

MAG Meeting Four
Prioritize
Date: August 12, 2019
1pm - 5pm



Location: Phoenix Elementary School District #1
1817 North Seventh Street
Phoenix, Arizona 85006

Present:	Jeanne Hann, Consultant <i>Arizona Rules, LLC</i>	Marlene Imirzian, FAIA, Founder <i>Imirzian Architects</i>	Scott Smith, Parent <i>Queen Creek USD</i>
	Dave Cherry, PIO <i>SFB</i>	Bob Dooley, Superintendent <i>AJO USD</i>	Jim Lamb, Facilities Director <i>Queen Creek USD</i>
	Kerry Campbell, Dep Dir Ops <i>SFB</i>	Caroline Lobo, AIA, Founder <i>Soul Architects</i>	Lana Berry, CFO <i>Chandler USD</i>
	Debra Sterling, Asst Attorney <i>OAG</i>	Halleh Landon, Principal <i>EDS Engineering</i>	Tim Leedy, CFO <i>Balsz ESD</i>
	Paul Bakalis, Executive Dir <i>SFB</i>	Dan Ensign, Fac Dir <i>Litchfield ESD</i>	Laura Combs, Teacher <i>Litchfield USD</i>
	Jennifer Underwood <i>Visionary Design</i>	Emilio Gonzales <i>Wood Engineering</i>	Barry Chase <i>Chasse Building Team</i>
	Bonnie Gonzalez <i>Procurement</i>	Bruce Thompson <i>Allegion</i>	Tim Leedy, CFO <i>Balsz ESD RSD</i>
			Shad Housley, Superintendent <i>Show Low USD</i>

Purpose:

The purpose of the meeting was to prioritize the information collected in Small Groups from the prior meeting in the following categories; R7-6-206 School Site, R7-6-210 Academic Classroom Space, R7-6-212 Lighting, R7-6-213 Temperature, R7-6-260 Laws and Building Codes; minimum 1997 UBC, R7-6-261 Energy Saving Measures, R7-6-265 Building Systems, and R7-6-271 Exterior Envelope.

It was also to review items to be evaluated at the next workshop for Small Group discussions to include; R7-6-211 Classroom Fixtures and Equipment, R7-6-214 Acoustics, R7-6-215 Classroom Air Quality, R7-6-220 Libraries/Research, R7-6-226 and R7-6-227 Food Service, R7-6-230 Auditoriums, Multipurpose, Multiuse, and R7-6-249 Physical Education

Activities:

The group reviewed the small group findings from the prior meeting held on June 17, 2019, categorized each as appropriate for inclusion into the Minimum Adequacy Guidelines or in a list of Best-Practices that Districts may adopt in the design of their new schools as appropriate.

The next meeting is scheduled for August 28, 2019 from 1:00pm to 5:00pm at the Phoenix Elementary School District #1. Similar to the June 2019 meeting, the Group will break up into small groups, each lead by a facilitator, to prioritize a list of specific objectives to be considered as it relates to Classroom Fixtures and Equipment, Acoustics, Classroom Air Quality, Libraries/Research, Food Service, Auditoriums, Multipurpose, Multiuse, and Physical Education.

Meeting adjourned:
5pm



R7-6-206: School Site

Community Use; design site for zoned security to allow off hours use including access to restrooms separated from remainder of campus.

Community & Collaboration



- Create spaces that enhance social connections & build a sense of community.
- Provide small groupings of administration & counseling offices located in key areas that enhance adult interactions with students while maintaining a core administration area near the main entry.



- The main office/reception area shall be designed so that all secretarial & office management staff share one open office area oriented toward the reception counter.
- Create authentic spaces for community partners to support Goal Three of the Strategic Plan to strengthen school, family & community engagement.

50,000 Journeys





R7-6-206: School Site

Exterior Learning; Provide exterior covered learning areas that include space for classroom size learning with power, digital display. Include areas for storage of teacher tools for exterior learning/display.



R7-6-206: School Site

Water Management; Provide for water collection on site to be designed with landscape for passive supply.



R7-6-206: School Site

Safety by Design; Design buildings to provide views of all areas from multiple directions, with no areas isolated from passive observation from interiors and circulation spaces.

Safety & Security



- The school should be a welcoming beacon with an entry that is directly connected to the main office; provides a good sense of orientation & wayfinding; & expresses the culture & values of its community.



- **Provide transparency inside & out** for “eyes on the street” as well as visibility of activities, which increases the perception of safety & security & contributes to sustaining community.
- **Zone the buildings with layers of protection**, while still providing for after-hours & community use of large public spaces & some classrooms.

Three Goals





What Do We Do?

Safety, Security & Risk Management

So while providing the building systems and elements for lockdowns is still an important strategy for protecting students and staff, the new guidelines recognize that leaving the site may be the safest action that can be taken.

Layers of Protection

Consideration should be given to using building elements, circulation paths and sightlines to create “layers of protection” within the school environment.

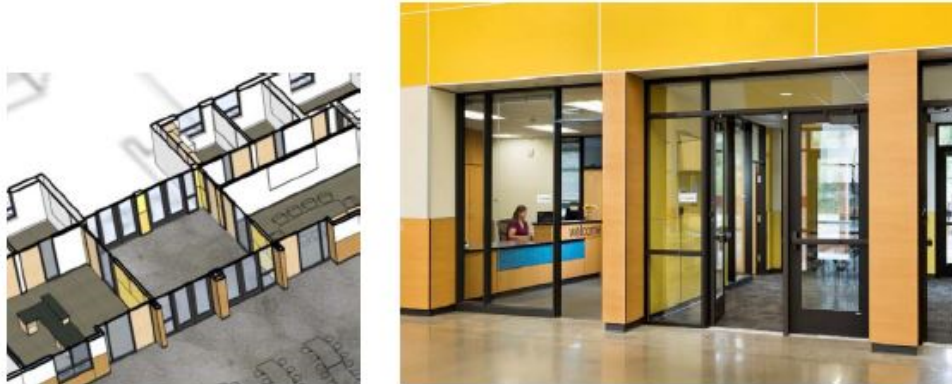
The first layers of protection are the site perimeter fencing, surveillance from inside to outside, a secure entry vestibule, and access management.

Site Perimeter and Secure Entry Vestibule

- Fencing and/or landscaping is intended to maintain a secure perimeter around the student-occupied portion of the site, and to direct everyone to the main entry.
- No fencing is required or desired at the front of the school where it is preferred to present a welcoming presence, and where supervision of the main entry is maintained by central office staff.
- Field fencing is primarily to keep balls on the site and to manage crowds during sporting events, by keeping them either in or out as appropriate to the event.

- With the new emphasis on running from an active threat rather than only sheltering-in-place, perimeter fencing should either have turnstiles that allow exiting but not re-entry to the site, or where protected from weather, gates with panic hardware.
- A secure entry vestibule shall be provided at the main entry; it shall be configured in a manner that requires site visitors to enter the main office and check in prior to accessing the school.

Sample Secure Entry Vestibule





What Do We Do?

Safety, Security & Risk Management

External Surveillance and Supervision

- The placement of site elements such as parking, pathways, landscaping, lighting, the flagpole, and signage should all work together to lead visitors to the main entrance that is monitored by the Administrative Office staff when school is in session.
- Doors and windows should be placed to optimize sightlines for students and staff to see visitors approaching and activities occurring outside, and to provide supervision of student activities outside the building.
- Roller shades shall be provided on all exterior windows where occupants may be viewed from outside.
- Specify plantings that do not allow for concealment (see SPS Technical Standards).
- When views are impeded, supplement with cameras.
- Cameras
 - Primarily for after-hours building surveillance; also provide at “dead zones” and stairways.
 - Use low light cameras and motion sensor lighting (see SPS Technical Standards).

Access Management

- To internal classrooms and from exterior
- Card Readers
 - Provide (2) located at: (1) Custodial entry and (2) main teacher entry for after hours access.
- AiPhone
 - Provide (1) at main building entrance to call in for entry into building.
 - Provide (1) at custodial entry for delivery services to gain access to Receiving.
 - Other possible AI phone location is at a secondary entrance serving a child care center, which is typically located only at alternative high schools. The district is not currently planning for teen parent child care facilities at neighborhood high schools.



What Do We Do?

Safety, Security & Risk Management

Other examples of measures include:

- Orient the student commons/dining area so it is not directly visible from the main entry to the school.
- The commons could be designed to be a space that can be secured, with lockable doors.
- The servery next to the commons could provide an area for students to hide if it can be secured (i.e. with a solid roll-down door)
- Consider spaces adjacent to the commons that could shelter a significant number of students and be secured, provided that space had sufficient egress that students could exit if needed.

In addition to creating passive layers of protection, there are other more active security features that can be incorporated into the design of the building:

Lighting

- Providing adequate lighting throughout the building.
- Providing security lights for access and egress during early morning, after school and evening activities. Lights should be on a photocell and timer and equipped with continuous dimming technology for specific light levels.
- Security lights should be independent from other building lighting, with switching that allows use only in needed areas. Example: If only parking lot and front door lighting is needed one evening, switching does not include all hallways and rear exterior doors.

Security Office

- Typically have (3) security officers at every neighborhood high school.
- Security office should be centrally located within building, or if a multi-story building, on a floor other than the main floor where Administration is located, in order to provide additional supervision; in this instance location near a significant secondary entry may be preferred.



R7-6-210: Academic Classroom Space

Pre-School, Kindergarten, 1st Grade

- Standards should include outdoor + indoor play space
- Storage for adults + students
- More space to move around as compared to a standards classroom
- Include an exploration space (with capabilities similar to a science lab)
- Schools in rural areas should include Libraries which could double up as multi-purpose spaces
- Include meeting room for students
- Include space for teacher collaboration
- Classroom environment should include an Instructor's desk and breakout areas for students



R7-6-210: Academic Classroom Space

K-6 Grades

- Classroom size standards should be large enough to accommodate flexibility for increased class size
- Include an exploration space (with capabilities similar to a science lab)
- Include classrooms temperature control
- Include technology in every instructional space
- Classrooms standards should include adaptability design standards to accommodate future education trends
- Include space for teacher collaboration
- Classroom environment should include an instructor's desk and adequate storage
- Classrooms standards should include adaptability design standards to accommodate future education trends



R7-6-210: Academic Classroom Space

7-8 Grades

- Classroom size standards should be large enough to accommodate lectures and student break-out space
- Classroom size standards should accommodate different learners
- Include Library
- Include Science Lab
- Include standards to accommodate AV (digital interactive technology)
- Include standards for spaces to support students with IEP (individualized education program)

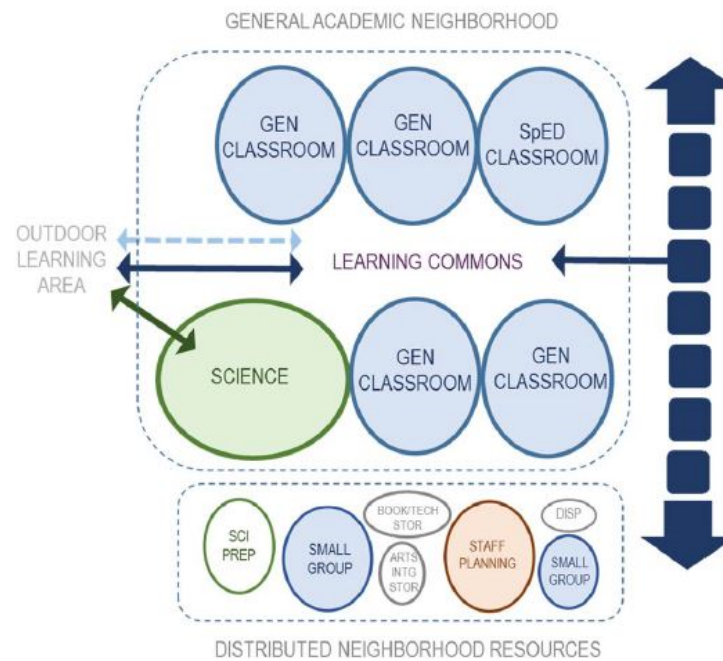


R7-6-210: Academic Classroom Space

7-8 Grades

- Include standards for common learning spaces with visual connectivity
- Include space for teacher collaboration
- Classroom size standards should be large enough to accommodate flexibility for increased class size (35 per classroom)
- Classroom environment should include an Instructor's desk and adequate storage
- Classrooms standards should include adaptability design standards to accommodate future education trends

General Education – Adjacency Diagram





R7-6-210: Academic Classroom Space

9-12 Grades

- Classroom size standards should be large enough to accommodate lectures and student break-out space
- Include standards for Research Centers (aka Library | Multi-use space)
- Include standards to accommodate AV (digital interactive technology)
- Include standards for common learning spaces with visual connectivity
- Include Science Lab



R7-6-210: Academic Classroom Space

9-12 Grades

- Include space for teacher collaboration
- Classroom size standards should be large enough to accommodate flexibility for increased class size (35 per classroom)
- Classroom environment should include an Instructor's desk and adequate storage
- Classrooms standards should include adaptability design standards to accommodate future education trends
- Include standards for white boards



R7-6-212: Lighting

When using incandescent or fluorescent lighting;
30 footcandles of light when using LED lighting;
and the recommendations from the most recent
illuminating Engineering Society handbook when
using other lighting technology.

Use daylight sensing, dimming capabilities with
zones within the classroom, and occupancy
sensors for energy savings and lighting control.



R7-6-212: Lighting

Illuminating Engineering Society

Building Area & Task	Average Maintained Footcandles (Horizontal) (FC)	Range of Maintained Footcandles (Horizontal) (FC)	Average Maintained Footcandles (Vertical) (FC)	Range of Maintained Footcandles (Vertical) (FC)	Comments
EDUCATIONAL (SCHOOLS)					
Classroom	40	30 - 50			@30" AFF
Gymnasium					
Class I (Pro or Div. 1 College)	125		30		
Class II (Div. 2 or 3 College)	80		20		
Class III (High School)	50		150		
Class IV (Elementary)	30		100		
Auditorium	7.5	3 - 10	5	2.5 - 10	
Corridor	25	10 - 40			

SFB Board regularly grants waivers to reduce the minimum foot-candles down from 50fc to 30fc when using LED fixtures

LED Light Appears Brighter

The color spectrum produced by an LED source luminaire more closely resembles natural light, compared with fluorescent sources. Consequently, the human eye can see better in an LED source environment, compared with a fluorescent source.

Dimmers and Daylight Harvesting are Important

- Dimming is imperative to achieve the 7-15 fc recommended for viewing screens and devices
- Daylight Harvesting takes advantage of natural light to save operating cost



R7-6-213: Temperature

Change the temperature range to 68-80 degrees and a relative humidity between 20 and 60% OR (and even better) link the standard to the current ASHRAE Standard 55 – Thermal Environmental Conditions for Human Occupancy. The current requirements are from an early 90's version of AHSRAE 55.



R7-6-260: Laws & Building Codes

Minimum 1997 UBC; Energy Code in effect in the jurisdiction.

If no codes are in effect in the jurisdiction, at a minimum use 2012 International Building Code and 2012 International Energy Conservation Code to be updated every three years.

Minimum performance standards; ASHRAE, 2018 IEBC envelope



R7-6-261: Energy Saving Measures

Upgrades that will provide dollar savings in excess of the cost within 8 years of installation:

- Cost basis to be life cycle cost analysis
- Add water efficiency
- Lighting controls to allow fixtures to be turned off during daylight hours



R7-6-265: Building Systems

- Add consideration of water collection, particularly for central plants
- WIFI



R7-6-271: Exterior Envelope

- Minimal maintenance, refinishing
- Sustainable materials
- Exterior glazing to have shading to limit direct solar gain
- Exterior glazing in occupied spaces to provide view to exterior landscape; "ample and pleasant view that includes vegetation, activity, and objects in the far distance" (Herschong, Lisa Heschong Mahone Group)



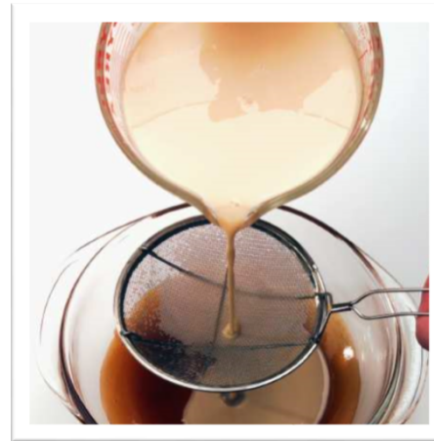
Energy Code Requirements

- Increased Building Envelope Requirements
- Minimum HVAC Equipment Efficiencies
- Increased Insulation Requirements
- Lighting Control
- Additional Efficiency Building Requirements
 - Premium Efficiency HVAC Equipment
 - Efficient Lighting System
 - Renewable Energy System
- Mechanical System Commissioning

Indoor Air Quality



- **Demand Control Ventilation**
 - Dilution of VOCs
 - Standard Classroom OSA
 - Minimum – 146 CFM
 - Maximum – 571 CFM



- **Air Cleaning Device**
 - Code Compliant
 - Removal of VOCs
 - Standard Classroom OSA
 - Fixed – 190 CFM
 - Decrease Building Energy by 20%-30%.
 - Decrease HVAC Equipment Costs by 15%-25%