

PROJECT

LOSD LHS Science Lab Remodel

MEETING SUBJECT

Design Meeting #3 with Teachers

DATE

2023-11-30

LOCATION

At Lakeridge HS

TIME

8:45 – 10am

PARTICIPANTS

Desiree Fisher
Sarah Mock
Matthew Briggs
Dr. Jennifer Schiele
Tony Vandenberg
Larry Zurcher
Dave Kruger
Beth Starr
Marta Lilly (Arcadis)
Rebecca Stuecker (Arcadis)
Andrew Werth (Arcadis)

DISTRIBUTION Attendees

This is a record of the 3rd design meeting for the LOSD LHS Science Lab Remodel project. Presentation slides and floor plans attached.

Premeeting Science Lab visit:

1. Prior to the meeting start, visited water lab in B34, Geo Science. Students worked in groups of 4, 2-3 groups sharing a sink. See photos attached at end of document.

MEETING AGENDA by Arcadis

1. Research/Take Aways
2. Design Development
 - a. Review
 - b. Options
3. Next Steps
 - a. Equipment List

Research/Take Aways

- Matt's comment that planning for the future is tricky, for example years ago outfitting a room with ethernet when Wi-Fi was just around the corner. Prefer to plan for how students interact with each other in a learning setting: collaborative, facing each other. What we teach in the future may be different, but how students interact with each other is important.
- Rebecca outlined key take aways, questions, and concerns we have heard from the LHS Science Department teachers:
 - "Raise the standard, we're not middle school"
 - Shared various examples of chemistry lab tables and examples of recent college/university science lab projects that show the move to more flexible lab arrangements, equipment, and furnishings. (See images in slide presentation attached)
 - One project example showed a ceiling-mounted track system to deliver power and still provide furniture/fixture flexibility. In contrast to retractable power cord reels or hanging cord drops.
 - This option felt safer to LHS teachers than retractable cords. For more long-term use but still not fixed.
 - Even floor fed power feels better.
 - Would taller lab units be a challenge for supervision?

- Dave - there may be power limitations because of the existing panels in the building. Replacing lights with more efficient ones will make more load available to new equipment.
- “Moveable”?
 - Distinguished between “mobile” pieces of equipment/furniture (with casters) and “moveable” pieces of equipment/furniture that are less easy to move, but still flexible (these could be rearranged project-to-project or semester-to-semester rather than day-to-day).
 - More examples from college/university science settings were shared.
 - Resistance to furniture on casters- want furniture to feel stable-it’s holding expensive equipment department can’t afford to replace. A lab station which is movable over time, not necessarily being rearranged throughout the day is preferred.
 - Prefer no stools, in the way. No lab is long enough students can’t stand. A few stools for those who medically need rest is ok.
- Addressing growing class sizes, line of sight & locating workstations
 - Shared plan diagrams that show an existing LHS science classroom (B32) and illustrated lines of sight, workstation layout, and work surface area with varying numbers of students.
 - The existing classroom layout was then compared with possible new layout options and demonstrating that there is the potential to accommodate 2 more students from the requested layout for 34 students.
 - Plan for pairs working together up to 34 students total
- Access to sinks
 - As the premeeting science lab project visit demonstrated and the LHS teachers have emphasized, access to sinks is important to their programs.
 - Shared plan diagrams that show an existing LHS science classroom (B32) and illustrated direct sink access with varying numbers of students and compared this with the proposed new lab layouts.
 - The proposed flexible “U” shaped lab table configuration allows for 14 pairs of students with direct sink access, which is less than the goal of 17 pairs of students access to sinks. 17 pairs sink access can be achieved in an “L” shaped layout, which was shown previously.
 - Sarah shared here concern with the number of sinks available.
 - Presented a few more lab examples looking at sink placement.

Design Development

- The Arcadis team shared the Design Development plans with the LHS team and discussed certain design options, see attached plans.
 - Feedback
 - Request for chemical storage in each prep room. For flexibility and because more classes than chem use chemicals.
 - This request will have to be weighed with code requirements and project budget considerations. Further discussion is need with LOSD.
 - Where do long-term projects go? Because perimeter cabinets are taken up by sinks
 - Single desks preferred for testing and movability
 - Teachers will narrow down equipment list per room. Many items teachers requested can be shared, such as ice machine.

- Ice machine- large model with crushed ice is preferred. Ice is not needed often but when it is, they need several buckets worth.
- Sarah suggested only (1) ice machine for the department
- Does demo station need to be fixed? Teachers are interested in movable option, as long as they are near power. Don't think sink at demo station is necessary except when needed as an additional lab space.
- Look at Forest Grove HS as recent example. It was an addition.
- Need water purity, need ideas for systems for prep rooms.
- Some odd shaped lab items, consider storage of long/awkward shaped items.
- Furnishings
 - Tony confirmed single desks
 - MS have 3x5 desks (Sarah, less flexible and test taking difficult)
 - Tony – look at nesting of furnishings for lecture side and more efficient use of space
 - LOSD will bring some ideas
 - Elephant stool?
 - Desiree
 - LHS is trying to standardize furnishings. (Health Room)
 - Request for stools that sit on work surfaces where floors need to be mopped and dried.
- Plumbing
 - Dave asked if there have been drainage problem.
 - Only went sand and stuff gets.
 - Gas exposed piping can go. Keep gas at perimeter. (Tony and Dave)
- Equipment
 - Arcadis providing equipment list for LHS/LOSD review
 - Work through prioritization or some items could be purchased later.
 - Dishwashers
 - Survey to determine number of dishwasher
 - 8 dishwashers now, one in every room.
 - Deionized water?
 - Biotech water purity is important – what system? Have one in storeroom?
- Phase 2 work ideas
 - Sarah asked that Science room B26.75 is transformed as part of the Phase 2 work into a space for individual research projects/advanced research, such as the international science fair and a student request to do an aquaponics project.
 - Including transparent garage doors that open up to the hall and white boards
 - Good location for flip top nesting tables
 - Rebecca described idea of moving Prep area under the stairs and gaining a window access for room B26.

Next Steps

- Arcadis requesting design decision from LHS/LOSD for lab layout, preferred location of 2nd TV/monitor, and for location of exterior door to greenhouse.
- Have LHS Science Department review the digital equipment list provided by Arcadis (also copied here) and confirm as much information as possible.

LHS Science Labs
Lake Oswego SD
November 30, 2023

- We will have further opportunities to cover any items that are unclear or need more discussion.
- LOSD Facilities/Bond group will also provide input on certain items.

Submitted by,
Arcadis Architects Inc.

Attachments: PowerPoint Presentation, Plans, Plan mark ups and equipment list.



“Science is a way of thinking much more than it is a body of knowledge.”

Carl Sagan

High School Science Labs Design Committee Meeting #3

Lake Oswego School District

November 30, 2023

Our Research

Raise the standard, we're not middle school

“moveable”?

Addressing growing class sizes

Line of sight & locating work stations

Access to sinks

Raise the standard, we're not middle school

“moveable?”

Addressing growing class sizes

Line of sight & locating work stations

Access to sinks

Raise the standard, we're not middle school



Raise the standard, we're not middle school



Raise the standard, we're not middle school



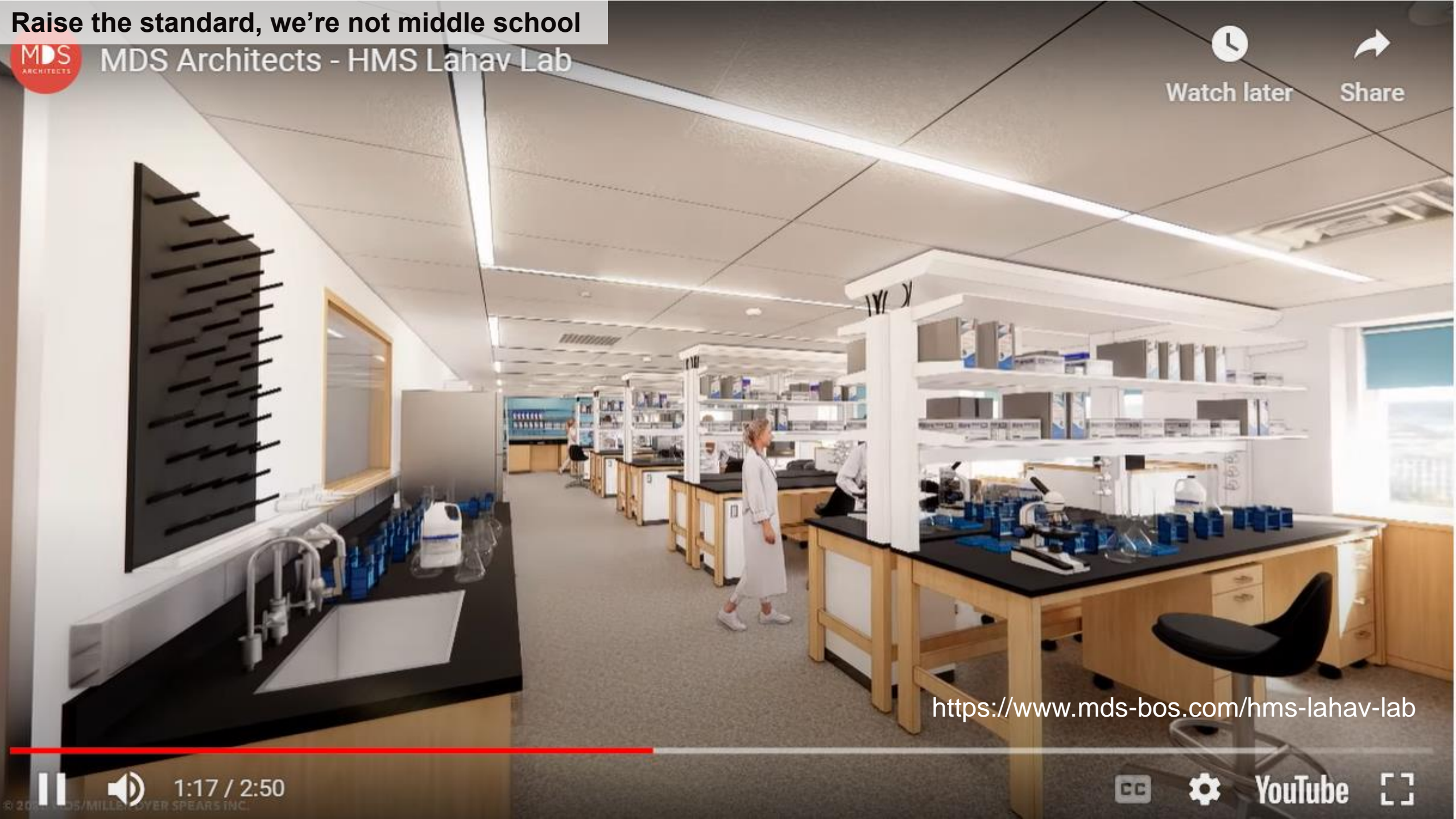
MDS Architects - HMS Lahav Lab



Watch later



Share



<https://www.mds-bos.com/hms-lahav-lab>



1:17 / 2:50



YouTube



Raise the standard, we're not middle school



Raise the standard, we're not middle school



Raise the standard, we're not middle school



Raise the standard, we're not middle school



Raise the standard, we're not middle school



Raise the standard, we're not middle school

“moveable”?

Addressing growing class sizes

Line of sight & locating work stations

Access to sinks

Moveable?



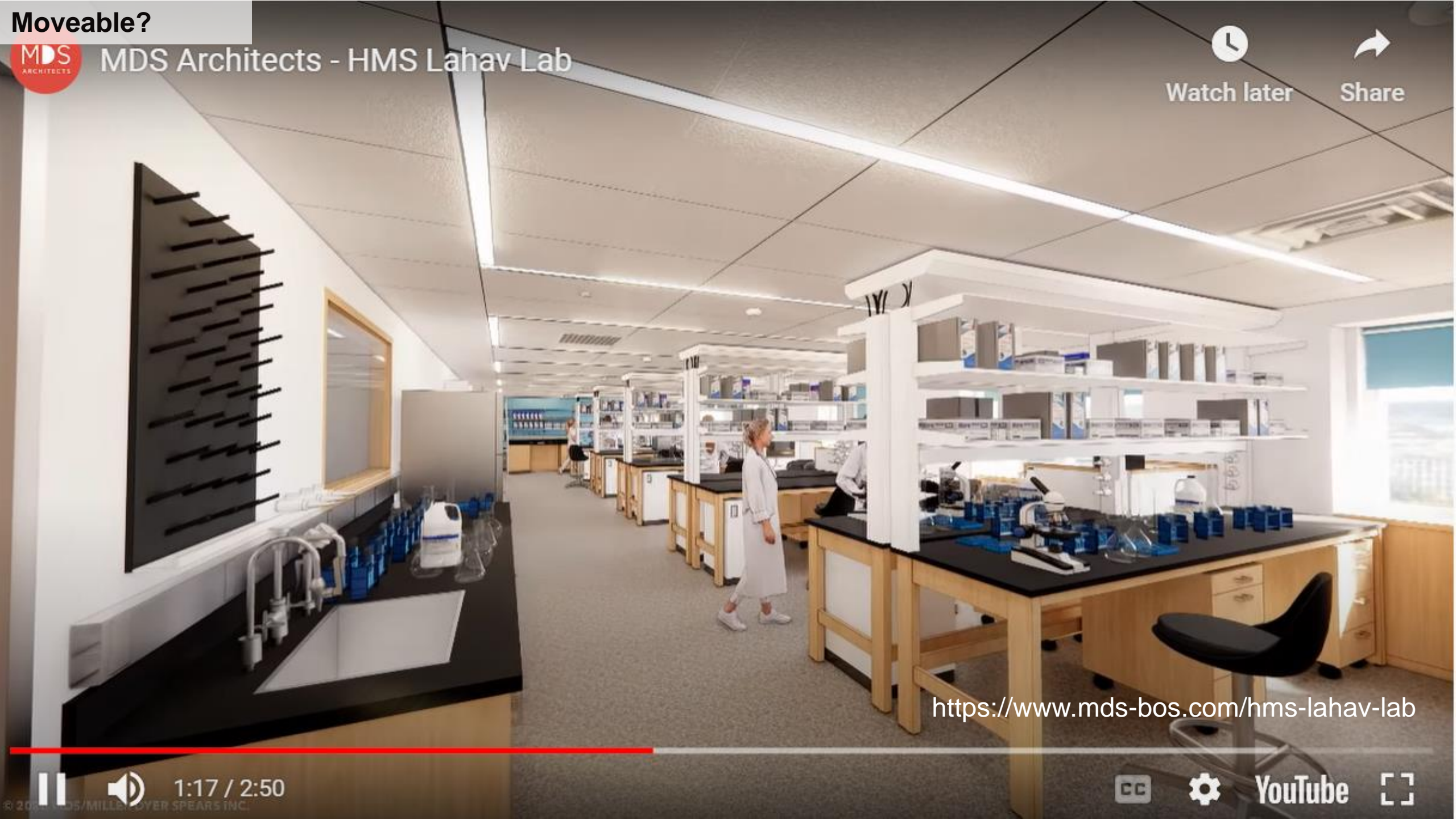
MDS Architects - HMS Lahav Lab



Watch later



Share



<https://www.mds-bos.com/hms-lahav-lab>



1:17 / 2:50



YouTube



Moveable?



Raise the standard, we're not middle school

“moveable”?

Addressing growing class sizes

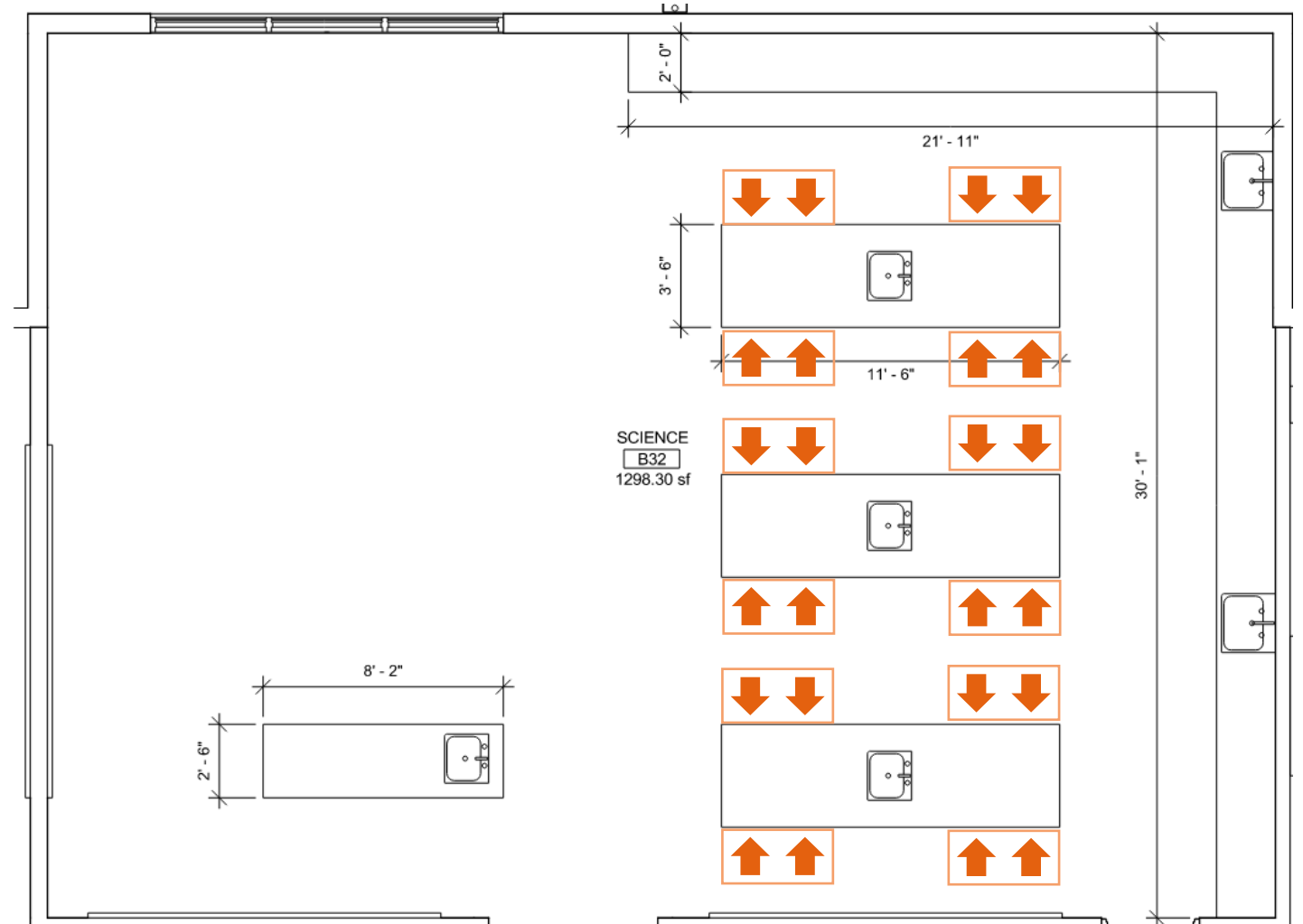
Line of sight & locating work stations

Access to sinks

Addressing Growing Class Sizes

Line of sight & locating work stations

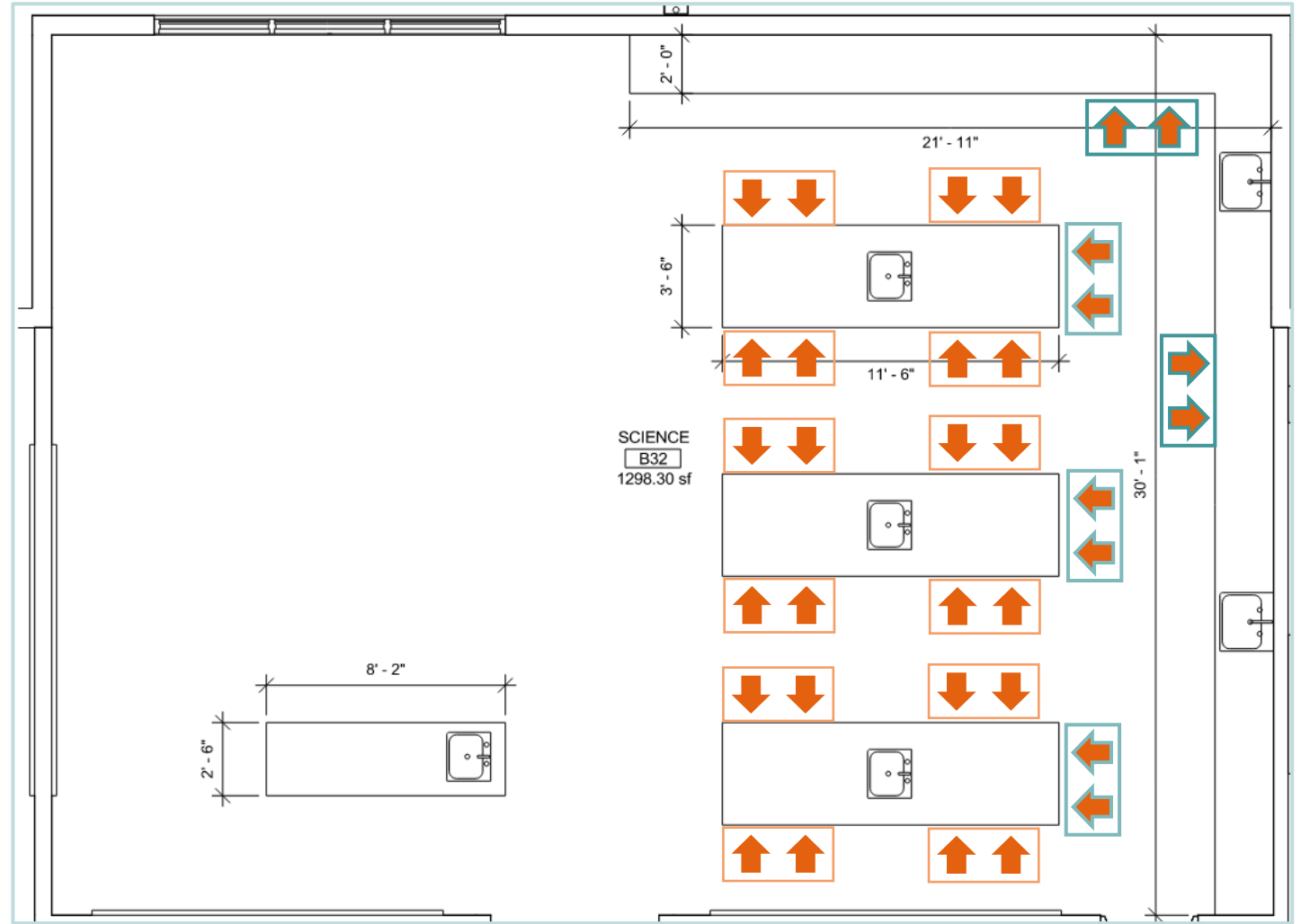
24



Addressing Growing Class Sizes

Line of sight & locating work stations

34

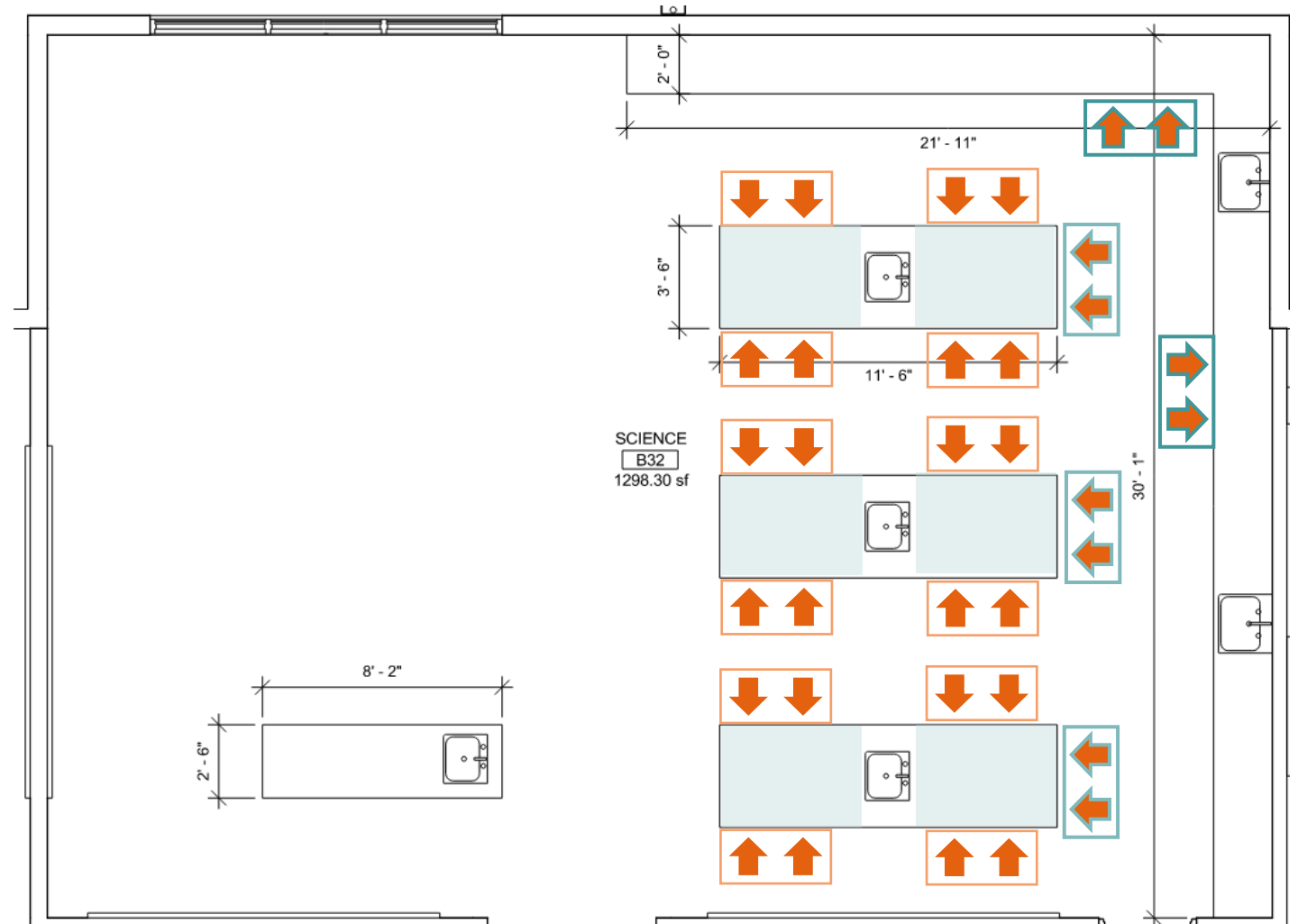


Addressing Growing Class Sizes

Line of sight & locating work stations

34

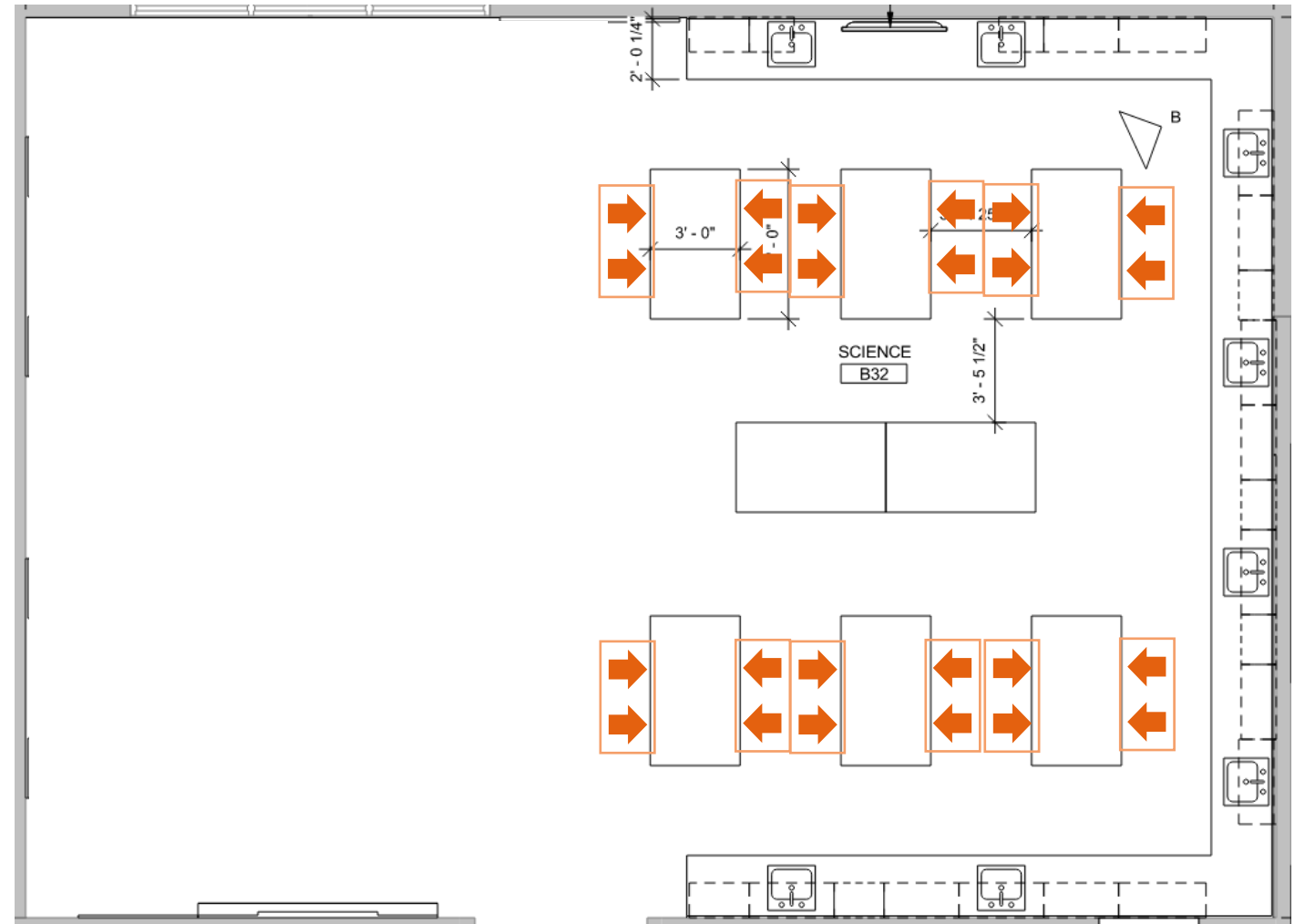
105sf work
surface area at
the islands



Addressing Growing Class Sizes

Line of sight & locating work stations

24



Addressing Growing Class Sizes

Line of sight & locating work stations

36

135sf work
surface area at the
islands (+30sf)

*with the option to
add more*



Raise the standard, we're not middle school

“moveable”?

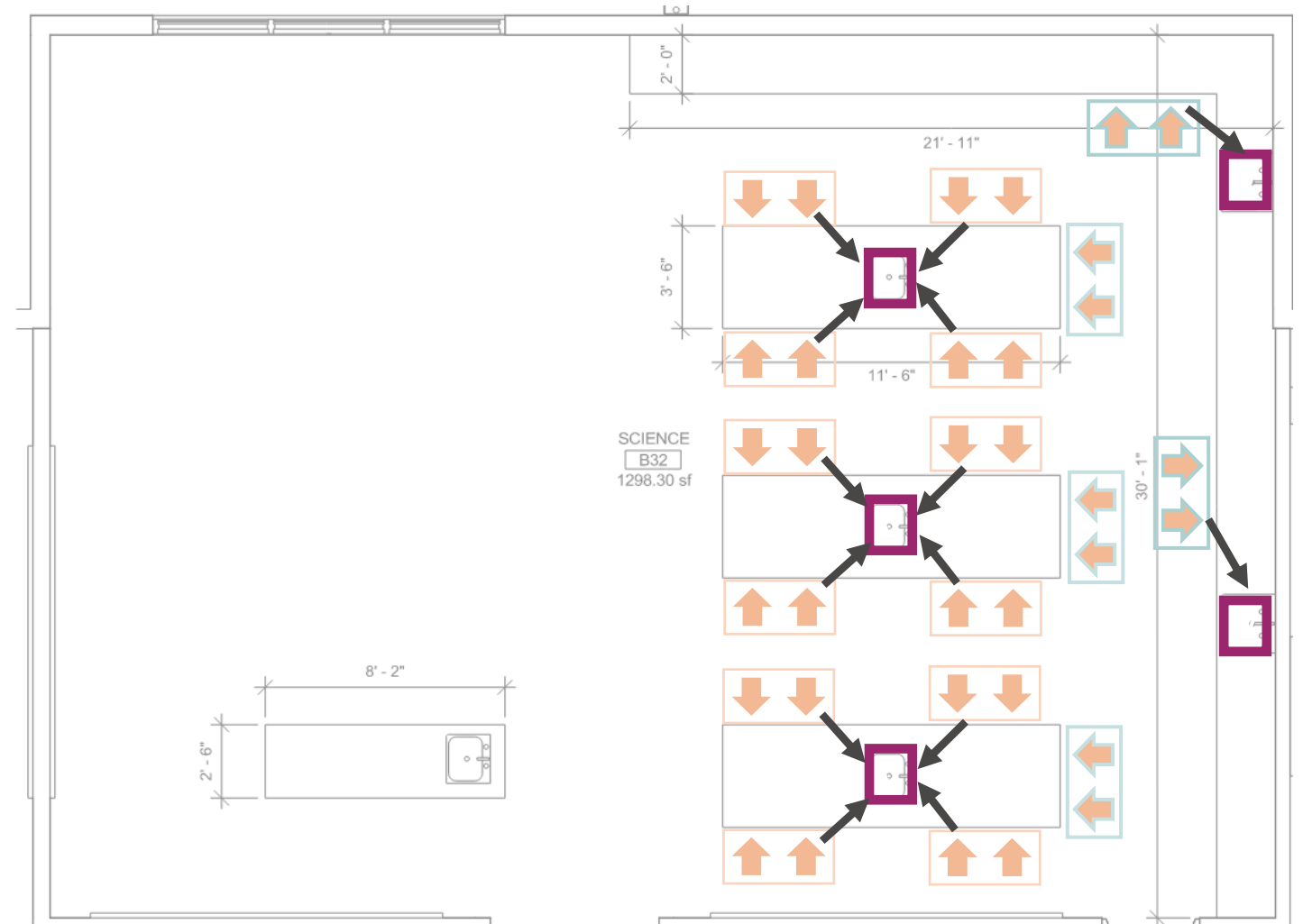
Addressing growing class sizes

Line of sight & locating work stations

Access to sinks

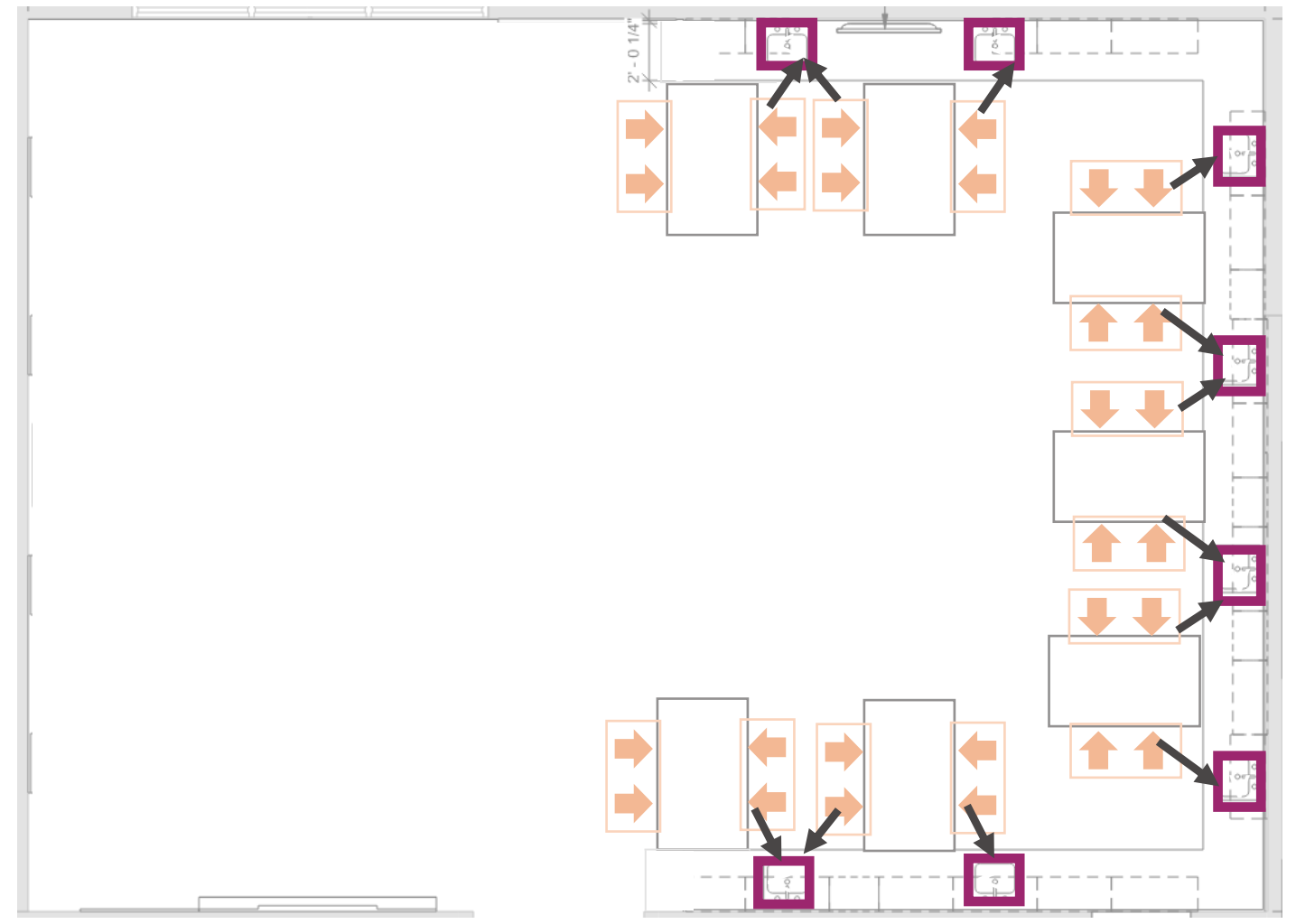
14

Pairs with direct access



12

Pairs with direct access



6

Pairs with direct access



Access to Sinks



Access to Sinks



MDS Architects - HMS Lahav Lab



Watch later



Share



<https://www.mds-bos.com/hms-lahav-lab>

1:17 / 2:50



YouTube



Access to sinks

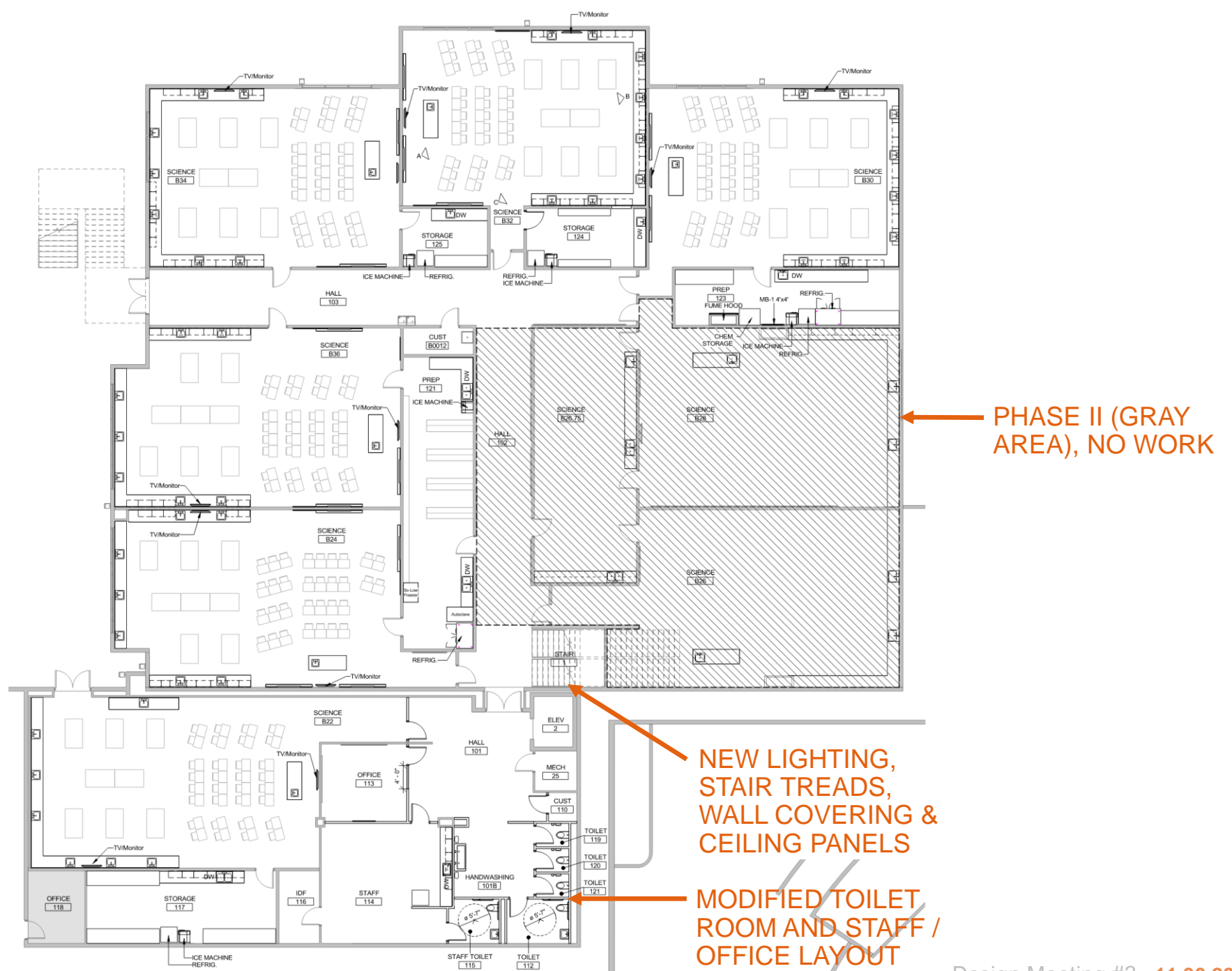


Design Development

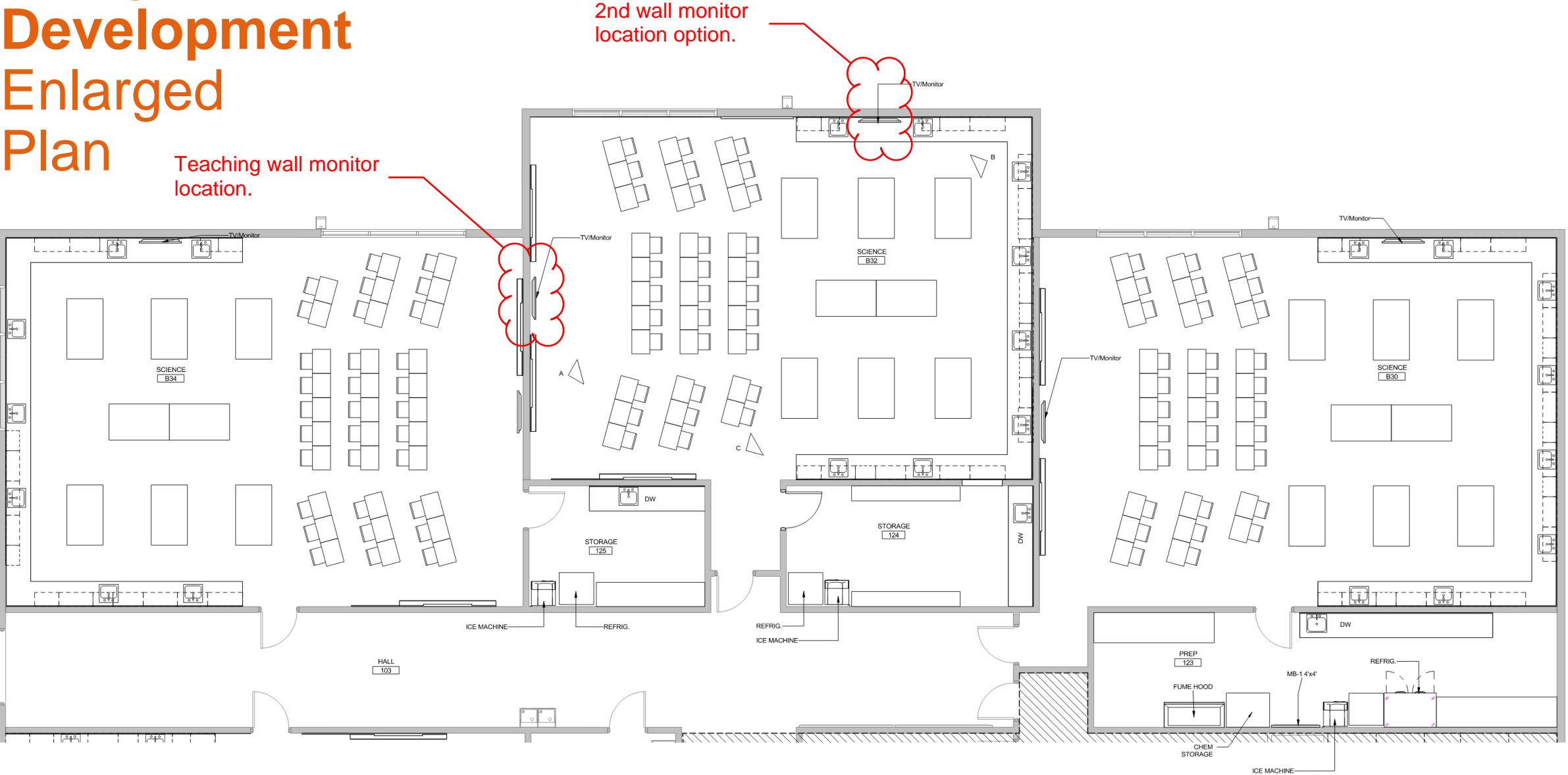
Design Development Overview

GENERAL UPGRADES:

- NEW LIGHTING, CEILINGS, FLOORING AND WALL FINISHES.
- ADDITIONAL MARKERBOARDS AND TWO FLAT SCREENS PER ROOM.
- NEW STORAGE AND CABINETS THROUGHOUT
- UPGRADES TO PLUMBING, GAS, VENTILATION, SYSTEMS INCLUDING FUME HOODS
- REPLACE AGING EQUIPMENT AND FURNITURE



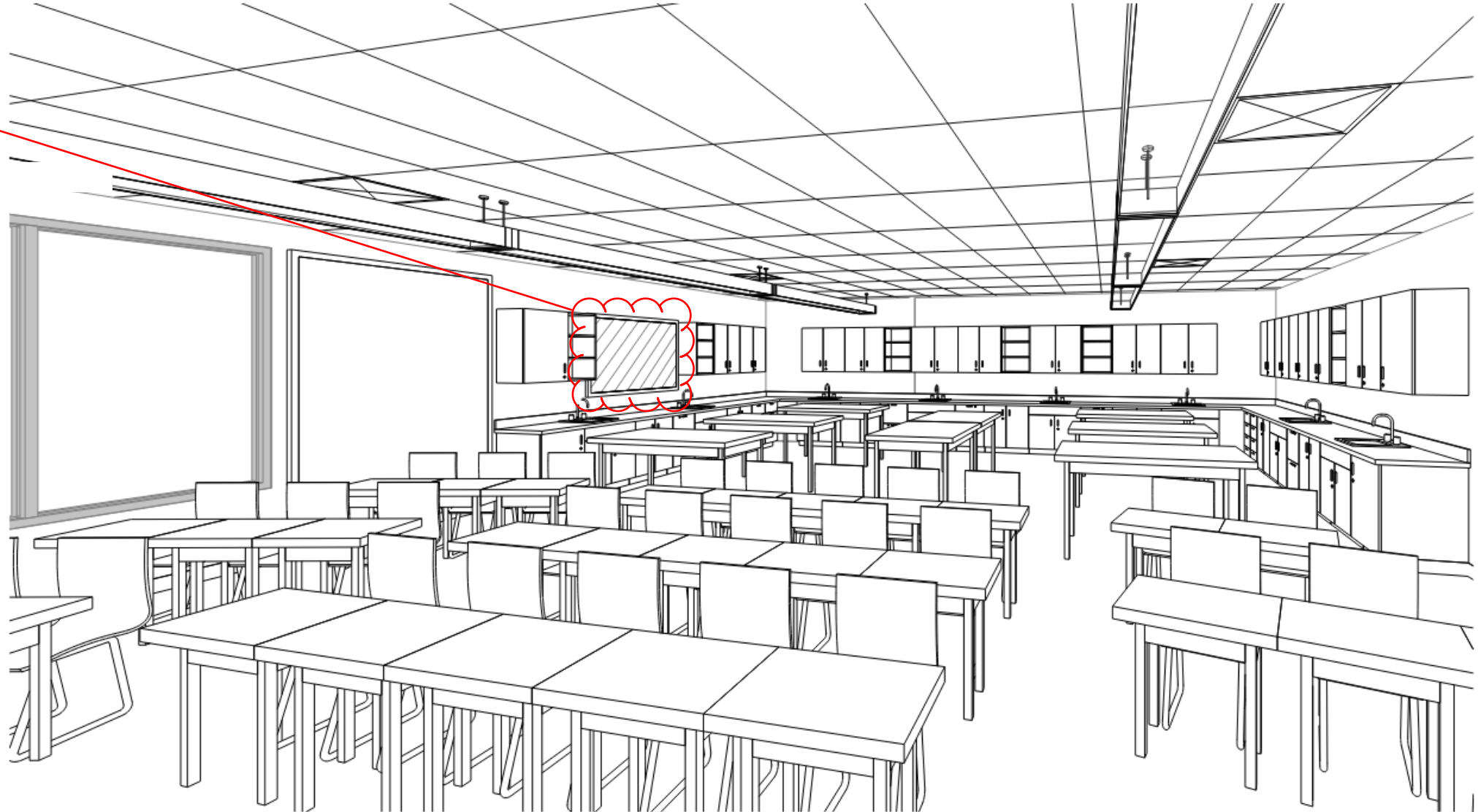
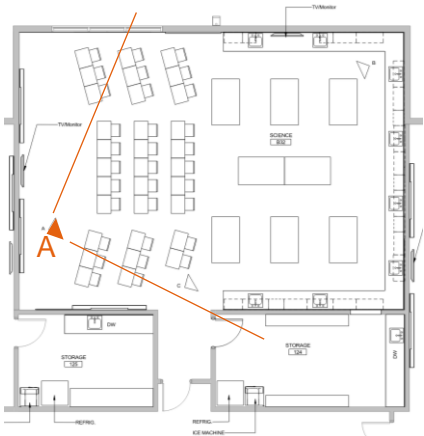
Design Development Enlarged Plan



Design Development 3D Views

2nd wall monitor location option.

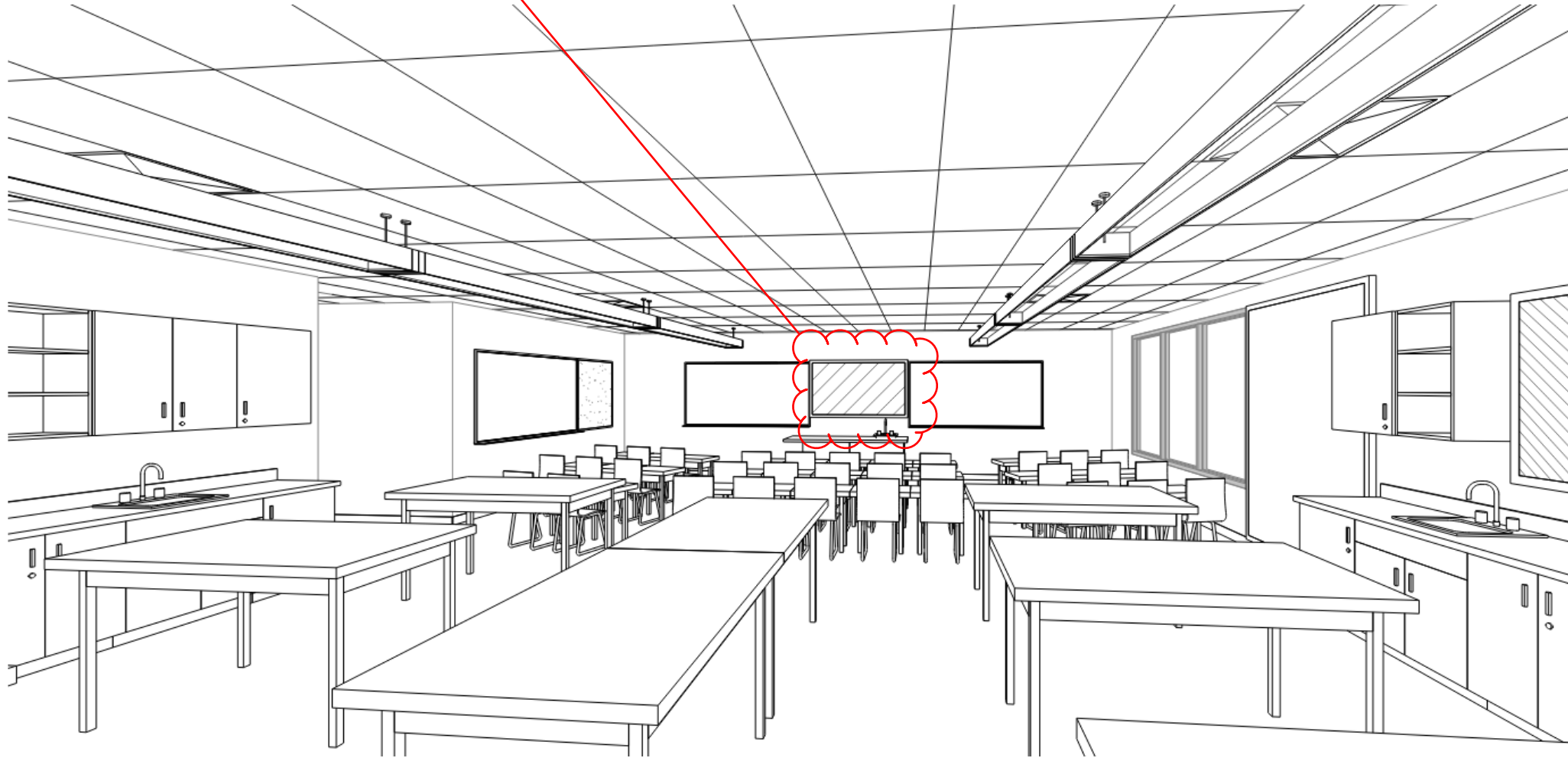
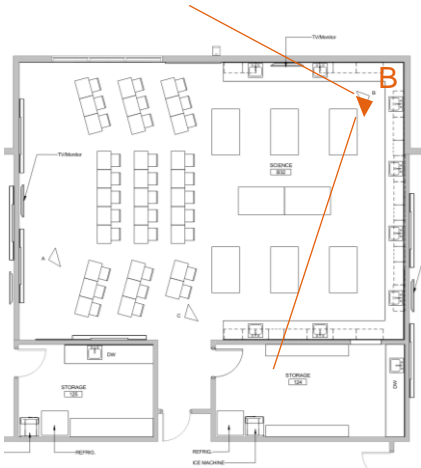
VIEW A



Design Development 3D Views

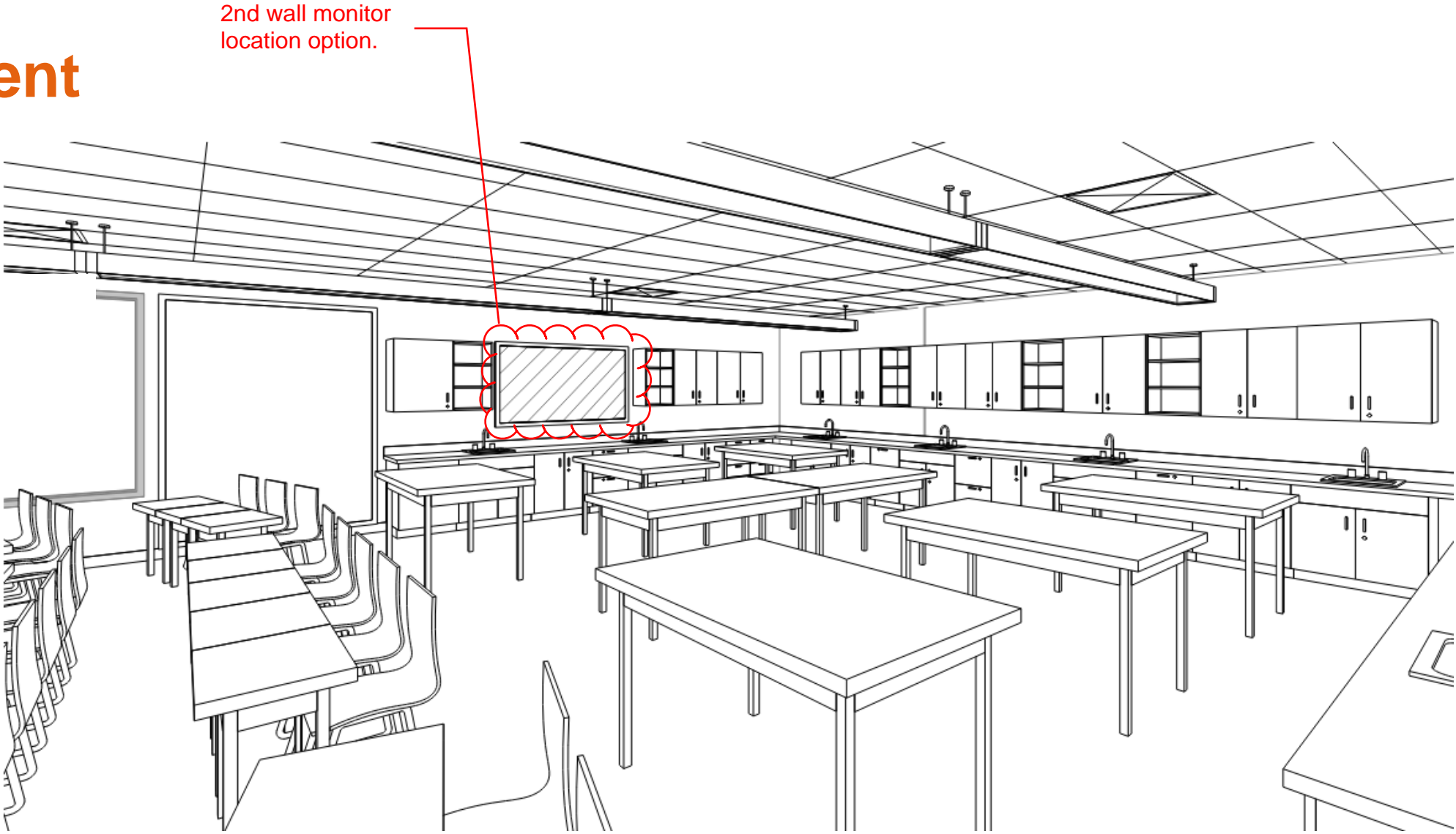
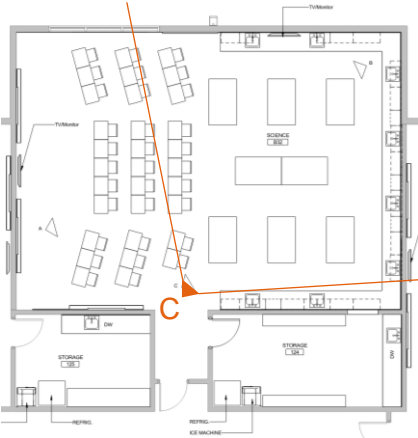
Teaching wall monitor location.

VIEW B



Design Development 3D Views

VIEW C





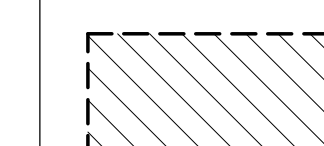


Next Steps

Design Development

Equipment List

Lakeridge High School - Science Classroom and Prep Room Equipment										NOTES
Equipment	Quantity	Utility connections	Room(s)	New or existing	In contract/OFCI/OFOI	sole sourced/ BOD /	Disipline	Notes:		
Fume Hood - Single Side	1 per room	Electrical, Mech, Gas, Water	123	New	In Contract		M,E,P	Emergency Shut Off Switch	Confirm location and if single sided.	
Fume Hood - Double					NONE FOR LAKERIDGE					
Fire blank and extinguisher	1 per room	N/A	B30, B32, B34, B36, B24, B22	New	In Contract		N/A	Let us know if district will be reusing the blanket or extinguisher	Need to confirm approach with LOSD	
Emergency Shower / Eyewash	1 per room	Plumbing	B30, B32, B34, B36, B24, B22	New	In Contract	Basis of Design	P	Note this is a comb shower and eyewash, if we switch to just eyewash in certain rooms add to the row below.	Emergency Showers confirm need and location. Confirm Memo + Code approach. Look at flush model (confirm with LOSD).	
See notes above Eyewash									Single eyewash, sink integrated at each classroom and Prep (without a shower). Confirm Memo + Code approach	
Dishwasher	1 per room	Electrical and Plumbing	Prep Rooms Only ?	New	OFCI	N/A	A,E,P	Commercial-grade dishwasher	Confirm OFCI. Confirm size + number.	
Indoor Plant Growing Station					NONE FOR LAKERIDGE					
Special Lab Island					NONE FOR LAKERIDGE					
Retractable Drop Down P&D	?	Electrical and Tech	B30, B32, B34, B36, B24, B22	New	In Contract	?	E,T	Retractable Drop-Down Power And Data, See Electrical & Technology.J15	Confirm type and locations.	
Refrigerator / Freezer	1 per room	Electrical	Prep Rooms Only ?	New	OFCI	N/A	E		Confirm this is a residential refridgerator and if OFCI.	
Heavy Duty Refrigerator / Freezer	1 per room	Electrical	Prep Rooms Only ?	New	OFCI	N/A	E		Confirm OFCI. Confirm size + type.	
Ice Machine	1 per room	Electrical, Plumbing	Prep Rooms Only ?	New	OFCI	N/A	E, P	Ice Machine with floor sink	Confirm OFCI. Confirm size, number, + type.	
Chemical Storage Cabinets /			Prep Rooms Only ?					In the drawings they are not listed as the items: are they separate or the same item: Chemical Storage Cabinets / Fume Hoods	Confirm size, number, location	

FLOOR PLAN LEGEND:

-  EXISTING CONSTRUCTION
-  NEW CONSTRUCTION
-  AREA OF NO WORK (AREA TO BE PART OF PHASE 2 WORK)
-  AREA OF NO WORK
-  EXISTING FIRE WALL

CLIENT
Lake Oswego School District



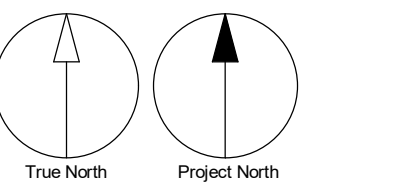
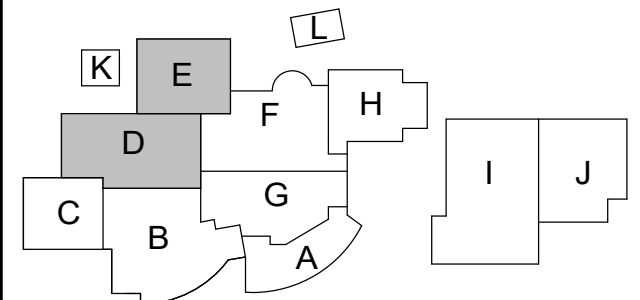
1235 Overlook Dr, Lake Oswego, OR 97034

COPYRIGHT
This drawing has been prepared solely for the intended use, and any reproduction or distribution for any purpose other than authorized by Arcadis is prohibited. Within dimensions and lines provided, the user assumes all responsibility for any construction. Construction shall not be undertaken for all dimensions and conditions on this job, and Arcadis shall be responsible for any variation from the dimensions and conditions shown on the drawing. Shop drawings shall be submitted for review for general confirmation before proceeding with fabrication.
Arcadis Architects USA Inc.
Arcadis is a formerly ST Group Architects (USA) Inc.

No.	DESCRIPTION	DATE
1	50% DESIGN DEVELOPMENT	2023-11-15

NOT FOR CONSTRUCTION

KEYPLAN



CONSULTANTS

SEAL

PRIME CONSULTANT
ARCADIS

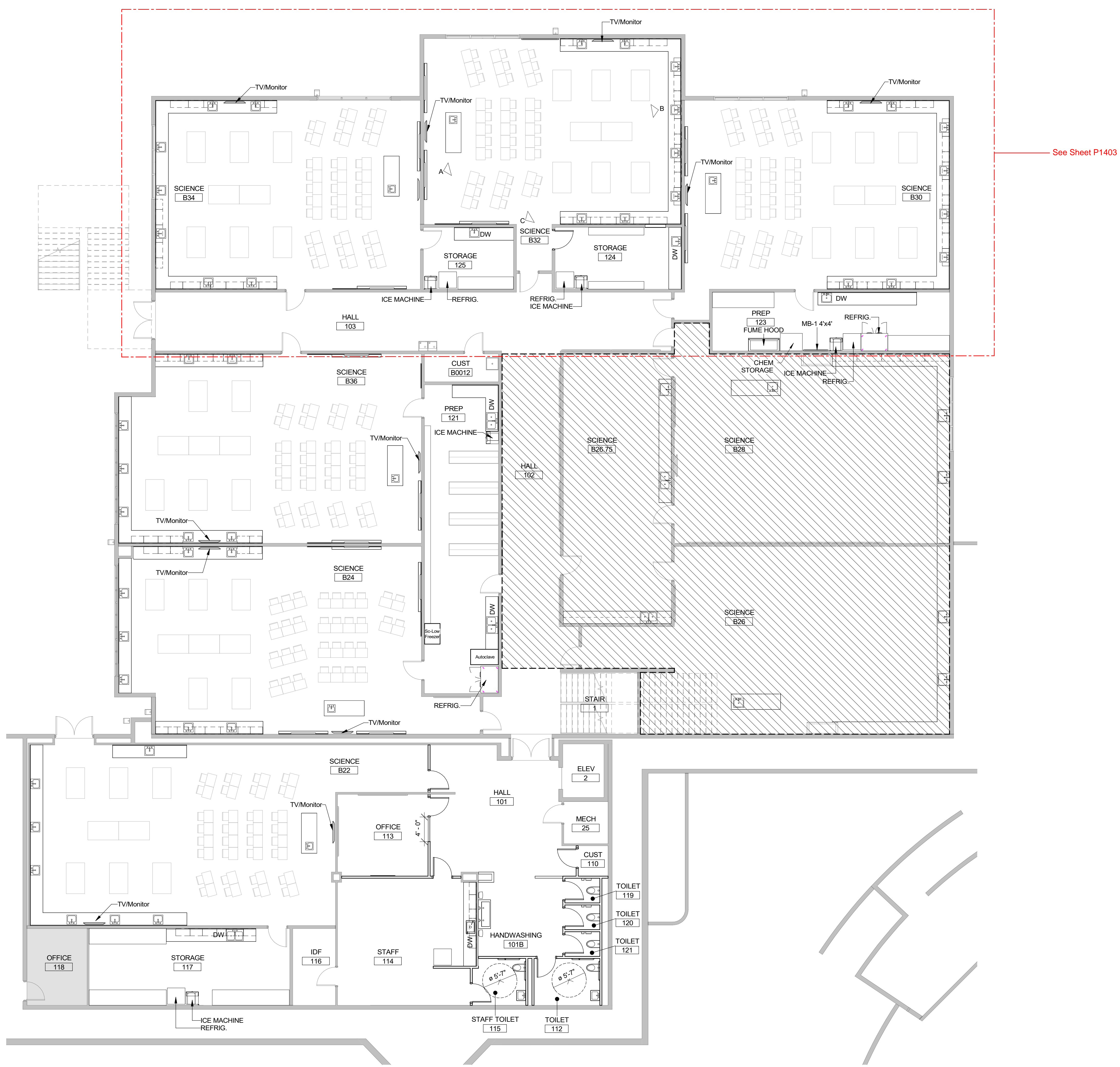
830 NE Holladay Street
Portland, OR 97232, USA
tel 503 226 6950 fax 503 273 9192

PROJECT
Lakeridge HS Science Lab Remodel
1235 Overlook Dr
Lake Oswego, OR 97034

PROJECT NO:
143246

SHEET TITLE
SECTOR E FLOOR PLAN - LEVEL 1 PRESENTATION

SHEET NUMBER
P1402



1 SECTOR E FLOOR PLAN - LEVEL 1
SCALE: 1/8" = 1'-0"

2023-11-29 4:42:36 PM

Autodesk Docu/143246-LOHS-LHS_HS_Summodar-R20231115-143246_LakeridgeScienceLab_R22.rvt

No.	DESCRIPTION	DATE
1	50% DESIGN DEVELOPMENT	2023-11-15

NOT FOR CONSTRUCTION

CONSULTANTS

SEAL

PRIME CONSULTANT

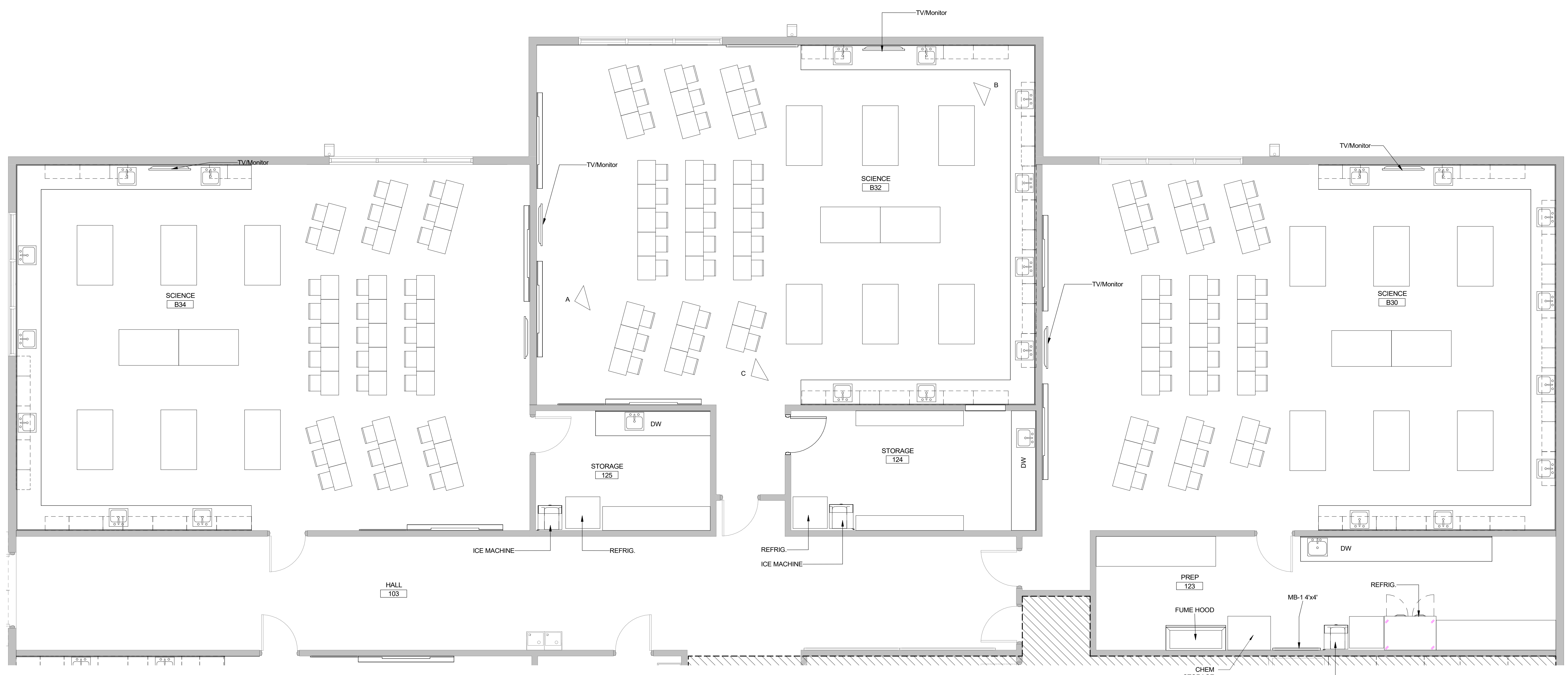
 830 NE Holladay Street
 Portland, OR 97232, USA
 tel 503 226 6950 fax 503 273 9192

PROJECT
Lakeridge HS Science Lab Remodel
 1235 Overlook Dr
 Lake Oswego, OR 97034

PROJECT NO:
 143246

SHEET TITLE
SECTOR E FLOOR PLAN - LEVEL 1 PRESENTATION
 Copy 1

SHEET NUMBER
P1403



1 SECTOR E FLOOR PLAN - LEVEL 1
 SCALE: 1/4" = 1'-0"

Lakeridge High School - Science Classroom and Prep Room Equipment								
Equipment	Quantity	Utility connections	Room(s)	New or existing	In contract/OFCI/OFOI	sole sourced/ BOD /	Disipline	Notes:
Fume Hood - Single Side	1 per room	Electrical, Mech, Gas, Water	123	New	In Contract		M,E,P	Emergency Shut Off Switch
Fume Hood - Double					NONE FOR LAKERIDGE			
Fire blank and extinguisher	1 per room	N/A	B30, B32, B34, B36, B24, B22	New	In Contract		N/A	Let us know if district will be reusing the blanket or extingusiher
Emergency Shower / Eyewash	1 per room	Plumbing	B30, B32, B34, B36, B24, B22	New	In Contract	Basis of Design	P	This is a combo shower and eyewash
See notes above Eyewash								
Dishwasher	1 per room	Electrical and Plumbing	Prep Rooms Only ?	New	In Contract	N/A	A,E,P	Commercial/Science-grade dishwasher
Indoor Plant Growing Station					NONE FOR LAKERIDGE			
Special Lab Island					NONE FOR LAKERIDGE			
Retractable Drop Down P&D	?	Electrical and Tech	B30, B32, B34, B36, B24, B22	New	In Contract	?	E,T	Retractable Drop-Down Power And Data, See Electrical & Technology.J15
Refrigerator / Freezer	1 per room	Electrical	Prep Rooms Only ?	New	In Contract	N/A	E	
Heavy Duty Refrigerator / Freezer	1 per room	Electrical	Prep Rooms Only ?	New	In Contract	N/A	E	
Ice Machine	1 per room	Electrical, Plumbing	(1) Prep Room Only ?	New	In Contract	N/A	E, P	Ice Machine with floor sink
Chemical Storage Cabinets / Flammable Storage Cabinet	1 per room	Mech?	Prep Rooms Only ?	New	In Contract	?	M	In the drawings they are not listed as the items: are they separate or the same item: Chemical Storage Cabinets / Flammable Storage Cabinet
Duplicated from above see notes Flammable Storage Cabinet	1 per room							See this same as a chemical storage I believe flammable needs venting
Sink with Sand Traps	Ref to Drawings	Plumbing		New	In Contract	?	P	Sink and all components related to it
Incubator Unit	1	Electrical	?	New	OFCI	?	E	ThermoFisher SHKE6000 (120 V, shaker, no refrigeration)
Goggle Sanitizer					NEED INFO			
Lab Coat Rack					NEED INFO			
Peg Board					NEED INFO			
Gas Piping					NEED INFO			
Gas Fitting Nozzles					NEED INFO			
TV / Monitor					OFCI			
4'x4' MB								
4'x8' MB								
4'x4' TB								
Ceiling Mounted Camera		Electrical and Tech			In Contract	Basis of Design	T	Basis of design is Vaddio DocCAM 20 HDBT OneLink
Card Reader								
Utility Sink								
Clock								
Autoclave								
Abbreviations					OFCI = Owner Furnished/Contractor Installed OFOI = Owner Furnished/Owner Installed	BOD = Basis of Design	M = Mechanical P = Plumbing E = Electrical T = Technology	

NOTES/Info Needed from LOSD
Confirm location and if single sided. (Chemistry rooms are part of Phase 2 work.)
Need to confirm approach with LOSD
Confirm which classes/Prep are designated "Chemistry" (they would likely have a fume hood as well)
Single eyewash, sink integrated at each classroom and Prep (without a shower). Confirm Memo + Code approach
Confirm OFCI. Confirm size + number.
Confirm type and locations. Further discussion needed about power approach.
Confirm this is a residential refrigerator and if OFCI.
Confirm OFCI. Confirm size + type. Per 11/30 Design Mtg, only (1) ice machine for Department. Confirm OFCI. Confirm location.
Confirm need, size, number, location + type.
Confirm size, number, location + type.
Located at every sink. Confirm locations and if OFCI.
Confirm need with LOSD/teachers. If needed, confirm size, locations, OFCI, etc.
Confirm need with LOSD/teachers. If needed, confirm size, locations, OFCI, etc.
Confirm need with LOSD/teachers. If needed, confirm size, locations, OFCI, etc.
Confirm number and location.
Brackets & Monitor by LOSD
Review with teachers.
Review with teachers.
Review with teachers.
Confirm need with LOSD/teachers. If needed, confirm size, locations, in contract, etc.
For Prep room doors only. Confirm function with LOSD/teachers.
Confirm this is needed at any classroom or prep rooms? Deeper/utility sink
Confirm existing to remain
Confirm if needed, function, type, and exhaust.

