v2023.1

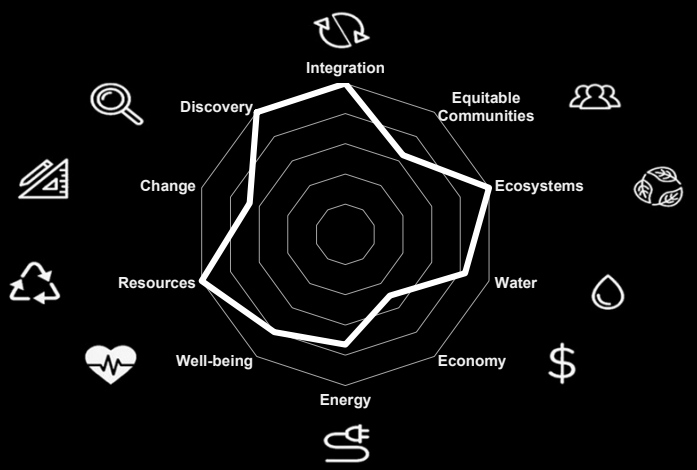
COMMON APP FOR DESIGN EXCELLENCE

AIA COTE Top Ten Toolkit

Enter information into the below fields to the best of your knowledge.
Fields that are not applicable or where information is unavailable can be left blank.

The spider chart to the right is a visual representation of your project's performance as it relates to the AIA's Frameworks for Design Excellence (F4DE). The intent is to use it as a comparative tool where you can quickly visualize areas of strength and opportunities for growth or improvement. Higher performing measures will have longer spokes that reach the outermost concentric circles, while measures that have greater potential will align more with the core of the chart.

Please report any bugs via this link: https://forms.gle/XXKfFB1Gg65PAwjo7.
All reported issues will be reviewed by the COTE Network, and feedback will be incorporated into the next annual update.



	INPUTS	UNITS / DEFINITION	LINKS / SUPPORT
PROJECT INFORMATION			
Project Name	Whittier College Science & Learning Center		
Client	Whittier College		
Is client to remain confidential?	☐		
LOCATION + SIZE			
Address	13406 E. Philadelphia St		
City	Whittier		
State / Province	California		
Zip Code / Postal Code	90601		
Country	USA	*For proj outside the cont'l US + Hawaii, find your US equivalent climate zone here →*	US Equivalent Zip Codes
Climate Zone	3B	*Find your US climate zone here →*	ASHRAE climate zones
California Climate Zone (if located in California)	CA9	*Find your California climate zone here →*	CA climate zones
	Building Type / *Percentage of total GSF*		
Building use — Primary building use | Percent of total area	Laboratory — 60%	*Find building type definitions here →*	EIA building type definitions
Additional building use | Percent of total area (if any)	Education - College / University — 40%	*Energy baselines are auto generated based on the Zero Tool →*	Zero Tool
Additional building use | Percent of total area (if any)		*For laboratory buildings, assign 100% of the area to Laboratory →*	Lab21 Benchmarking
	100%	*← This number should equal 100%*	
Project Scope	Renovation		
Number of Stories	5		
Total Floor Area	88,000	GSF — *Conditioned space + non-conditioned programmed space*	
Site Area	68,000	SF	
Floor Area Ratio	1.29	*← This is the intensity of land use (higher is better in a an urban setting)*	
COST DATA			
Permit year	2015		
Total Construction (Building) Cost	$ 37,488,000	USD — *Do not include land acquisition, soft costs, FFE, etc.*	
Cost per GSF	$ 426	USD/GSF — *This auto calculated field can be overwritten*	
USE DATA			
Annual hours of operation (during normal use)	80	Hours/week — *For example, 24/7=168, Weekdays 9-5=40, Weekend 9-5=16*	
Typical occupancy	1515	People — *Occupancy during normal use*	
Total person hours	6,302,400	Person-hours/year — *This calculated value is the building's intensity of use*	
2030 COMMITMENT + RATING SYSTEM			
2030 Challenge Goal	70%	Energy reduction — *from the Zero Tool baseline (CBECS 2003)*	
Is the submitting firm a signatory of the AIA 2030 Commitment?	Yes	*Learn more about the AIA 2030 Commitment here →*	AIA 2030
Is the project recorded in the AIA 2030 Design Data Exchange (DDx)?	Yes	*Learn more about the DDX here →*	AIA 2030 DDX
Is the project certified with a third party rating system?	No		
If so, record the certification(s) and year(s) achieved (not targeted)			

Measure 1
Design for Integration

Good design elevates any project, no matter how small, with a thoughtful process that delivers both beauty and function in balance. It is the element that binds all the principles together with a big idea.

AIA Framework for Design Excellence for detailed strategies

UNITS / DEFINITION

LINKS / SUPPORT

Project Summary Statement

On campus, every student is required to take coursework in the sciences, and the old, mid-century building needed updating to accommodate 21st-century modes of teaching and learning. Following an intensive feasibility & utilization study, the team proposed seismic and accessibility upgrades, as well as new utility infrastructure and equipment.
One design goal was to open up all facades to the abundant natural daylight of Southern California. The north facade allowed for greater exposure and thus the removal of the entire, opaque, pre-cast facade. While the south facade, for structural as well as solar reasons, resulted in more strategic panel removals. This new transparency activates spaces that were formerly defined by walls and closed doors. Labs and classrooms, which have been reconfigured, feature at least one glass wall, revealing activities inside to passersbys.
A strategic cut into the existing building slab allows for a spacious, two-story lobby to form its signature “WOW” moment, a new helix-inspired, spiral staircase. Open study spaces, strategically located throughout the building, create opportunities for students and faculty to have meaningful interactions beyond the classroom. With these improvements, the building now supports modern science pedagogies, particularly those rooted in technology, collaboration, and

Describe your project. Emphasize design achievements including design intent and program requirements. Describe specific ways in which you achieved and integrated these goals and requirements and any other distinguishing aspects of your project.

Client Impact Statement

Prior to the development of this project, another Design Firm had been tasked with re-envisioning a Science & Learning facility for the 21st Century at the College. Their solution was to build a new, larger, facility that proved too cost prohibitive. Our design team, having already looked at the utilization of other campus facilities at the College, was asked to examine this existing building. The team discovered that the building had too many single-use spaces and too few flexible and adaptable spaces. It was determined however that it was possible to renovate instead of building new.

With the campus, four guiding ‘Visions’ were developed; 1) Collaboration - the space had to support interaction and interdisciplinary engagement; 2) Campus Hub - this was a space for all students; 3) Showcase Science – by putting 'science on display' they would make the sciences more accessible for all students; and 4) the ‘Wow’ Factor - the facility needs to be dynamic, attracting students and faculty, by transforming the old facility into a symbol of a modern institution of learning. The transformation focused on flexibility and visibility, offering an active, yet supportive, environment, one where 21st-century pedagogies can be introduced and explored.

Relate how the project came to be, including the client’s goals and what impact the finished project has made on the client, users, and/or the community.

Statement of Design Excellence

By folding sustainability strategies directly into the design conversation, we created a building that integrates environmental efficiencies into a dynamic and user-responsive space. The biggest effect of the renovation of the existing Science and Learning Classroom Building (SLC) was the reduced impact of the Carbon Emissions traditionally associated with new, ground-up, construction. We view creative adaptation, renovation, and reuse as key to a greener, more sustainable, low-carbon future.
During the renovation, the opaque pre-cast panels on the north facade were replaced with highly transparent glazing. The glazing dramatically opened the building up to the campus allowing natural light to flood the interior. With the sun now the primary light source for the building, sustainable strategies offset the ensuing solar heat gains. Opening one facade to light while mitigating the heat gains on the other facades created a dramatic transformation without using additional energy.
The interior renovation dramatically improved the efficiencies of individual systems to meet or exceed Title 24 code requirements and achieve the ambitious targets set by the Edison “Savings by Design” program. During the construction phase, careful demolition allowed for the recycling and re-use of materials, a

Describe this project's approach to sustainability through design. How does the project use architectural design to benefit the occupants, community, and planet. For example, when outdoor temperatures are extreme and air quality is poor due to pollution or wildfire smoke, how does the project conserve energy and protect the occupants? (This question addresses real impact. No fluff.)

Measure 2
Design for Equitable Communities

Design solutions affect more than the client and current occupants.
Good design positively impacts future occupants and the larger community.

AIA Framework for Design Excellence for detailed strategies

COMMUNITY ENGAGEMENT

	INPUTS	UNITS / DEFINITION	LINKS / SUPPORT
Community engagement level	Partnership	*Learn more about community engagement →*	Arnstein's Ladder of Citizen Participation

Community stakeholder narrative

An intensive Feasibility & Utilization study resulted in Visioning & Program development that engaged Faculty, College Trustees, Student and Alumni. Four guiding 'Visions' were developed; 1) Collaboration - the space had to support interaction and interdisciplinary engagement, 2) Campus Hub - this was a space for all students, 3) Showcase Science – by putting 'science on display' they would make the sciences more accessible for all students, and 4) the 'Wow' Factor - the facility needs to be dynamic, attracting students and faculty, by transforming the old facility into a symbol of a modern institution of learning.

Were notable community engagement efforts part of the process? If so, briefly describe them. For all submittals, describe ways in which the project improves or contributes to the surrounding community or natural landscape.

SOCIAL JUSTICE, EQUITY, DIVERSITY, AND INCLUSION

Does the project benefit people who are not directly associated with the project?	Yes	

If so, provide an example:

The College requires that every student take coursework in the sciences. The new SLC offers an active, yet supportive, environment, one where 21st-century pedagogies can be introduced and explored. Providing access to education within the field of the Sciences provides opportunities for a great diversity of future professionals in the workplace who are focused on scientific developments. This provides for the greater inclusivity of viewpoints and approaches from a more diverse population. With the benefit of broadening perspectives, creating opportunities for greater achievements that positively affect and benefit the entire

MOBILITY AND ACCESS

Walk Score	92	*This link will assign a score (0-100) for non-vehicle transportation opportunities based on the project's address. Report a unique score for walking, biking, and public transit→*
Transit Score	40	
Bike Score	62	Walk Score

Alternative strategies for remote / rural projects (if applicable):

N/A

Briefly describe design strategies used to limit the negative impacts of vehicular transportation that might not be reflected by the scores above.

NARRATIVE

Design for Equitable Communities Narrative

Access to education in the sciences has historically been less accessible to women and people of color. On Campus there are 33% more female students than male students and 69% of the student population identifies as a person of color (BIPOC). An opportunity, and demand, for greater access to the curriculum at the College existed. The concept 'Science on Display' was a successful approach to create greater exposure to science focused classes and labs within the Science and Learning Classroom Building. This has resulted in measurable growth in the enrollment within the Sciences since the buildings re-opening in 2018.

Optional prompts:
- Alternative transportation strategies to decrease dependence on cars
- Specific social equity issues addressed
- Unique strategies for community outreach

Measure 3
Design for Ecosystems

Good design mutually benefits human and nonhuman inhabitants.

AIA Framework for Design Excellence for detailed strategies

	INPUTS	UNITS / DEFINITION	LINKS / SUPPORT
Site Context / Environment	Urban	*This will help the jury understand the project's context*	
Was the site previously developed?	Yes	*Building on previously developed sites is generally preferable*	
Does the landscape design provide habitat for local fauna and pollinators?	Yes	*Answer yes if the images in the design awards submission demonstrate clear design strategies for supporting wildlife*	
What percentage of the landscape design is native vegetation?	100%		
Does the site design align with dark sky standards?	Yes	*Answer yes if all exterior lighting is full cutoff and indoor lighting does not leak onto the site at night*	Int'l Dark-Sky Association
Does project comply with recognized bird collision deterrence criteria?	Yes	*Answer yes if you used a standard, i.e. ABC Prescriptive Criteria, LEED Credit; NYC Local Law15, CSA A460; or other from a list of "recommended" or "recommended with reservation" legislation summarized by ABC.*	ABC's Bird-Friendly Building Design
If yes, identify the standard or legislation used.	EED Credit SSpc 55 Bird Collision Deterrence, version 4 (201		Existing Ordinances List

Design for Ecosystems Narrative

Our reuse of the formerly outdated facility reduced the impact of the Carbon Emissions traditionally associated with new, ground-up, construction. This provides a safer and healthier environment for the students and the surrounding community.
The building's green roof provides an additional thermal barrier helping reduce energy consumption, while the drought-tolerant planting mimics the regional flora found across the college. This has also provided a vibrant habitat for the local pollinator population on campus, helping the local plants flourish.
While increasing glazing overall, we did develop a custom frit pattern for the north façade increasing visibility and promoting bird safety.

Optional prompts:
- How can the design support the ecological health of its place over time?
- How can the design help users become more aware and connected with the project's place and regional ecosystem?
- How is the project supporting regional habitat restoration?

Measure 4
Design for Water

Good design conserves and improves the quality of water as a precious resource.

AIA Framework for Design Excellence for detailed strategies

INPUTS	UNITS / DEFINITION	LINKS / SUPPORT

Is stormwater managed on site?	Yes	*Answer yes if design strategies prevent most runoff into municipal sewers or natural waterways*
Is potable water used for irrigation?	No	*Projects are encouraged to develop irrigation strategies based on collected or recycled water*
Is potable water used for cooling?	No	*Projects are encouraged to develop HVAC strategies that conserves potable water*
Is grey/blackwater reused on site?	No	*Answer yes if recycled water is reused on site, such as for toilet flushing or irrigation*
Does the project design meet EPA "Water Sense" goals for indoor plumbing fixtures?	Yes	*Answer yes if indoor fixture flowrates are at least 20% more efficient than code*
Is rainwater collected and stored on site?	Yes	*Answer yes if collected water offsets potential potable water use*

Design for Water Narrative

Nothing was implemented beyond the code requirements given the limited site area of this renovation project.

Does the project incorporate approaches to water conservation that go beyond code requirements? If so, briefly describe them.

Measure 5
Design for Economy

Good design adds value for owners, occupants, community, and planet, regardless of project size and budget.

AIA Framework for Design Excellence for detailed strategies

	INPUTS		UNITS / DEFINITION	
Building efficiency / right sizing		58	GSF/Occupant	*Based in the inputs above*
Cost Per GSF	$	426	USD/GSF	*Reference from Cost Data above*

LINKS / SUPPORT

Describe strategies taken to "right size" the building

Our design team, having already looked at the Utilization of the other campus facilities, was asked to examine this existing building. What was uncovered was a building with several severely underutilized spaces with too many single use spaces and not enough flexible and adaptable spaces for the needs of a more modern pedagogy. With this information in hand, the team redistributed and redeveloped each floor plate to maximize utilization and flexibility. Through this intensive effort it was determined that it was possible to renovate instead of building new, as previously proposed by others.

Reference the above autogenerated metric to describe efforts taken to "right size" the building

Does the project address issues of affordability?	No	*If yes, elaborate in the narrative below*
Does the project reduce built area by designing spaces for multiple purposes?	Yes	*If yes, elaborate in the narrative below*

Design for Economy Narrative

One of the primary sustainability drivers for building re-use & renovation on this project was to reduce the impact of new construction on the campus environment. The was not only from a land-use perspective but also from the ability to offset the carbon emissions associated with new construction. Providing a safer and healthier environment for the student and the surrounding community was a top goal of campus leadership. Also savings the campus recouped from renovating vs building new allowed the College to invest in more sustainability, wellness and energy conservation measures across the campus.

Optional prompts:
- Place the cost/GSF number in context
- How does the project provide more with less?
- Design strategies to get multiple uses out of one space?
- Cost saving strategies that result in a better project

Measure 6
Design for Energy

Good design reduces energy use and eliminates dependence on fossil fuels while improving building performance, function, comfort, and enjoyment

AIA Framework for Design Excellence for detailed strategies

BASELINE + CODE

	INPUTS	UNITS / DEFINITION	
Energy Code that the project was designed to meet?	California Title-24 2013		
Benchmark EUI	270	kBtu/sf/yr	*← This is baseline is auto generated based on building type*
Estimated EUI based on applicable energy code	151	kBtu/sf/yr	*← This is baseline is auto generated based on the local energy code*

LINKS / SUPPORT

ENERGY PERFORMANCE

How to determine EUI from Title 24 →

EUI from Title 24

How are you reporting energy performance for this project?	Modeled / Predicted (from Energy Model)	*Measured energy is always preferred*
EUI Gross (Energy consumed on site from all sources)	73	kBtu/sf/yr *Add up the total annual energy and divide it by gross square feet*
EUI offset from onsite renewables	0	kBtu/sf/yr *For projects with solar or wind, divide annual generation by GSF*
EUI Net (Gross EUI minus EUI offset from onsite renewables)	73	kBtu/sf/yr *If no onsite renewables, enter 0*
Reduction from benchmark, including renewables	73%	*← This autogenerated metric is the project's total energy reduction*
Does the project meet the 2030 Challenge?	Yes!	*← It's important for our industry to aim high*
Percentage of project's total energy use met by renewables	0%	

Note: Interior only, landscape, and master planning projects do not need to list an EUI. If EUI is not applicable to you project, list energy conservation strategies here.

ENERGY CONSERVATION PROCESS + STRATEGIES

If the project was modeled, what type of energy model was performed?	Code or LEED compliance model	*A design energy model is best. Compliance models have limited ability to influence design*
Was the energy model used to inform decisions during design?	Yes	*Modeling energy is a good start, but the real benefit is when its used a tool to improve design*
Did the project follow prescriptive performance to meet the energy code?	No	*Best practice is to achieve the prescriptive code criteria at a minimum*

Design for Energy Narrative

System improvements from the renovation exceed the ambitious targets set by the Edison “Savings by Design” program and Title 24. Although the glazing on the north facade offers much of the building’s light, the lighting design further reduces a reliance on electricity. A series of sensors respond to occupancy and natural light, adjusting light levels as needed. Air handling units support the passive cooling strategies used on the exterior. The HVAC system allows air handling units to use outdoor-air, reducing or eliminating the need for mechanical cooling during off-peak hours, making the units more efficient during operation.

Optional prompts:
- Enclosure / glazing strategies
- Solar and renewable strategies
- User education and operational strategies
- Equipment strategies - Energy model use and response during design

Measure 7
Design for Well-Being

Good design supports health and well-being for all people, considering physical, mental, and emotional effects on building occupants and the surrounding community.

AIA Framework for Design Excellence for detailed strategies

	INPUTS	UNITS / DEFINITION
Do regularly occupied spaces have operable windows?	No	▾ *Generally, can an occupant easily access fresh air?*
Were glazing strategies studied to optimize daylight against excess heat gain?	Yes	▾ *This would most likely take the form of building simulation modeling*
Is indoor air filtered with MERV 13 or better?	Yes	▾ *Is air being filtered to protect equipment or to protect occupants? (>MERV 13)*
Was ventilation, either natural or mechanical, optimized for occupant health?	Yes	▾ *Answer yes if the project is designed to achieve a maximum CO2 of less than 1000ppm*
Was a "Chemicals of Concerns" list used to inform material selection?	Yes	▾ *Were specific toxic chemical intentionally avoided, resulting in material substitutions?*

LINKS / SUPPORT
Living Product Challenge / Living Building Challenge Red List / Declare
HPD Collaborative
Cradle to Cradle / Level / UL Lense
WELL Building Standard
Healthier Hospitals Initiative Safer Chemicals
Kaiser Permanente Facilities Design Program

TEN Key Daylight & Electric Light Metrics

Design for Well-being Narrative

System improvements from the renovation exceed the ambitious targets set by the Edison “Savings by Design” program and Title 24. Although the glazing on the north facade offers much of the building’s light, the lighting design further reduces a reliance on electricity. A series of sensors that respond to occupancy and natural light, adjusting light levels as needed. Air handling units support the passive cooling strategies used on the exterior. The HVAC system allows air handling units to use outdoor-air, reducing or eliminating the need for mechanical cooling during off-peak hours, making the units more efficient during operation.

Optional prompts:
- Human health: toxicity, chemicals of concern
- Daylight metrics used (sDA, ASE, UDI, etc)– link to explanation, calculator
- Did you do a spatial daylight analysis?
- Natural ventilation, outdoor air strategies

Measure 8
Design for Resources

Good design depends on informed material selection, balancing priorities to achieve durable, safe, and healthy projects with an equitable, sustainable supply chain to minimize possible negative impacts to the planet.

AIA Framework for Design Excellence for detailed strategies

	INPUTS	UNITS / DEFINITION
Did the project reuse an existing structure?	Yes	▾ *Embodied Carbon: What you can do right now→*
What percent of the existing structure was reused?	100%	▾ *Rounded to the nearest 10%*
Identify the primary structural system	Concrete	▾ *If "Other" or "Mix", please specify in the narrative*
Was a whole building environmental Life Cycle Analysis (LCA) conducted?	Yes	▾ *This is the future of climate focused design*
Provide total predicted embodied carbon results and units	1,975	*This is typically reported in kg-CO2e*
Were design strategies implemented to substantially reduce material or embodied carbon?	Yes	▾
If yes, please select from the following:	Reduction in Total Materials	▾ *If "Other", please specify in the narrative*
Was local and/or recycled content a major criterion for material selection?	Yes	▾ *Answer yes if an analysis of available local or recycled materials influenced design decisions*
Was wood used on this project FSC certified?	Yes	▾ *Answer yes if 95%+ wood is certified*
		Embodied Carbon Visualization→

LINKS / SUPPORT
High impact

Visualization

Design for Resources Narrative

Our reuse and transformation of the formerly outdated facility has reduced the impact of the Carbon Emissions traditionally associated with new, ground-up, construction. We view creative adaptation, renovation and reuse is key to a greener, more sustainable, low-carbon future.
Besides building re-use, our team used as many high recycled content, low-carbon footprint, and resilient materials that meet the demands of a Lab intensive environment. Our firm has taken a strong stance against the use of Vinyl, in any form, on the interiors of our building helping to promote health and wellness throughout our academic environments.

Optional prompts:
- Innovative sourcing of materials - Reuse or use of recycled materials
- Efficient use of materials? Finishes? - Building reuse
- Low carbon concrete or other low embodied carbon strategies
- What factors (priorities) were considered in making material selection decisions?
- How do project materials and products reduce embodied carbon and environmental impacts?
- How does the project promote zero waste throughout its life cycle?
- How long will the project last, and how does that affect your material?

Measure 9
Design for Change

Adaptability, resilience, and reuse are essential to good design, which seeks to enhance usability, functionality, and value over time.

AIA Framework for Design Excellence for detailed strategies

	INPUTS	UNITS / DEFINITION
What is the designed lifespan of the building?	100 Years	*30yrs for stick frame; 100yrs for concrete, steel, heavy timber; 1000yrs for solid masonry*
Was the building designed for disassembly?	No	▾ *Answer yes if the structural members are bolted, rather than nailed or welded*
Was future flexibility design into the program?	Yes	▾ *Answer yes if the building can be easily used for a different purpose in the future*
Can the building remain useful for the short term without utility power?	No, Not Habitable without Power	▾ *Select the appropriate resiliency measure using the dropdown*
Has the design considered the impact of climatic change over the building's lifespan?	Yes	▾ *Answer yes if design features anticipate future climates or social conditions*
Identify a local risk that the project has been designed to mitigate	Earthquakes	▾ *ex: wildfire smoke, flooding, extreme temperatures, etc.*
If other, list here:		

LINKS / SUPPORT

AIA Guide

Design for Change Narrative

The renovation of the existing 1966 Mid-Century Modern concrete structure required an approach that included improved resiliency of the building structure. In order to increase the effectiveness of the existing concrete shear walls in the SLC it was proposed that we wrap portions of the existing concrete structure in a carbon-reinforced fabric (CFRP). These carbon-reinforced shear walls improve deficiencies in the existing walls including insufficient reinforcement, un-confinement at boundary zones, and the lack of in-plane stiffness, and ductility. This innovative application has extended the buildings life-span and improved its seismic survivability for the future.

Optional prompts:
- Strategies for future change/adaptation
- How does the project address future risks and vulnerabilities from social, economic, and environmental change?
- How is the project designed for adaptation to anticipate future uses or changing markets?
- How does the project address passive survivability and/or livability?

Measure 10
Design for Discovery

Every project presents a unique opportunity to apply lessons learned from previous projects and gather information to refine the design process.

AIA Framework for Design Excellence for detailed strategies

	INPUTS
Was a post occupancy evaluation planned for or will it be conducted on this project?	Yes
Was an occupant satisfaction survey planned for or will it be conducted on this project?	Yes
Were improvements made (or will they be made) during occupancy based on findings?	Yes

UNITS / DEFINITION

- *This is an important strategy for achieving any of the above performance criteria*
- *This is an important strategy for understanding and providing for occupants needs*
- *Discovery should lead to improvements*

LINKS / SUPPORT

Design for Discovery Narrative

A formal Post Occupancy Evaluation is scheduled for the fall of 2023, marking 5 years after the building's re-occupancy. The POE will focus on understanding how the building's design and planning has overcome any pedagogical challenges associated with the recent Pandemic. What we do know through our continued dialogue with the College are these 4 truths 1) up-front Visioning and Goals sets the tone 2) a preference for flexible furniture over architectural solutions 3) enhanced technology promotes greater engagement, and 4) the dedication of space outside the classroom for learning has been hugely successful.

Optional prompts:

- Strategies for future change/adaptation
- Lesson learned – what would you do differently?
- How did the project's design process foster a long-term relationship between designers, users, and operators to ensure design intentions are realized and the building project performance can improve over time?
- Was a post occupancy evaluation planned for or conducted on this project? If not, how are the project's performance data and experiential stories shared, even if the findings fall short of the vision?
- What design strategies promote a sense of discovery and delight?