"

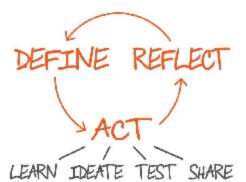
Questions to get started.

- , WHAT ARE OUR LONG-TERM GOALS!
- . WHAT ARE OUR IMMENIATE COALS?
- . WHO ARE WE bOIRD THIS FOR?
- . What are due certisely like success?

LEARN. How might we discover the needs of those we are designing for? Gain understanding and empathy by observing listening to startes, and studying the world around you.

Questions to get started.

- bulkers can use der werkerb?
- · WHO CAN IVE LEARN REGILE?
- . WHAT IS THE LANGER CONTINUE?
- WHAP'S ALASADY BEST DOME?



REFLECT: How do we learn and improve? Pausing for the Peculon creates apportunities for insight and connections. Make time to reflect, it will be the Best thing you do.

Questians ta get started.

- DUNATION WE LEARNE
- WHAT WAS MOST SIGNIFICANT FOR US?
- Make MASHEWS by IT DIFFSSHELD?
- HOW DO WE PEST ABOUT OVE WORK?

SHARE How do we best communicate our concepts? A good story helps colleagues and customers understand feets, build consensus, and provide valuable feed back for future growth.

Questians to get started.

- . Who are we resenting to?
- . Maker smaybe has leader to the 12
- . Who is the uses of ove storie?
- . WHAT ARE OVE MAIN PAINTS!

IDEATE Haw did you came up with new ideas? Callabarative creativity is at the heart of innavation. You need charrules, a facilitator, space for displaying ideas, and an inspiring environment.

Questions to get started.

- . WHAT TOPICS SHOULD WE SHOULDEST
- , WHO WILL LEAD THE SESSION?
- . WHA HA WE WANT TO PARTICIPATE?
- , but at late his bas later the disast

TEST How can we best evaluate our ideas? By emblacing both failure and success. Rapid prototyping and experimentation is away of life, and 'thinking by doing' accelerates our best ideas.

Questions to get started.

- . What can we registive aucklid?
- . Whase respeace ha we want?
- . WHAT SVESTIGHS CAN OUR PROTOTIPE ANSWER?
- , WHAT ASSUMPTIONS HAVE WE MAKE?



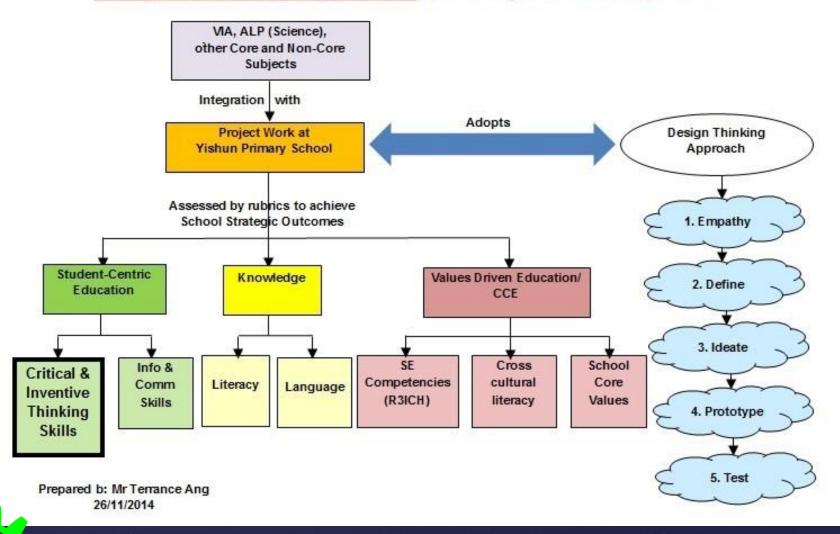
For project stories, free downloads and more, visit inspectionships an inspectores or call Scott Underwood of +1-650-283-4365.







Design Thinking Approach for Project Work @ YPS



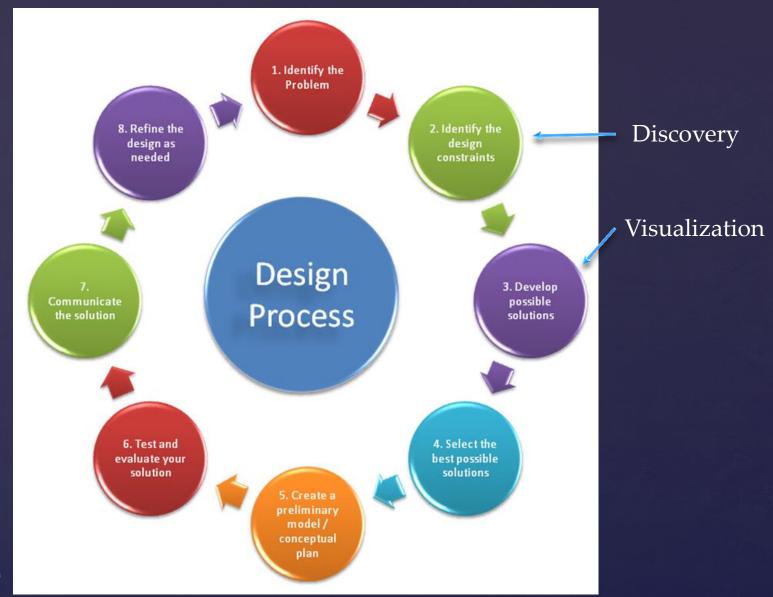


 According to the Design Management Institute (DMI) design-led organizations outperform other organizations by 93%, validating the critical nature and impact of design thinking on performance and productivity (2013)



 Value in discovery and visualization (Owen, 2006)

Applying Design Thinking





Design Process



The learning environment should

result from a planning and design process that involves all community interests.



Community Engagement Shaping the Environment

"Schools are more than just bricks and mortar;



...they are about visions for neighborhoods, communities and our state"





- Creativity and innovation
- Enhance teaching + learning accommodating diverse needs of all learners
- Serve as a center for the community
- Engage stakeholders (students, educators, community) in planning + design thinking process
- Provide for health + wellness, safety + security
- Make effective use of available resources and
- Be flexible, adaptable & sustainable

Addressing Needs of 21st Century Students

Familial Capital:
value in
developing
communal
bonds, and
collective funds
of knowledge

Social Capital:
community
resources and
support to
navigate various
institutions

Navigational
Capital: ability to
navigate through
systems regardless
of lacking attention
to people of color

Resistant
Capital: strength
developed
through
challenges to
inequality
/subordination

Aspirational
Capital: maintain
hope and dreams
despite potential
barriers

Community Cultural Wealth Linguistic
Capital: skill to
communicate in
more than one
language or style

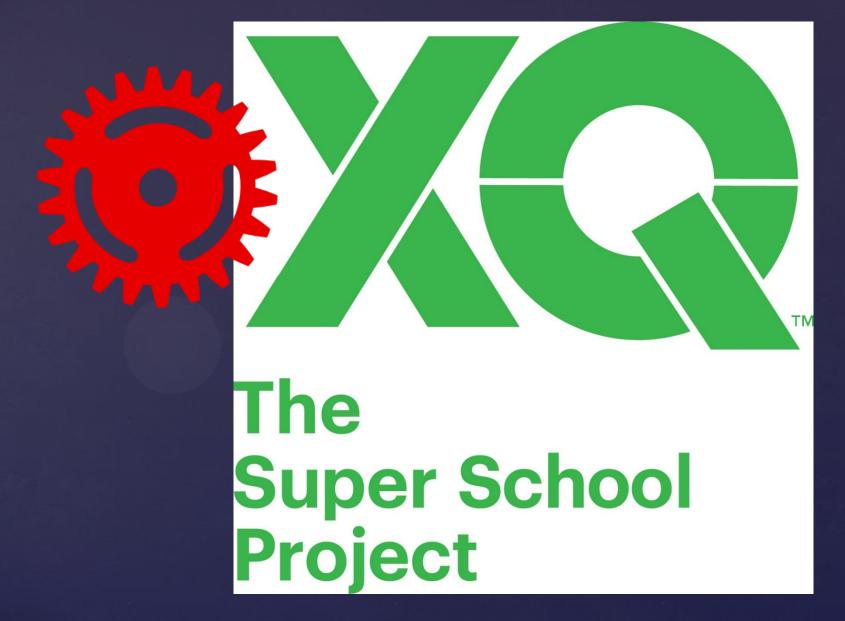
Guiding Principles: Community Cultural
Wealth

(Yosso, 2005)





The Montbello High School Charrette



HIGH SCHOOL OF THE FUTURE CHALLENGE



Information: Gathering the Resources

Engaging the XQ Green School Partnerships in Innovation Learning and Sustainability Noel Community Art School Deb Domres, MS Montbello Parents/Students Amy Rubinson, MS XQ Core Montbello Boys & Girls Club Katharine Leigh, PhD, LEED AP Team **Community Spiritual Leaders** Carole Makela, PhD Denver Dumb Friends League Courtney Guck, MS Denver urban Gardens Julie Bronson, MS Denver Juvenile Court System Education Montbello XQ Green Partners School Community Antonette Aaragon, Cultural Denver Public Schools Maura Giblin Smith, Design Thinking Colorado League of Charter Schools James Holdman, Education External Colorado State University Danielle Martini, Community Development University of Colorado Health **Experts** Amanda Romero, Nutrition System Cassie White, Graduate Student Advisory University of Denver Law School Cole Martini, Student Board Kampala Uganda Students Greg Hyppolite, Technology **CSU Interior Design Students** Brent Swanson, Legal Harvard EDX Nasser Albureit, Finance

2.8.16 kl

Diverse Stakeholders at the Table

- 1. What is the **issue** you are trying to address?
- 2. What are the **guiding principles** or values of your organization and how can you relay these to the charrette participants?
- Who are your **stakeholders**? Consider those who will use your services, who will fund your services, community members, and those who influence policy.
- 4. Where should you hold the charrette? (Consider the needs of your stakeholders. For example, if your stakeholders are low-income individuals, maybe the event should be in a location they can walk to or take public transportation to. On the other hand, if your primary stakeholders are policy makers, the charrette needs to be in a location convenient to their jobs. How can you accommodate all of your stakeholders' needs?)
- 5. What do you need to make your participants feel **comfortable sharing** their ideas? (Think about the culture of your target community, what environmental characteristics will make them feel their opinions matter, how can you be culturally competent, do you need to provide meals or snacks?)



Factors in Developing Your Own Charrette (p.1)

- Who will facilitate the charrette? (Who knows the culture of your organization well enough to relay that to the charrette participants and can induce energy in your participants encouraging them to participate and understand the value of their feedback?)
- What kind of experts do you need to support the development process on the day of the charrette? (Consider the key issues you are addressing, might it be helpful to have educators, community members, prior/current staff members, or students serve as experts to consult during the charrette process?)
- What information do your charrette participants need to successfully complete the task at hand? What types of handouts or presentations (live presentations or videos from TED talks, YouTube, podcasts, etc.) would help your charrette participants complete the task?
- What information do you want to know **before and after** the charrette? Would a pre-survey be informative for your big day? Is there any information you would like to collect after the charrette (through a post-survey)?



Factors in Developing Your Own Charrette (p.2)





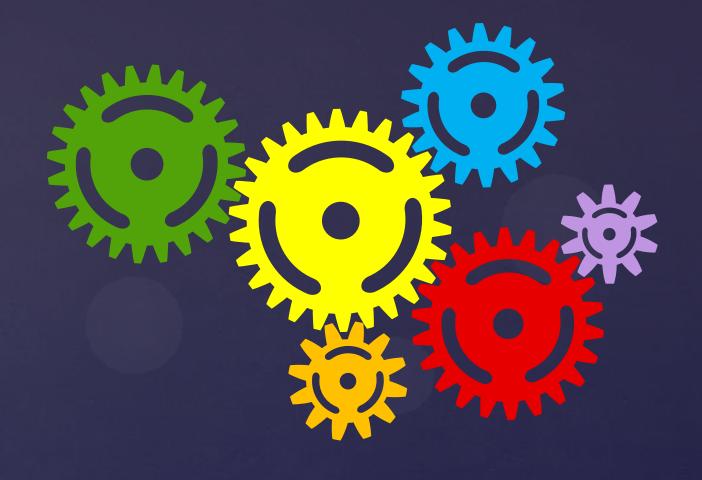
- Use footprint of Montbello High School
- Net Zero Campus
- Year round, late start, extended day, educational + community access
- Student work/career training opportunities
- On site student transitional housing
- Grants, research + student driven funding
- Rain water capture, recycling, composting, zero waste goals
- Alternative energy, WELL + ADA implementation
- STEAM and PODS

Guiding Principles: Charrette Guidelines

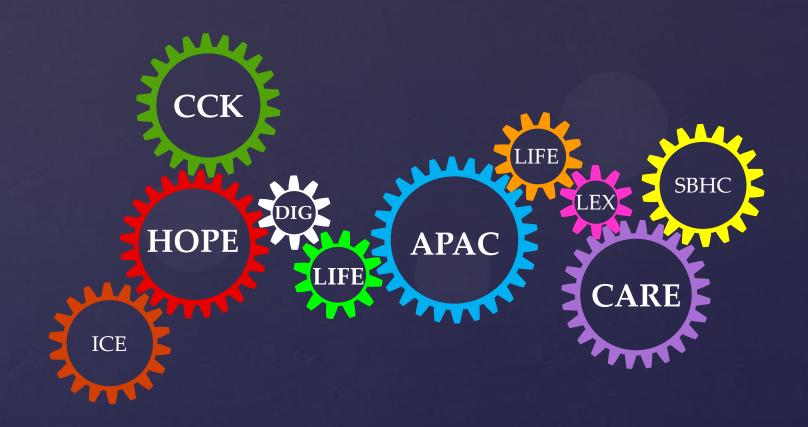
- Utilization of grounds for observation/research/learning/ meetings
- Reintroduction of native species + wildlife
- Outdoor labs
- Student designed projects capture: kinetic sculptures, waterfalls, ponds, etc.
- Community gym, sports, fields
- Joint ventures with B/G Clubs, etc.
- Funding, financial & sustainability opportunities



Campus Roadmap

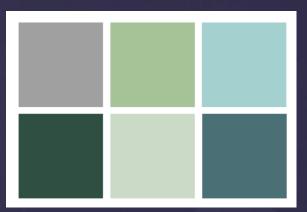


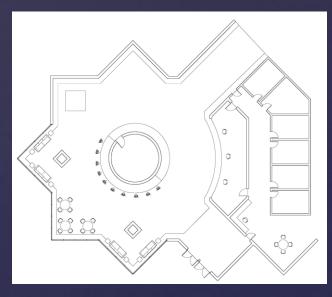
"POD" The vessel that contains the seeds of a plant



PODS Point of Design/Path of Departure









ENTRY + LOBBY RECEPTION

ICE/Interactive Community Engagement











LIVE/LEARN COMMUNITY

LEX/The Living Exchange

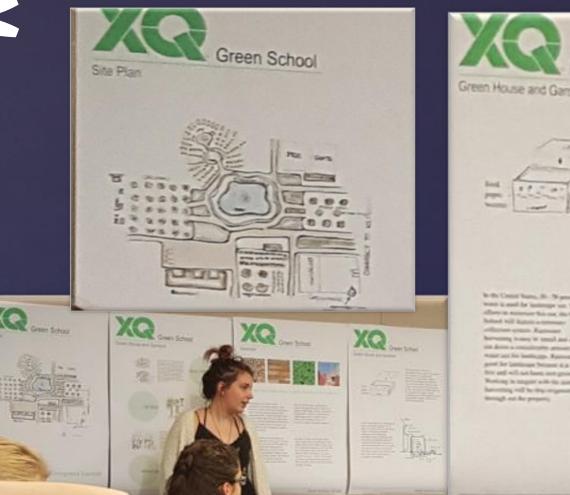


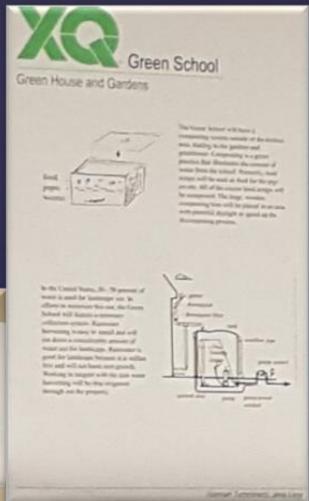


CAFETERIA + TEST KITCHEN

Community Cultural Kitchen (The Grubbery + The Bite)

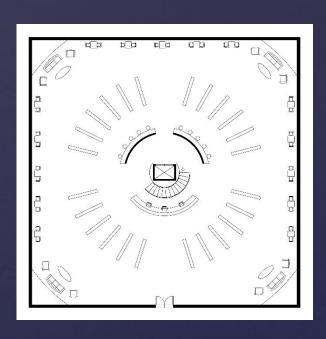






Green House + Community GardensDIG/Development thru Integrated Growth

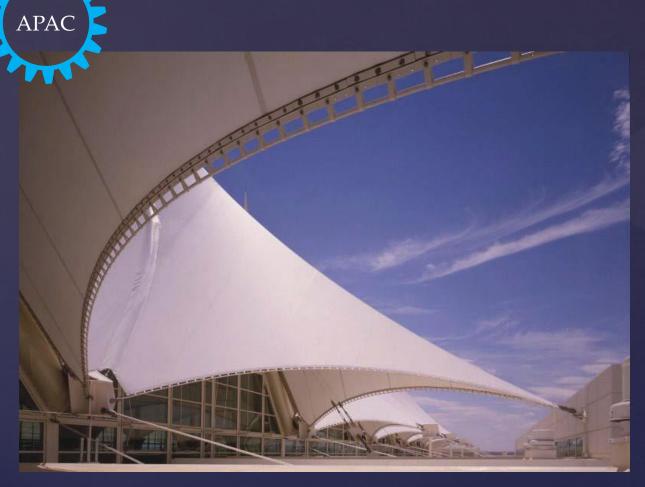


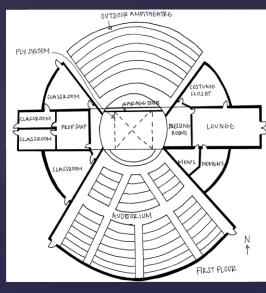




LIBRARY + TECHNOLOGY CENTER

CANOPY/Collaborative, Advancement, Nurturing, Outstanding, Performance, Youth





AMPHITHEATRE + PERFOMING ARTS CENTER

APAC/Amphitheatre Performing Arts Center









LIFE SKILL + RESTORATIVE JUSTICE CENTER

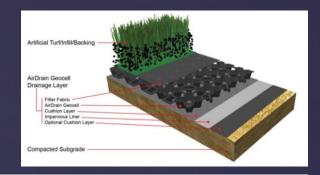
LIFE/Learning Interactive + Fundamental Experiences



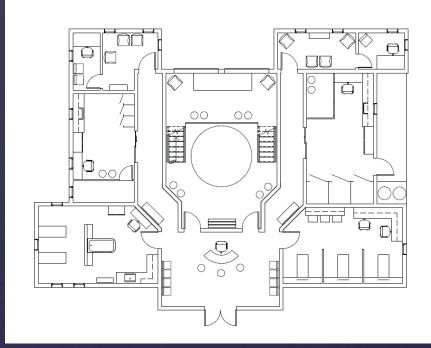
HOPE Housing
Enduring Vitality
Bringing long lasting,
continuous strength
and growth to
both the students
and the community alike.

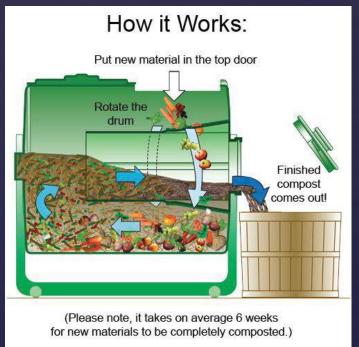
Student Transitional/Emergency Housing (Sports Arts Fitness Green System) HOPE/Have Only Positive Expectations







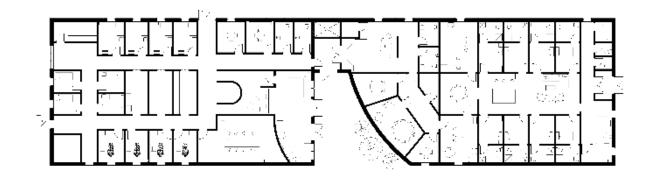


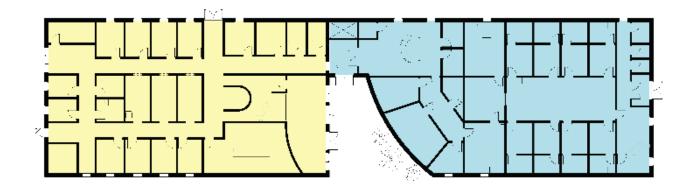


ANIMAL ASSISTED THERAPY

CARE/Comfort, Assistance, Rehabilitation + Empowerment







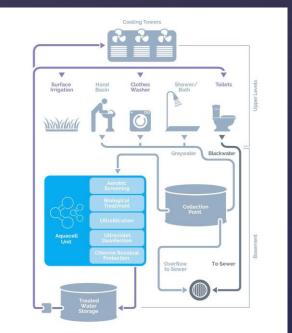
MEDICAL CENTER SBHC/School Based Health Center



Students Vision











CAFETERIA + TEST KITCHEN

Maya Fulton. . Carly Mansker . Erin Miller



Concept

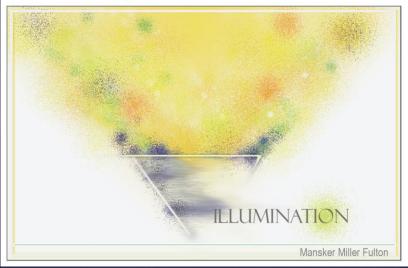
A flashlight allows for illumination and safe guided travel through the unknown. Highlighted objects become magnified, examined and ultimately familiar.

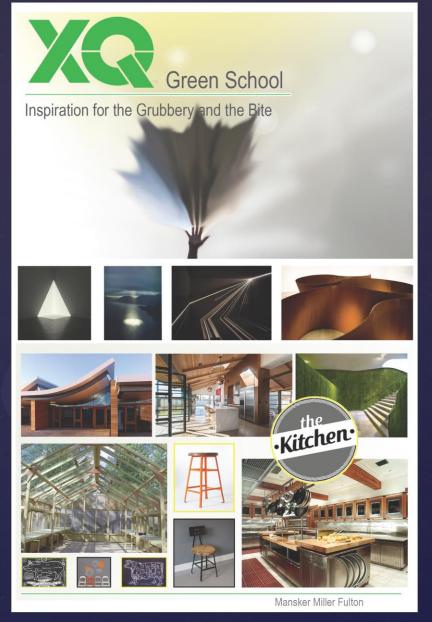
Problem Statement

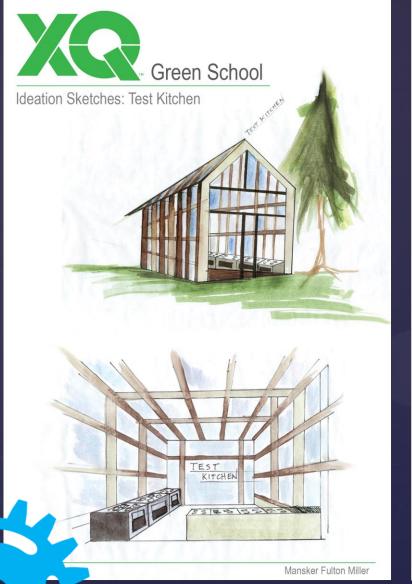
We have become increasingly removed from the way our food is grown, the resources that food production requires and the nutritional information needed for healthy lives. None of us would argue that food is not among the most important factors in any life, however far too many of us have lost a meaningful connection with our food.

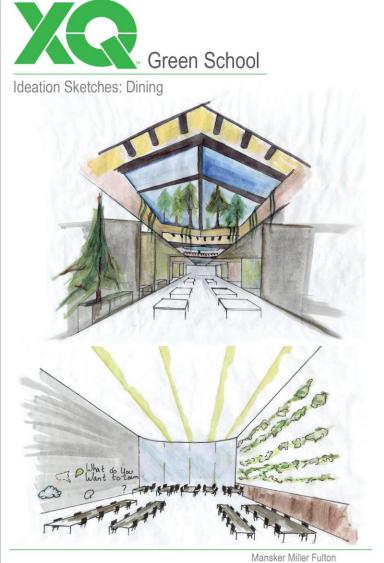
Solution

We will connect the Montbello community and Green School's students and staff to the joys of great food. We will guide students by teaching agricultural techniques tailored to their environment, cooking classes that focus on nutrition and experimentation and finally by providing meals to as many as possible in a safe and lively place. Creating and illuminating these pathways will lead our kids and community back to each other and the wide world of food.











The Grubbery: Renderings



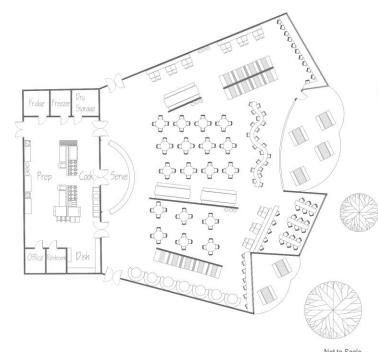








The Grubbery: Floorplan



NOT TO Scale

Mansker Miller Fulton



Sustainable Features

Energy Recovery Filter System

Greenheck's Energy Recovery System is designed for use over cooking equipment producing heat and grease laden effluent (Type 1 hood). The ERHS allows you to capture waste heat from your exhaust air-stream and per-heat your incoming cold water supply before it enters the hot water heater. The temperature differential also allows more grease to condense and be removed from the air-stream which leads to better capture and a reduction in hood and duct cleanings. (greenheck.com)



Commercial Composting





Richard Meier building particle-eating concrete



Several companies are developing smog-eating products that can be used in building facades, paint, plaster and priving materials. Extensive testing has determined that construction products containing stanium dioxide helps to destroy pollutants found in car exhaust and heating emmissions. Another benefit of these materias is that they essentially clean mselves, minimizing the need for maintenance. Titanium dioxide has photocatalytic pro ties: sunlight sets off a chemical reaction that accelerates natural oxidation and hleps to break down nitrogen oxides emitted in the burning of fossil fuels. (NYtimes.com)

Living Wall Plumbing Section





The benefits of having living walls indoors are numerous. Living walls add tremendous aesthetic value as living works of art. Indoor plants cool their environment by way of transpiration and increase indoor air quality and provide energy savings by helping to cool indoor spaces by 3-7 degrees C. They also mitigate glare and the urban heat island effect. Living walls act as acoustic barriers that dampen noise pollution and promote health and wellness. Studies have shown that even having a view of greenery increases workplace productivity, (greenovergrey.com)

Sustainable Sites +	Gridt 3 Introdec Prof Management, Stores Control and Lamborist Management Plan (Toxici)	Ī
	Credit 9: Ella Development Protect at Stanlara Oper Holdstel (1 panil)	
	Craff & Stormorto Guardiy Cortol/Typed)	
	Credit Y. Y. Heal Schold Photoclare. Non-Rord (1 post)	
	Gradit & Light Policitor Restrictor (1 point)	
Water Efficiency	Creek 5: Oliver Pfficent Leetin, aping (5.5 (ninh)	
Exergy & Almosphere	Credit Coptinion Deeps (Stockers Pediamente (5.16 points)	
Materials & Resources)	Credit Sestimate Furthering Faults Aberdon and Addison (1 point)	
Indoor Environmental Quality	Gradit 1.4 WG Seel Management Practices, Feduce Ports Albeit B. All Distriction (1 part)	
	Owalt 2 1: Occupied Swifter Occupied Swyvy (1 pilet)	
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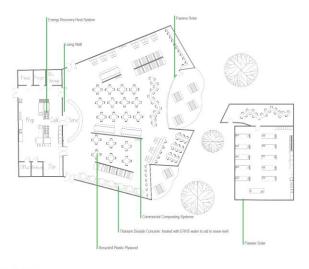


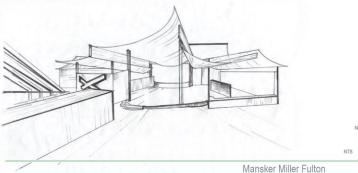
Grey Water Collection System

Mansker Miller Fulton



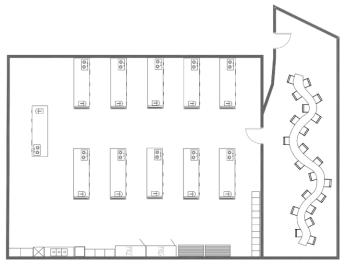
The Grubbery: Sustainable Features and Roof Sketch













The Bite: Renderings





Mansker Miller Fulton



School Lunch







programs and expanded food programs.





The myth of the value meal

The loss of a social family

The public health



The policies have gradually been implemented and in 2014 have been in full effect with mixed results. Many schools, 47% of those polled, report that school lunch numbers are down significantly and that no school has yet met the updated nutrition standards, which include that 100% of the grains be whole grain rich, far lower sodium in food across the board and the Smart Snacks in Schools rule, which limits the calories, fat, sodium, and portion sizes for food and

child nutrition issues and the modern American diet. The legislation authorizes funding and sets policy for the USDA's core child nutrition

Researchers from Cornell and Bringham Young Universities published a study in Public Health and Nutrition showing that the mandate to serve a fruit and vegetable with each school meal results in a nearly 100% increase in waste with about \$3.8 million worth of produce being thrown in the trash each day, or \$684 million a year.

beverages sold in school vending machines and snack bars.

So what does this mean for XQ? Starting at school age is too late because studies show that we develop our food preferences in the first two years of our lives and the reality is that kids eat what their parents eat.





Mansker Fulton Miller



















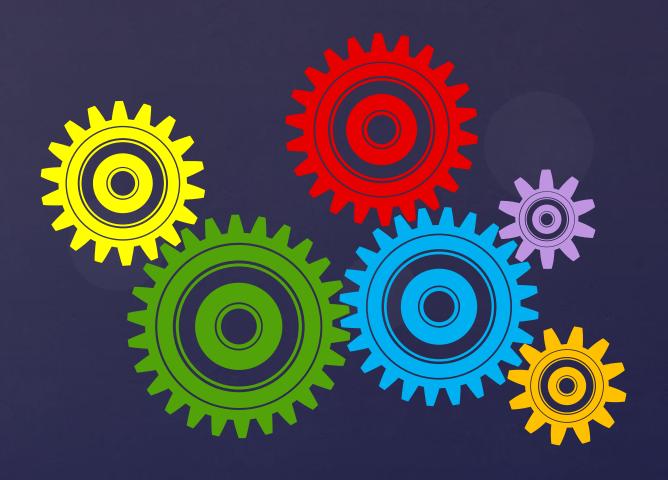




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"A Collaborative Project for a School" YouTube: https://youtu.be/3uZwRFkTVWI



Questions

Thank You

Colorado League of Charter Schools

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The Best Way to Predict Your Future is to Create It!

For Additional Information

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