Penn Medicine
Perelman School of Medicine

February 2020

Construction Standards

The University Of Pennsylvania is compelled to create a sustainable school and workplace. The Perelman School of Medicine has developed construction standards supporting these efforts. These standards take into consideration materials, production, end-of-life alternatives, design, aesthetics, indoor air quality, and wellness. The following includes details about preferred vendors and how they meet our standards. If there are products that meet or exceed these standards, please bring them to our attention.

*Please note
Use of Outside Contractors for Maintenance and Small Projects

In fulfilling our contractual obligations with Local 835, this memo is intended to remind and reconfirm the established procedures for contracting out maintenance and small projects to outside contractors. All projects must be reviewed by the Directors of Trades for Facilities & Real Estate Services to determine resource availability from our in-house trades staff. This procedure has been in place for a number of years and this memorandum is issued to reinforce this process. When campus administrators fail to follow the prescribed procedure, it can lead to a violation of Article VI, Section 5, of the Addendum to the Master Agreement between the Trustees of the University and Local #835, IUOE. This union represents the tradespersons who are employed by the University's Facilities Department. The University must first endeavor to keep the work in-house.

It is, therefore, essential that Facilities & Real Estate Services review all the maintenance and small projects prior to awarding the work to an outside contractor. If this process is not followed, the cost of the project for a school or center in essence could be double the estimated cost: the cost for the outside contractors work and the award the University will be obligated to pay to IUOE Local 835 for violation of the collective bargaining agreement. If work is contracted directly by a school or center, in violation of this contract language, they may be financially responsible for these costs, to include any financial penalty that may be assessed. Facilities & Real Estate Services is committed to work with each school and center to obtain maximum value and productivity for your budgeted dollars, we need and appreciate your cooperation on this important aspect of our labor agreement.

http://www.nsf.org/services/by-industry/sustainability-environment

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Ceiling – Acoustical Tile

Preferred Vendor: Armstrong

Why:

- Cradle to Cradle (Bronze)
- Removal: No landfill fees or dumpster costs – pick up your old ceiling tiles
- Recycled content ranges from 35% to 87% (Recycling content depends on the specific panel)
- Manufactured regionally
- Add HRC (High Recycled Content) generates preference for local materials. $0.35 per sq. ft.

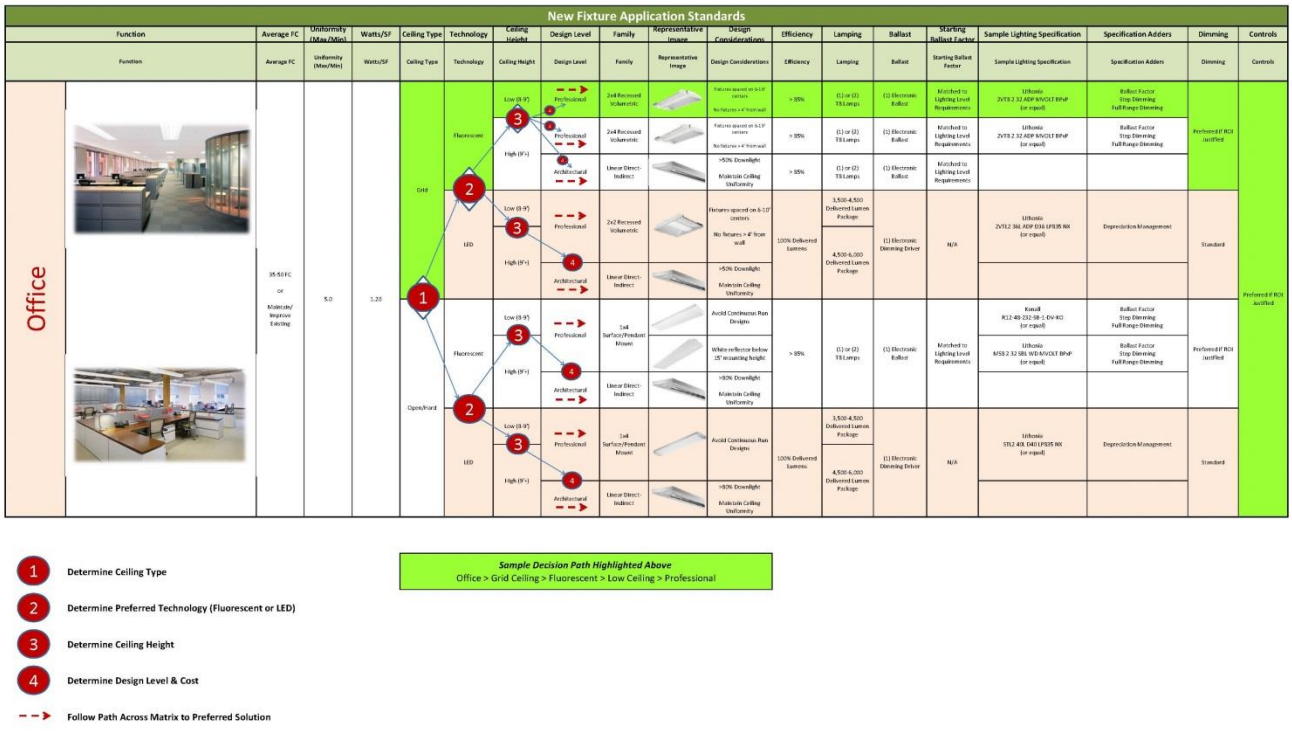
* Projects doing partial ceiling replacement should review our existing building standards to confirm the correct product.

Armstrong Ceilings	
Space	Ceilings
Auditorium	Optima - PB Tegular; Can do large scale tiles
Bathrooms	Ultima - HRC
Break rooms	Ultima - HRC
Classrooms	Ultima - HRC
Conference Rooms	Ultima - HRC
Corridors	Ultima - HRC
Equipment Corridors	Often Open Ceiling
Labs	Ultima/Optima – HRC
Lobbies	Optima - PB Tegular; Can do large scale tiles
Open Offices	Optima – PB Tegular
Private Offices	Ultima - HRC
Storage Rooms	Fine Fissured - HRC
Vivarium/Autoclave/Glasswasher	Ceramaguard w/hold down clips (Not holding rooms/OR)

Ceiling - Lighting

Requirements:

- Refer to the university Design Guide for lighting
  - 26 50 00 Lighting



1. Determine Ceiling Type
2. Determine Preferred Technology (Fluorescent or LED)
3. Determine Ceiling Height
4. Determine Design Level & Cost

--→ Follow Path Across Matrix to Preferred Solution

Sample Decision Path Highlighted Above
Office > Grid Ceiling > Fluorescent > Low Ceiling > Professional

U. Penn Interior Lighting Standards - 10.02.2014
Last Modified 10/3/2014 @ 10:35 AM

Keystone Lighting Solutions
"Lighting Upgrade Standards Matrix" ™ ©

New Fixtures
Page 1 of 1

* All lighting systems must be vetted through O + M for proper maintainability and operations.

Flooring - Carpet

Requirements:

- Meets CRI Green Label Plus
- Certified to the NSF-140 Platinum (Equivalent to C2C)
- ISO 14001
- Only Nylon 6
- At least 20% post-consumer recycled content
- Low VOC's
- Closed Loop recycling
- Adhesive free installation methods preferred

Preferred Vendor: Interface

Carpet	CRI Green Label Plus	NSF 140	ISO 14001	Recycled Content	Responsible Disposal	Manufactured
Interface	X	X	X	X	ReEntry 2.0/Convert	Georgia
J+J	X	X		X	Cradle-to-Grave	Georgia
Mannington	X	X	X	X	Loop Reclamation	New Jersey
Milliken	X	X	X	X	Zero Waste to Landfill	Georgia
Shaw	X	X	X	X	Cradle to Cradle	Georgia
Tandus	X	X	X	X	Closed Loop Recycling	Georgia

Backing to Specify	Name	Low VOC's	PC Recycled Content	PVC Free	Closed Loop
Interface	GlasBacRE	X	X		X
J+J		X	X		X
Mannington	InfinityRE/ rEvolve	X	X		X
Milliken	ES Backing System	X	X	X	X
Shaw	EcoWorx	X	X	X	X
Tandus	Ethos	X	X	X	X

Flooring - Hard Flooring

Preferred Vendors: Armstrong

Why:

Armstrong Standard Excelon

- Minimum of 18% post-consumer recycled content
- NSF/ANSI 322 Platinum
- ISO 14001
- FloorScore
- LOOP reclamation

Hard Flooring Tiles – Alt. to VCT	Recycled Content (Post Consumer)	ISO 14001	FloorScore/ Greenguard	Closed Loop	SMART	Manufactured
Altro Quartz Tile (Offices)	30%+	X	X			
Armstrong LinoArt	70% Bio-Based	X	X	On & On		Mississippi
Armstrong Standard Excelon	18%	X	X	On & On		Mississippi
Forbo MCT (Break rooms)	85% Organic	X	X	Natural	X	Scotland
Johnsonite Matera Rubber Tiles (Elevator) (Nitrogen tank-tile or sheet)		X	X			Ohio
Johnsonite iQ Optima	25.5%	X	X	X		Sweden/ stocked in Ohio
Mohawk Stonework	74%	X	X	X		
Noraplan eco	Rubber	X	X	X		New Hampshire

Flooring - Sheet Floor

Preferred Vendor: Johnsonite

Why:

- Resilient sheet products w/ pre 25.5% recycled content
- NSF/ANSI 322 Gold
- ISO 14001
- FloorScore
- Adhesives meet VOC content limit set by university

Sheet Flooring	Recycled Content (PC)	FloorScore/ Greenguard	ISO 14001	Closed Loop	SMART
Armstrong Medintech	18%	X	X		
Forbo Marmoleum	X	X	X	X	Platinum
Mannington BioSpec MD	5%	X	X	X	
Johnsonite Melodia 2.0	25.5%	X	X	X	
LG Naturelife	20%	X	X	X	
Noraplan eco	Rubber	X	X	X	
Roppe	X	X	X		

Construction - Millwork

Preferred Vendor: Corporate Interiors

Why:

- Manufactured in Delaware
- Use Plywood Substrate
- Adhesives meet VOC content limit set by university

Millwork	Substrate	Cabinets Finish	Counters	Adhesives
Bathrooms	Plywood		Corian (Grade B)	
Break Rooms	Plywood	Laminate	Corian (Grade B)	
Classrooms	Plywood	Laminate	Laminate or Corian (Grade B)	
Conference Rooms	Plywood	Laminate	Laminate or Corian (Grade B)	
Open offices (Copy Areas)	Plywood	Laminate	Laminate	

Millwork	Substrate	Cab Floor	Cab Panel	Adhesives
Elevators (New)	Plywood	Johnsonite Matera Weathered	Corian (Grade B)	
Elevators (Refurb)	Plywood		3M DI-NOC	

- Stellar Chance Elevator Flooring – Johnsonite Matera 583 Sicily Weathered (WRTSP)
- Blockley Hall Elevator Flooring – Johnsonite Matera 585 Florence Weathered (WRTSP)
- CRB & RDS also have this floor but we need to confirm the color.

Construction - Lab Casework

Information on Green Labs:
https://www.sustainability.upenn.edu/sites/default/files/Green%20Labs%20@%20Penn_0.pdf

Information on Freezer Rebate Program:
https://www.med.upenn.edu/spo/documents/ULTFreezerEfficiencyProgram2015_2.pdf

- Freezer Rebate Form:
https://www.sustainability.upenn.edu/sites/default/files/pdf/Freezer%20Rebate%20Program%20form%20Oct%202016%20Fillable.pdf

Manufacturer	FSC Premium	Recycled Steel	Lead Time	Glue/ Adhesive	Finish	VOC	CARB	Manufactured
Hamilton Scientific	5-30%	Min 25%	6-8 week			Meets Green Seal requirements		MI
Kewaunee	9%	Min 32.7%	6-8 week					NC
Wood-Metal		-				Can be reduced with choices	X	
Mott Manufacturing (New England Lab)		60%	6-8 week	Can change (silicone)	Solvent-free UV coatings	0 VOC	X	WV
Lab Crafters		69.6% Post Consumer 14.3% Pre Consumer - see attachment		Titebond (Wood Cabinets)		0 – Low VOC	X	NY, IL, TX, WI

Lab Crafters – Standard in Smilow & Stemmler Hall

Materials:

. Exposed Materials: Comply with the following:

1. **Exposed Wood: Do not use 2 adjacent exposed faces that are noticeably dissimilar in color, grain, figure, or natural character markings.**
    a. Wood Species and Cut: White maple, plain sliced.
    b. Grain Direction on Cabinet Faces and End Panels: Vertical.
    c. Veneer Matching on Cabinet Faces: Vertical matched.
2. Solid Wood: Clear hardwood lumber matching selected species, free of defects, selected for compatible grain and color and kiln dried to 7 percent moisture content.
3. Plywood: Hardwood plywood of species indicated, selected for compatible color and grain. HPVA HP-1, Grade AA faces at least 1/50 inch thick and Grade J crossbands. Edgeband exposed edges with minimum 1/8-inch-thick, solid-wood edging of the same species as face veneer.
4. Plastic Laminate: High-pressure, chemical-resistant laminate.
5. Edgebanding for Plastic Laminate Shelves: Solid maple complying with requirements above for "exposed wood," of thickness indicated, but not less than 3/8 inch.

A. Semiexposed Materials: Comply with the following:

1. Solid Wood: Sound hardwood lumber, selected to eliminate appearance defects and kiln dried to 7 percent moisture content. Any hardwood species similar in color and grain to exposed portions.
2. Plywood: Hardwood plywood of any species similar in color and grain to exposed portions. HPVA HP-1, Grade C faces and Grade J crossbands. Semiexposed backs of plywood with exposed faces shall be the same species as faces.
3. Plastic Laminate: High-pressure decorative laminate complying with NEMA LD 3, Grade GP-28.
4. Metal: Commercial-quality, cold-rolled, carbon-steel sheet, complying with ASTM A 366; matte finish; suitable for exposed applications.

B. Concealed Materials: Comply with the following:

1. Solid Wood or Plywood: Any hardwood or softwood species, with no defects affecting strength or utility. Hardwood and softwood lumber kiln dried to 7 and 12 percent moisture content, respectively. Concealed backs of plywood with exposed or semiexposed faces shall be the same species as faces.
2. Plastic Laminate: High-pressure decorative laminate complying with NEMA LD 3, Grade BK-20.
3. Particleboard: ANSI A208.1, Grade M-2.
4. Hardboard: AHA A135.4, Class 1 Tempered.

C. Clear Laminated Safety Glass for Doors: ASTM C 1172, Kind LT; Kind FT, Condition A, Type I, Class I, Quality q3 lites with clear, polyvinyl butyral interlayer.

1. Glass Thickness: 5.5 mm thick.

D. Glue: Type 2 or Type 3.

Casework Hardware:

A. Hardware, General: Provide manufacturer's standard satin-finish, commercial-quality, heavy-duty hardware complying with requirements indicated for each type.

B. Hinges: Satin-finished stainless-steel, 5-knuckle hinges complying with BHMA 156.9, Grade 1, with antifriction bearings and rounded tips. Provide 2 for doors less than 48 inches high and 3 for doors more than 48 inches high. Notch edge banding for proper fit.

C. Wire Pulls: Stainless steel or chrome-plated brass, satin finished, fastened from back with 2 screws.

1. Sliding Doors: Flush mount stainless steel except where full width flush wood pull is indicated.
2. Provide 2 pulls for drawers more than 24 inches wide.
3. Mount drawer pulls horizontal and door pulls vertical.

D. Door Catches: Nylon-roller spring catch or dual, self-aligning, permanent magnet catch. Provide 2 catches on doors more than 48 inches high.

E. Drawer Guides and Pull-Out Writing Surface Guides: Accuride 150 lb. full extension ball bearing suspension.

F. Label Holders: Stainless steel or chrome plated, sized to receive standard label cards approximately 1 by 2-1/2 inches, attached with screws.
1. Provide where indicated.

G. Drawer and Cupboard Locks: 5-disc tumbler locks, brass with chrome-plated finish, complying with BHMA A156.11, Grade 1.

1. Provide minimum of 2 keys per lock, 3 keys for each group keyed alike and 2 master keys for each system.
2. Provide where indicated.
3. Provide unique keying for each lock unless otherwise indicated.
4. Keying: Provide master key system with capacity for 225 primary key changes; master key one level with the potential of 40 different, non-interchangeable master key groups.

H. Sliding-Door Hardware Sets: Manufacturer's standard, to suit type and size of sliding-door units.

I. Adjustable Shelf Supports: Seismic approved twin pin polypropylene shelf retainers.

Mesh & Blackout Shades

Preferred Vendor: Draper - *Infinity by Phifer*

Why:

- Sheer weave, high performance tool for conserving energy
- PVC-free, lead-free and 100% recyclable
- Made from synthetic or natural yarns that come from post-industrial waste by-product
- Microbial and fungal resistant, durable and washable

Preferred Vendor: MechoShade Systems: Install by Economy Decorators Inc.

Why:

- Contributes to healthy, natural day lighting
- *ThermoVeil* and *EuroVeil* fabrics are anti-microbial
- MechoShades' products have been incorporated in LEED buildings
- Lifetime limited warranty

Mini Blinds

Preferred Vendor: HunterDouglas - *Architectural CL Model*

Why:

- Slats contain 95% recycled aluminum
- Greenguard Gold Certified
- *Anti-static Dust Shield*
- Lifetime guarantee

Walls - Wall Base

Preferred Vendor: Johnsonite

Why:

Rubber Wall Base

- FloorScore certified
- ISO 14001
- Recycled content

Vinyl Wall Base

- FloorScore certified
- ISO 14001
- Recycled content
- Phthalate-free

Wall Base	Natural	Low Emitting Adhesives	Rapid Renewable Materials	Manufactured Regionally	Recycled Content	Phthalate Free
Rubber						
Johnsonite		X			X	X
Mannington		X	X	Rubber Manuf. In California	X	
Roppe	10%	X	X	Made in U.S.A.	X	X
Vinyl						
Johnsonite		X			X	X
Mannington		X		New Jersey		
Roppe		X		Made in U.S.A.	X	X

Walls - Wall Protection

Preferred Vendor: Koroseal – Korogard Wall Protection

Why:

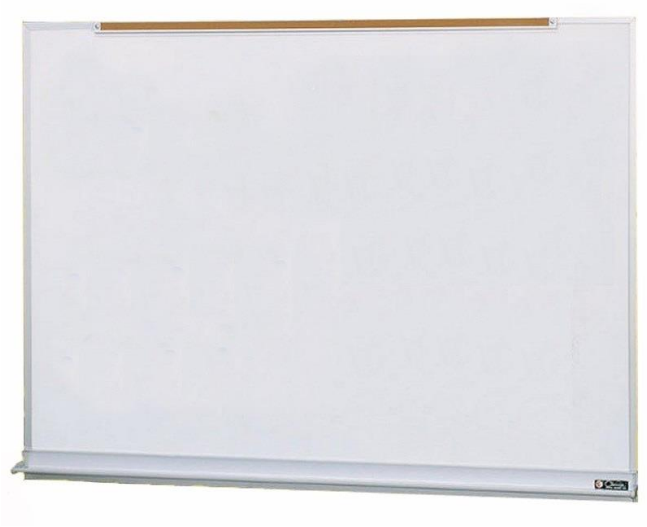
Stainless Steel Corner Guards: Korogard GS10

- Contain 67% pre-consumer recycled content by weight per linear foot
- Final manufacturing location is Muncy, Pennsylvania 17756
- Can be recycled through the Korogreen recycling program

Alternative Corner Guard – Korogard G200

- Contains 35% pre-consumer recycled content
- Final manufacturing location is Muncy, Pennsylvania 17756
- Can be recycled through the Korogreen recycling program

Preferred Vendor: Claridge Series 800



- Deko
- KI
- Glass Boards

Whiteboard Paint Preferred Vendors

- Wilson Art Contract (Greenguard Certified)
- Designtex writeUp h2o (Low-emitting/water based)
- IdeaPaint CRE – 8 (Water based/Formaldehyde-free)

Walls - Paint

Preferred Vendor: Sherwin-Williams Paint

Why: ProGreen 200

- Low VOC – Greenguard certified/Low odor
- Can be applied in occupied areas
- Options: flat, low-sheen, eggshell, semi-gloss, primer

Sherwin Williams Paint	
Space	Paint
Auditorium	ProGreen 200
Bathrooms	ProGreen 200 Semi-gloss
Break rooms	ProGreen 200
Classrooms	ProGreen 200
Conference Rooms	ProGreen 200
Corridors	ProGreen 200
Labs/Equipment corridors	ProGreen 200 – ProIndustrial Epoxy
Lobbies	ProGreen 200
Open offices	ProGreen 200
Private Offices	ProGreen 200
Storage rooms	ProGreen 200 Semi-gloss
Vivarium/Autoclave/Glasswash	ProGreen 200 – ProIndustrial Epoxy

* See full Specification for detail on primer or substrate

Walls - Paint

Benjamin Moore

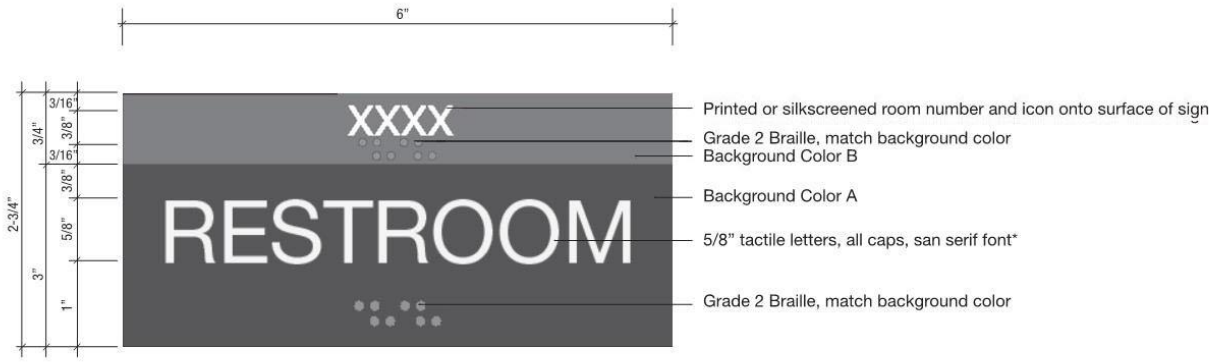
Why: Ultra Spec 500

- Zero VOC – GreenSeal compliant, LEED, CHPS
- Corotech Pre-Cat epoxy is low VOC and meets LEED
- Can be applied in occupied areas
- Options: flat, low-sheen, eggshell, semi-gloss, primer

Benjamin Moore Paint	
Space	Paint
Auditorium	Ultra Spec 500
Bathrooms	Ultra Spec 500 Semi-gloss
Break rooms	Ultra Spec 500
Classrooms	Ultra Spec 500
Conference Rooms	Ultra Spec 500
Corridors	Ultra Spec 500
Labs/Equipment corridors	Corotech Pre-Catalyzed Waterborne Epoxy Eggshell
Lobbies	Ultra Spec 500
Open offices	Ultra Spec 500
Private Offices	Ultra Spec 500
Storage rooms	Ultra Spec 500 Semi-gloss
Vivarium/Autoclave/Glasswash	Corotech Pre-Catalyzed Waterborne Epoxy Eggshell

* See full Specification for detail on primer or substrate. Equivalent to Greek Villa is Paper Mache AF-25.

Walls - Restroom Signage



No-icon Restroom Sign Elevation--option A

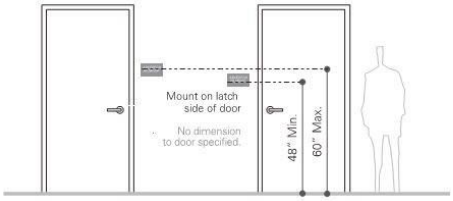
SCALE: FULL

ADA-compliant Restroom Room sign (with room number):

Our standard is black background with white icon and lettering.

- Finish: matte, non glare
- Tactile copy: 5/8" all capital letters, optical and open spacing
- Tactile elements: raised 1/32".
- Braille: Grade 2 located directly below copy
- Location: Mount sign on wall adjacent to latch side of door. Where there is no wall space on the latch side, including at double leaf doors, signs shall be placed on nearest adjacent wall. Mounting height 60" above finish floor to center line of the sign (or consistent with other ADA compliant signs in space). Mounting location shall be determined so that a person may approach within 3" of sign without encountering protruding objects or standing within the swing of a door.

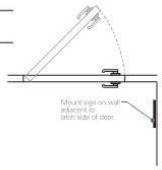
Standard Sign Location



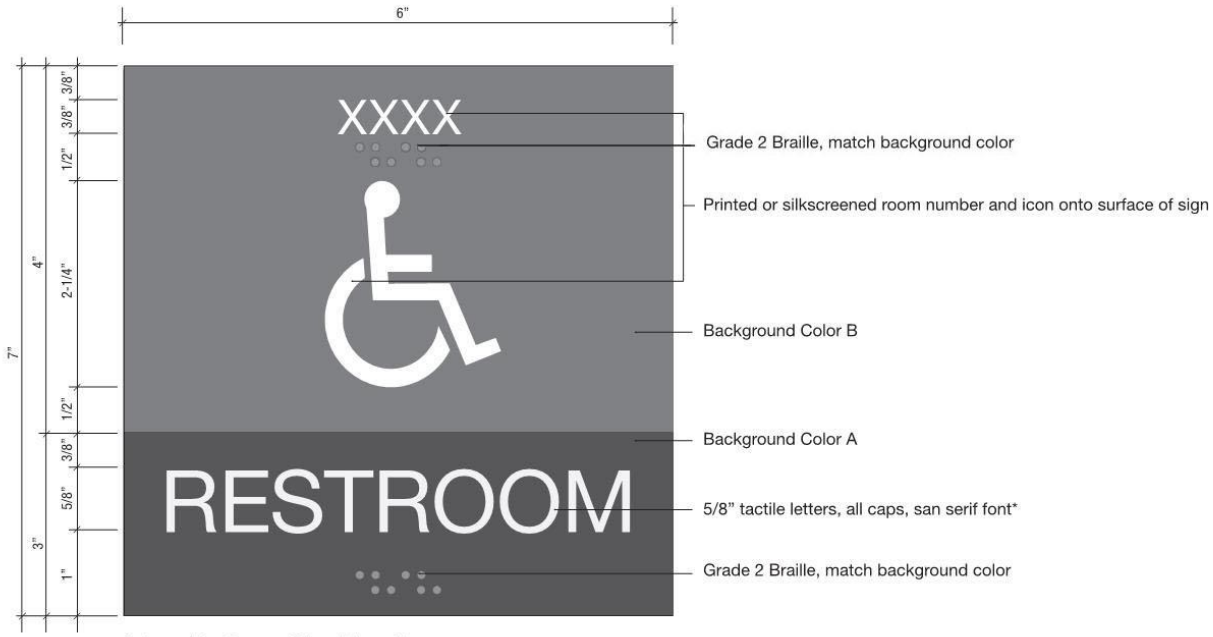
When Mounting Space Is Not Available (§703.4.2)

- When there is no room for the sign on the strike side of the door, it can be placed on the nearest adjacent wall.

When Mounting Space Is Not Available



Partial list of acceptible fonts: Ariel regular, Avant Garde Gothic Std Book and Book Condensed, Avenir Book and Roman and Medium, Clearface Gothis Light, Eurostyle Medium, ITC Franklin Gothic Book (sans serif), Frutiger Roman, Futura Book and Medium, Gill Sans Std Regular, Helvetica Regular, Helvetica Neue Roman and Condensed, Interstate Light and Regular, Lucida Sans Std Roman, FF Meta Book and Normal, Trade Gothic Regular, Univers LT Std Regular and 57 Condensed



1-icon Restroom Sign Elevation

SCALE: FULL

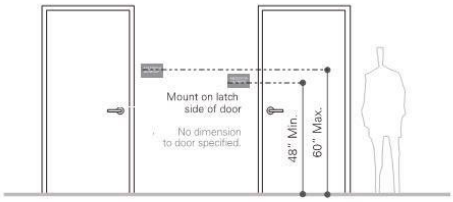
ADA-compliant Restroom Room sign (with room number):

Our standard is black background with white icon and lettering.

- Finish: matte, non glare
- Tactile copy: 5/8" all capital letters, optical and open spacing
- Tactile elements: raised 1/32".
- Braille: Grade 2 located directly below copy
- Location: Mount sign on wall adjacent to latch side of door. Where there is no wall space on the latch side, including at double leaf doors, signs shall be placed on nearest adjacent wall. Mounting height 60" above finish floor to center line of the sign (or consistent with other ADA compliant signs in space). Mounting location shall be determined so that a person may approach within 3" of sign without encountering protruding objects or standing within the swing of a door.

Partial list of acceptible fonts: Ariel regular, Avant Garde Gothic Std Book and Book Condensed, Avenir Book and Roman and Medium, Clearface Gothis Light, Eurostyle Medium, ITC Franklin Gothic Book (sans serif), Frutiger Roman, Futura Book and Medium, Gill Sans Std Regular, Helvetica Regular, Helvetica Neue Roman and Condensed, Interstate Light and Regular, Lucida Sans Std Roman, FF Meta Book and Normal, Trade Gothic Regular, Univers LT Std Regular and 57 Condensed

Standard Sign Location



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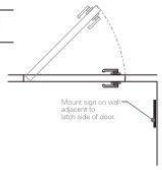
When Mounting Space Is Not Available



Miscellaneous - Plumbing Fixtures

Requirements:

- Refer to the university Design Guide for "Plumbing Fixtures"
  - Section 224000

Miscellaneous - Toilet Partitions/Accessories

Preferred Vendor: Bobrick

Why: Bobrick "Green"

- GREENGUARD certified
- SCRC partitions are 30% recycled content and regional materials
- Toilet partition hardware is manufactured using 50%-70% post-industrial recycled stainless steel.

Commercial Toilet Accessories:

- Refer to the university Design Guide "Accessories" for manufacture and finishes
  - Section 10.28.00
    - Toilet Seat Cover Dispenser
    - Toilet Paper Holder
    - Hand Soap Dispenser **(manual operation)**
    - Hand Towel Dispenser
    - Odor Control System Dispenser
    - Feminine Hygiene Vendors
    - Sanitary Napkin Receptacle

* **Projects should install matching accessories in smoke. Any project looking at doing a different standard must have it approved by PSOM.**

Porcelain Tile

Preferred Vendor: ELKAY

Why: ELKAY "EZH2O"

- 3000-gallon capacity filter, certified NSF 42, with visual monitor to indicate when replacement is necessary

- Unit shall have lead-free design

ELKAY® SPECIFICATIONS

EZH2O® In-Wall Bottle Filling Station with Single Filtered SwirlFlo® GRN Refrigerated Fountain Model LZWS-SFGRN8K

PRODUCT SPECIFICATION

In-wall bottle filling station with single refrigerated oval fountain with high-efficiency ECH8GRN chilling unit. LZWS-SFGRN8K shall deliver 8 GPH of 50° F drinking water at 90° F ambient and 80° F inlet water. Single stainless steel fountains with rounded edges and vandal-resistant pushbutton activation. Bottle filling unit shall be stainless steel construction with plastic ABS alcove Sensor-activation with an auto 20-second shut-off timer. Shall include Green Ticker™ displaying count of plastic bottles saved from waste. Bottle filler shall provide 1.1gpm flow rate with laminar flow to minimize splashing. Shall include the WaterSentry® Plus 3000-gallon capacity filter, certified to NSF/ANSI 42 and 53, with visual monitor to indicate when replacement is necessary. Shall include integrated silver ion anti-microbial protection in key areas. Unit shall meet ADA guidelines. Unit shall be lead-free design which is certified to NSF/ANSI 61 and 372 and meets Federal and State low-lead requirements. Unit shall be certified to UL399 and CAN/CSA 22.2 No. 120.

STANDARD FEATURES

Fountains

- Fountains feature the Flexi-Guard® StreamSaver™ Safety Bubbler
- Stylish oval basin with pushbutton activation
- Features high-efficiency ECH8GRN chilling unit

Bottle Filler

- No-touch, sensor-activated operation
- Auto 20-second shut-off
- WaterSentry® Plus 3000-gallon capacity Filtration System, certified to NSF/ANSI 42 & 53 (Lead, Class 1 Particulate, Chlorine, Taste & Odor)
- Integrated Silver Ion Anti-microbial Protection in key areas
- Quick Fill Rate: 1.1 gpm
- Laminar Flow provides minimal splash
- Real Drain System eliminates standing water
- Visual User Interface display includes:
  - Innovative Green Ticker™ counts bottles saved from waste.
  - LED Visual Filter Monitor shows when replacement is necessary
- Includes lower hinged panel for easy access and servicing

COOLING SYSTEM

- High-efficiency compressor: hermetically-sealed, reciprocating type, single phase. Sealed-in lifetime lubrication.
- Condenser: Fan cooled. Fan motor is permanently lubricated.
- Cooling Unit: Combination tube-tank type. Continuous copper tubing with stainless steel tank. Fully insulated with EPS foam which meets UL requirements for self-extinguishing material.
- Refrigerant Control: Refrigerant R134a is controlled by accurately calibrated capillary tube.
- Temperature Control: Enclosed adjustable thermostat is factory preset. Requires no adjustment other than for altitude requirements, Easily accessible by removing lower grille panel.

CAPACITIES CHART

Model	Voltage / Hertz	Chilling** Capacity	F.L. Amps	Rated Watts	Approx. Ship Wt.
LZWS-SFGRN8K	115V / 60Hz	8 GPH	3.8	260	126

***Based on 80°F inlet water & 90°F ambient air temp for 50°F chilled drinking water.*

RATED FOR INDOOR USE ONLY

CONSTRUCTION

- Stainless steel bottle filler construction with ABS plastic alcove
- Includes stainless steel ventilating louvered grille (includes two chilling units).
- Furnished with MF100 and MFWS100 wall mounting boxes constructed of galvanized steel.
- Flexi-Guard® StreamSaver™ Safety Bubbler utilizes an infused anti-microbial pliable polyester elastomer to prevent accidental mouth injuries. Flexes on impact. Lower-flow water-efficient water stream.

Replacement Filters: Available as Singles and Multi-packs. Order part numbers:

- 51300C (single)
- 51300C_3PK (three)
- 51300C_12PK (twelve)
- 51300C_24PK (twenty-four)
- 51300C_48PK (forty-eight)

Warranty: 5 year limited warranty on the unit's refrigeration system. Electrical components and water system are warranted for 12 months from date of installation or 18 months from factory shipment, whichever date falls first.

CERTIFICATIONS / STANDARDS

- ADA Compliant
- UL399 and CAN/CSA 22.2 No. 120 Certified *(Only 115V models are certified)*
- ANSI/NSF 61 and 372 Certified
- ANSI/NSF 42 and 53 Certified *(Filter only)*
- GreenSpec® Listed

This specification describes an Elkay product with design, quality and functional benefits to the user. When making a comparison of other producer's offerings, be certain these features are not overlooked.

In keeping with our policy of continuing product improvement, Elkay reserves the right to change specifications without notice. Please visit elkayusa.com for the most current version.

2222 Camden Court
Oak Brook, IL 60523
630-572-3192
Elkayusa.com

14-66A (Rev 03/2013)

Demolition Package

Recycling Materials

- Ceiling: Armstrong
    - Can specify for ceiling recycling in project specs
    - Confirm with Armstrong that old ceiling tiles can be recycled (doesn't matter who made them)
    - Stack approved old tiles on pallets and shrink wrap or tightly band them
    - Call Armstrong when you have a full truckload. Will pick up old mineral fiber ceilings when and where you tell them at no charge

- Carpeting: Metropolitan Carpet

  Board loom –
    - Carpet over carpet is suggested when having to replace worn out broad loom

  Carpet Tile –
    - Can specify to be recycled in project specs
    - Can be spec'd to be sent for energy recovery
    - Donate tile that is still in good shape

Glossary

- **BIFMA** – Produce **voluntary** standards for manufacturers of office furnishings. These standards are intended to provide a common basis for the evaluation of safety, durability, and the structural adequacy of the specified furniture.

- **Cradle to Cradle** – This certification is a multi-attribute eco-label that assesses a product's safety to humans and the environment and design for future life cycles. It focuses on using safe materials that can be disassembled and recycled as technical nutrients or composted as biological nutrients.

- **CRI –** The Carpet and Rug Institute has a Green Label testing and approval program that sets limits for the level of VOC emissions from carpet, adhesives and cushion that can be released into the indoor air.

- **FloorScore** - Flooring products are independently certified by SCS to comply with the volatile organic compound emissions criteria of the California Section 01350 Program.

- **FSC** - FSC sets high standards that ensure forestry is practiced in an environmentally responsible, socially beneficial, and economically viable way. Certifiers evaluate both forest management activities (forest certification) and tracking of forest products (chain-of-custody certification). FSC has developed a set of Principles and Criteria for forest management that is applicable to all FSC-certified forests throughout the world. There are 10 Principles and 57 Criteria that address legal issues, indigenous rights, labor rights, multiple benefits, and environmental impacts surrounding forest management.

- **Greenguard** – Certifies indoor air quality.

- **ISO 14001** - Specifies requirements for an environmental management system.

- **Level** – The BIFMA sustainability standard is a third party validated furniture sustainability standard that addresses materials, energy/atmosphere, human/ecosystem health, and social responsibility.

- **NSF 140** - Designed to establish a system with varying levels of Certification to define sustainable carpet. This establishes performance requirements for public health and environment, and addresses the triple bottom line – economic-environmental-social, throughout the supply chain.

- **SMART** – A sustainable materials rating technology, SMART is to products what LEED is to buildings – to qualify a product must satisfy 14 prerequisites points and score at least 28 of 162 points in six areas.

- **VOC** – Volatile Organic Compounds have significant vapor pressures that can affect the environment and human health.

Appendix

Green Guidelines for Renovations Checklist

Project Number: Project Name:

Project Address:

Owner:	Architect:	MEP:	General Contractor:

Green Guidelines for Renovations Checklist

University of Pennsylvania Project Number: 17100.00

Step 1: Guideline Applicability Analysis			
Five Questions	Yes	No	Notes
1. Is the total project construction budget greater than $7 million?			
2. Is the total renovated project area greater than 10,000 sq ft?			
3. Does the renovation project involve more than one building system (HVAC, plumbing, lighting, etc.)?			
4. Does the renovation involve more than 3 specification divisions? (for example, Section 06 Wood, 09 finishes, 12 furnishings, etc.)			
5. Will an outside design professional be hired?			

Step 1: Results		
If the Project Team answers YES to all five of these questions, the policy is to design, construct, and certify the renovation project to at least the Silver level under LEED™ for Commercial Interiors. In addition, any project with a construction budget over $4 million and 10,000 sf should be considered for LEED certification. Exception: If the project does not meet the USGBC's Minimum Program Requirements, the project is not required to meet LEED certification. The project boundaries and schedule are among the factors to be considered in determining the USGBC's Minimum Program Requirements.		
If the Project Team answers YES to fewer than five of these questions, and the project construction budget is at least $100,000, University policy is to follow these Renovation Guidelines in lieu of LEED Certification.		

Step 2: Designating a Green Coordinator	
IF LEED- then the A/E team shall designate a LEED coordinator	
IF GUIDELINES shall be followed instead…	
1)Requiring an outside design professional- then the A/E team shall designate a Green Guidelines Coordinator (GGC)	
2)Without an outside design professional- then the responsibilities of the GGC will be performed by a designated member of the School/ Center staff	
3) Performed by the FRES O&M Small Projects Group- then the GGC shall be designated by O&M management and the School/ Center	

Step 3: If not LEED, then these Green Guidelines for Renovations shall be followed					
Requirements	Check to Acknowledge:				Explanation if Necessary
	Arch	MEP	GC	GGC	
1) When deviations from any aspects of the Guidelines are identified, they must be justified by the School/ Center project representative using the GGR checklist					
2) Some Schools within the University have developed specific standards for design, engineering, and product selection that should be followed in addition to these Guidelines.					

3) For projects that contain extensive matching of existing materials, finishes, or furnishings, the GGC should review the environmental performance of those existing materials for compliance with the Green Guidelines and present the information to the Project Team. **When existing materials do not meet the Green Guidelines, the Project Team will determine if a wholesale replacement of the materials is justified, and/or if there is an alternate compliant material that could be used.** Use of non-compliant materials is considered an exception to the Guidelines, and **should be documented and explained in the GGR CHECKLIST, and recorded in the project file.**					
4) All consultants, contractors, trades, and service providers are in compliance with these green guidelines					

Requirements	Check to Acknowledge:				Explanation if Necessary
	Arch	MEP	GC	GGC	
Maintenance Manuals and Instructions:					
1) Ensure that all building engineering and building systems information (such as engineering equipment operation manuals and maintenance recommendations) is provided to and received by appropriate Penn Operations and Maintenance personnel					
2) Coordinate training on all installed or purchased equipment with appropriate FRES and building administration staff					
3) Coordinate with the contractors, FRES Housekeeping leadership, and the building administration staff to ensure that all submittal materials and/or guidelines for cleaning and maintenance of interior finishes are provided and received by appropriate Penn staff.					
Commissioning and Minimum Energy Performance					
1) Coordinate the goals for energy performance and commissioning with the project team at the start of the project; Penn's Recommissioning Program Manager is to be invited to the kick-off meeting of any project over 10,000 sf or as deemed appropriate by the Penn PM.					
2) Follow the requirements for building systems set out in Penn's Penn Design Standards					
3) Specify Energy Star rated equipment and appliances. (If Energy Star does not rate the type of equipment, products are to be selected / specified with energy efficiency as a primary concern.)					
4) Ensure that the design team meets the requirements (if any) of previously identified PA Act 129 energy efficiency **rebates.**					
Indoor Air Quality (During Construction)					
1) Ensure that the project specifications follow the recommended control measures of Chapter 3 of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings Under Construction, latest Edition.					
2) Protect new and existing materials from moisture damage during construction.					
Indoor Air Quality (Post Construction)					

1) Specify all furniture, furniture systems, carpets, flooring, acoustic ceilings, paints, stains, coatings, caulks, adhesives, sealants, primers, and wall coverings to comply with one or more of the indicated third party certifications and standards or that the products meet or are equal to the following standards for indoor environmental quality: (BIFMA level Certification, California Section 01350, CRI Green Label Plus, Floor Score, GREENGUARD Indoor Air Quality Certification Program, Green Seal GS-11, Green Seal GS-47, NSF 140 Platinum, South Coast Air Quality Management District Rule 1168)					
Waste and Jobsite Recycling					
1) The GGC shall ensure that the GC/CM provides manifests to the Penn Project Manager documenting that a minimum of 75% of total non-hazardous construction and demolition debris is recycled and/or salvaged.					
2) Creation/Communication of Jobsite Waste Management Plan					
3) Provide recycling and waste containers to accommodate the anticipated quantities of demolition and construction waste and recycling throughout the duration of the project and ensure there is an appropriate location for these containers in the project space during demolition, construction, and fit out.					

Requirements	Check to Acknowledge:				Explanation if Necessary
	Arch	MEP	GC	GGC	
4) Reporting: construction and demolition waste quantities are to be reported monthly to the GGC and project Team and is also to be included in the Penn Close-out Documents. Reporting is to include, by weight, all waste delivered to landfills and all waste diverted from landfills through recycling, reuse, donation, composting, and all other diversion strategies.					
5) The GGC is to provide monthly reports of all construction and demolition waste data to the Penn PM, to be forwarded to the FRES O&M Urban Parks Director.					

Green Guidelines for Renovations

University of Pennsylvania Project Number:

03 Concrete

Requirements	Product	Complies	Responsibility			Notes
			Arch	MEP	GC	
A) For projects using concrete delivered by a mix truck: replace at least 20% of all cementitious material by weight with fly ash, ground granulated blast furnace slag, or other recycled materials. For some highperformance applications, fly ash may account for 70% to 100% of the pozzolan materials.						
B) For projects using concrete for interior concrete applications:						
1.Provide data on the amount of post-industrial pozzolan (fly ash, blast furnace slag, or other materials) cement substitution as a percentage of the full product composition by weight.						
2.Provide data on the percentage of post-industrial and post-consumer recycled content aggregate.						
3.Provide MSDS product information data for form release agents.						
4. If wood formwork for concrete is used, ensure that the formwork is FSC Certified.						

06 Wood and Plastics

A) For new composite wood and panel products (plywood, particleboard, etc.):						
1) Products shall have no added urea formaldehyde.						
2) Panel adhesives shall be low-emitting with a maximum VOC content of 50 g/L.						
B) New Wood Trim, Custom Casework, Paneling, Veneer, etc. is to be FSC certified						
C) Wood for trim work and furniture is harvested or salvaged within 250 miles of campus						
D) For Plastic Laminate countertops: Provide products that are GREENGUARD Indoor Air Quality Certified						

07 Thermal Moisture Protection

A) Use interior sealants with a maximum VOC of 250 G/l1 (as required to meet South Coast Air Quality						

( ) I)

08 Doors

A) All existing doors have been **evaluated** for potential reuse in the project						
B) Wood used in new doors shall comply with Section 06.						
C) Composite wood & panel products in doors shall follow Section 06.						

09 Finishes

A) Gypsum Board							
	1) Specify synthetic gypsum board as preferred to virgin gypsum sourcing						
	2) Gypsum Board to be 10% minimum preconsumer product						
B) Acoustical Ceiling Tile content: 10% min pre-consumer & 25% min post-consumer							
C) Wood flooring shall comply Section 06							
E) Cork Flooring products must be GREENGUARD Indoor Air Quality Certified							

Requirements		Product	Complies	Responsibility			Notes
				Arch	MEP	GC	
F) Ceramic Tile shall have 25% postconsumer content							
G)Resilient flooring, epoxy flooring, and other hard flooring							
	1) All hard flooring must meet requirements of the FloorScore® standard or be GREENGUARD Indoor Air Quality Certified						
	2) Adhesives: see Section H below for VOC content limits of adhesives						
	3) Epoxy flooring is to meet SQAMD Rule 1113 for VOC mixed compounds.						
H) Carpet							
	1) Use Products that meet CRI GreenLabel Plus and are certified to NSF 140 Platinum						
	2) Use products that have a minimum of 10% postconsumer recycled content						
	3) All carpet adhesives must have less than 50g/L VOC.						
I) Carpet Backing							
	1) Use Products that meet the CRI GreenLabel Plus						
	2) Recycled content to be 20% minimum postconsumer						
	3) Use backing from a manufacturer that provides closed loop recycling						
J) Adhesives: Use products that are GREENGUARD Indoor Air Quality Certified or use product with the following maximum emissions limits:							
	1) Indoor Carpet Adhesives: 50 g/l						
	2) Carpet Pad Adhesives: 50 g/l						
	3) Outdoor Carpet Adhesives: 150 g/l						
	4) Wood Flooring Adhesives: 100 g/l						
	5) Rubber Floor Adhesives: 60 g/l						
	6) Subfloor Adhesives: 50 g/l						
	7) Ceramic Tile Adhesives: 65 g/l						
	8) VCT and Asphalt Tile Adhesives: 50 g/l						
	9)Drywall and Panel Adhesives: 50 g/l						
	10) Cove Base Adhesives: 50 g/l						

Requirements		Product	Complies	Responsibility			Notes
				Arch	MEP	GC	
	11) Multipurpose Construction Adhesive: 70 g/l						
I) Paint							
	1) Paints and coatings must be GREENGUARD Indoor Air Quality Certified or have VOC content limits that meet those established in Green Seal Standards GS-11, Paints						
	2) In spaces with windows, provide paint whose reflectivity is a minimum of 80% on at least 75% of WALL surfaces						
	3) In spaces with windows use CEILING paint that is 90% reflective						
	4) Clear wood finishes, floor coatings, stains, primers, sealers, and shellacs must be GREENGUARD Indoor Air Quality Certified or have VOC content limits that meet the South Coast Air Quality Management District (SCAQMD) Rule 1113, Architectural Coatings, (summarized below):						
	a) Clear Wood Finishes: 275 g/l						
	b) Varnish: 50 g/l						
	c) Sanding Sealers: 150 g/l						
	d) Wood Flooring Adhesives: 100 g/l						
	e) Lacquer: 60 g/l						
	f) Floor Coatings, including epoxy coatings: 50 g/l						
	g) Primer Sealers & Undercoaters: 100 g/l						
10 Specialties							
A) Toilet Compartments: Postconsumer Recycled Content: 50% minimum							
11 Equipment							
A) All new appliances, office and lab equipment, mechanical equipment, windows, ceiling and exhaust fans, and other items shall be Energy Star labeled when such ratings exist							
B) Appliances and equipment that are more than 10 years old are to e evaluated for efficiency and are to be considered for replacement with Energy Star labeled units **when such ratings exist**							
11 Furnishings							
A) Casework: See Section 06							

B) Textiles							
	1) Provide products that are GREENGUARD Indoor Air Quality Certified or whose emissions are less than the full levels listed in the REENGUARD IAQ Standard						
	2) Provide products with at least 50% postconsumer recycled content or 50% natural material						
C) Window Treatments							

Requirements				Product	Complies	Responsibility			Notes
						Arch	MEP	GC	
	1) Provide products that are GREENGUARD Indoor Air Quality Certified or whose emissions are less than the full levels listed in the GREENGUARD IAQ Standard								
	2) Products must be PVC-free								
	3) Recycled content: Postconsumer, 25%								
	4) Microbial and fungal resistant								
D) Furniture									
	1) When appropriate, re-use existing or salvaged and refurbished pieces								
	2) All new office furniture must meet the requirements BIFMA level® certification or be								
	GREENGUARD3) All furniture I dmust beAi PVCQ Freelit C tifi d								
	4) Wood in furniture: follow guidelines in Section 06								
	5) Where possible, provide products whose construction includes 50% easily recyclable parts.								
	6) Contaminant emissions from furniture should not exceed the limits in the chart below. New furnishing must be tested in accordance with ANSI/BIFMA Standard Method M7.1–2011. Comply with ANSI/BIFMA e3-2011 Furniture Sustainability Standard, Sections 7.6.1 and 7.6.2, using either the concentration modeling approach or the emissions factor approach.								
	Contaminant:	Emissions Units:	Emissions Limit:						
	TVOC	.5 mg/m3	.25 mg/m3						
	Formaldehyde	50 Parts/Billion	25 Parts/Billion						
	Total Aldehydes	100 Parts/Billion	50 Parts/Billion						
	4-Phenylcyclohexene	0.0065 mg/m3	0.00325 mg/m3						
33 Utilities (Including Operations and Maintenance of Utilities, HVAC, Electrical, and Plumbing)									
A) Refer to Penn Engineering Standards									
B) Daylight responsive controls are the preferred option for reducing wasted lighting energy use and are to be considered in all regularly occupied spaces within 15 feet of windows and under skylights. Daylight controls must switch or dim electric lights in response to the presence or absence of adequate daylight illumination.									

C) Consider individual lighting controls for regularly occupied spaces to enable adjustments to suit individual workstations and designing to a lower level of ambient lighting						
D) Consider providing task lighting at individual workstations and designing to a lower level of ambient lighting						
E) Avoid use of incandescent bulbs. Consider use of high efficiency lamps / bulbs such as LEDs and compact fluorescents.						
F) Use EPA WaterSense listed fixtures where available and feasible.						
G) Where a new drinking fountain is required by code, install a combined water fountain/ water bottle filler, with chiller and filter, in accordance with Penn Standards. Coordinate installation with Penn's Operations & Maintenance staff and follow the plumbing section of the Penn Standards. Water coolers that require delivery of five-gallon bottles are not to be used in any case.						

General Cleaning Materials and Requirements

Requirements		Product	Complies	Responsibility			Notes
				Arch	MEP	GC	
A) Coordinate cleaning requirements and practices with Penn Facilities Area Manager.							
B) Provide products and finishes that can be cleaned with cleaning products and methods that meet one or more of the following standards:							
	1) Green Seal GS-37, for general-purpose, bathroom, glass and carpet cleaners used for industrial and institutional purposes						
	2) Environmental Choice CCD-110, for cleaning and degreasing compounds						
	3) Environmental Choice CCD-146, for hard-surface cleaners						
	4) Environmental Choice CCD-148, for carpet and upholstery care						
	5) Green Seal GS-40, for industrial and institutional floor care products						
	6) Environmental Choice CCD-147, for hard-floor care						
	7) EPA Design for the Environment Program's Standard for Safer Cleaning Products; and/or Cleaning devices that use only ionized water or electrolyzed water and have third-party verified performance data equivalent to the other standards mentioned above						