


APPA Institute
 Developing & Using Campus Standards

Now repeat after me:
*I will use your campus standards,
 I will use your campus standards,
 I will use.....*

I hate working for universities!

Steven C. Thweatt
 Vice Chancellor for Administration (emeritus)
 University of Colorado at Boulder
 Steven.thweatt@colorado.edu
 (720) 525-8638
 Thweatt Management Consultants





Fun in the air




Grandsons




- **Licensed Architect**
 - Colorado
 - Georgia
 - North Carolina
 - Louisiana
- **Private Practice -15 years**
- **Higher Education -29 Years**
 - **Duke University** -6 Years
 - Director Facilities Design Office
 - Assistant Dean Facilities
 - **Emory University** - 6 Years
 - AVP PDC
 - **University of Colorado** -17 Years
 - Director PDC
 - Campus Architect
 - AVC Facilities
 - VC Administration -- retired in 2015
- **Thweatt Mgt. Consultants**







APPA Institute
 Developing & Using Campus Standards

Outcomes

What Are Standards?
 Why Have Standards?
 How Do You Develop Them?
 Who Are Stakeholders?
 How Are They Integrated?
 How To Create Feedback?
 How Do You Revise Them?
 How Do You Insure Their Use?





APPA Institute
Developing & Using Campus Standards

Definitions

What are Campus Standards?



"Describe & set forth procedures, policies, guidelines and codes which the institution believes to be representative of desirable practices"



APPA Institute
Developing & Using Campus Standards

What's Involved?



Time Commitment

What's Involved?



How much time is required to...

Develop standards?

Update standards?



APPA Institute
Developing & Using Campus Standards

What's Involved?


+


Time Commitment

What's Involved?



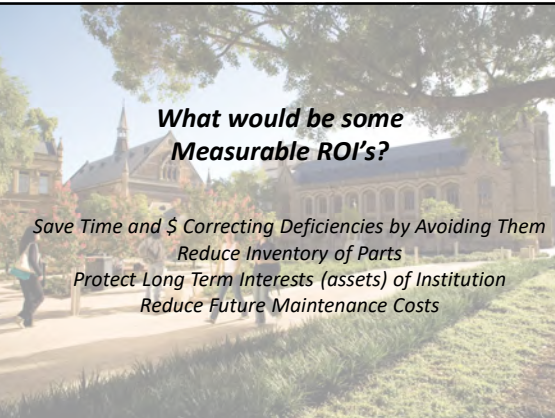
APPA Institute
Developing & Using Campus Standards

What's Involved?


+


Time Commitment
Resource Commitment
Measurable ROI

What's Involved?



What would be some Measurable ROI's?

Save Time and \$ Correcting Deficiencies by Avoiding Them

Reduce Inventory of Parts

Protect Long Term Interests (assets) of Institution

Reduce Future Maintenance Costs



APPA Institute
Developing & Using Campus Standards

What's Involved?



+



What's Involved?

- Time Commitment
- Resource Commitment
- Measurable ROI
- Negotiate Outcomes

**What kinds of things
end up being negotiated?**

Composition
Thoroughness
Ultimate Enforcement







APPA Institute
Developing & Using Campus Standards


Benefits


Benefits of Standards?



- Advantages
 - Stakeholders Satisfied
 - Protects Institutional Interests

To Standardize or Not to Standardize
That is the Question !

	APPA Institute Developing & Using Campus Standards	Benefits
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p><u>Benefits of Standards?</u></p> <p style="font-size: 48px; text-align: center;">?</p> <p style="color: red; text-align: center;"><i>To Standardize or <u>Not</u> to Standardize That is the Question !</i></p> </div> <div style="width: 65%;"> <ul style="list-style-type: none"> • Advantages <ul style="list-style-type: none"> • Stakeholders Satisfied • Protects Institutional Interests • Builds Bridges • Pays Dividends <ul style="list-style-type: none"> • Less time educating consultants • Insures higher quality facilities • Increases consistency • Reduces maintenance needs • Limits Inventory of parts needed </div> </div>		

	APPA Institute Developing & Using Campus Standards	Benefits
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p><u>Benefits of Standards?</u></p> <p style="font-size: 48px; text-align: center;">?</p> <p style="color: red; text-align: center;"><i>To Standardize or <u>Not</u> to Standardize That is the Question !</i></p> </div> <div style="width: 65%;"> <ul style="list-style-type: none"> • Advantages <ul style="list-style-type: none"> • Stakeholders Satisfied • Protects Institutional Interests • Builds Bridges • Pays Dividends • Disadvantages <ul style="list-style-type: none"> • Time Consuming • Costly and Drives up Overhead • Complicates Process </div> </div>		

	APPA Institute Developing & Using Campus Standards	Problems
<div style="display: flex; justify-content: space-between;"> <div style="width: 30%;"> <p><u>Problems W/Out Standards</u></p> <ul style="list-style-type: none"> • High Maintenance Costs </div> <div style="width: 65%;">  </div> </div>		
















 <p>APPA Institute Developing & Using Campus Standards</p>	<p>Problems</p>
<p><u><i>Problems W/Out Standards</i></u></p> <ul style="list-style-type: none"> • High Maintenance Costs • Bad Design 	

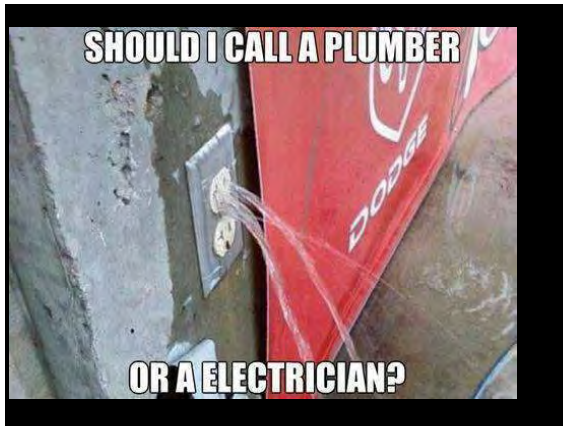







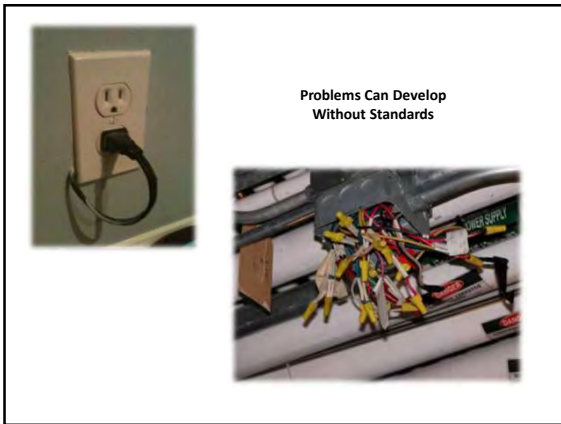


 APPA Institute Developing & Using Campus Standards	Problems
<p><u><i>Problems W/Out Standards</i></u></p> <ul style="list-style-type: none">• High Maintenance Costs• Bad Design• Shortened Life Span<ul style="list-style-type: none">• Product performance and longevity not always design criteria	<p>© 2008 R. K. R. Co.</p>






 APPA Institute Developing & Using Campus Standards	Problems
<p><u>Problems W/Out Standards</u></p> <ul style="list-style-type: none"> • High Maintenance Costs • Bad Design • Shortened Life Span • No Continuity <ul style="list-style-type: none"> • Dozens of parts needed 	









APPA Institute
Developing & Using Campus Standards

Problems

All of Above


Leads to

Frustration


Which Leads to

Mistrust


Something's wrong with this slide.



When Standards Aren't Followed



Mistrust can lead to small mistakes...

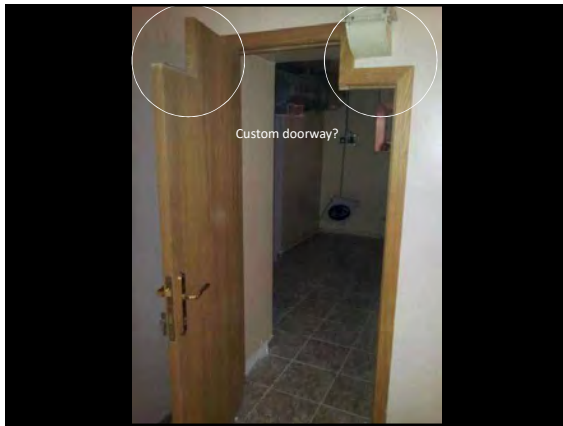



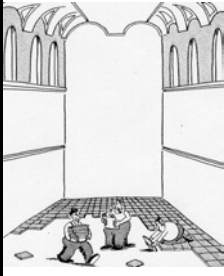



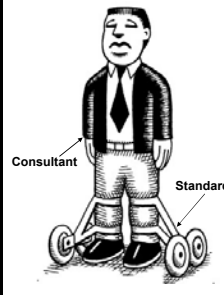
or large ones!



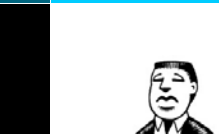


So much for my completion bonus!

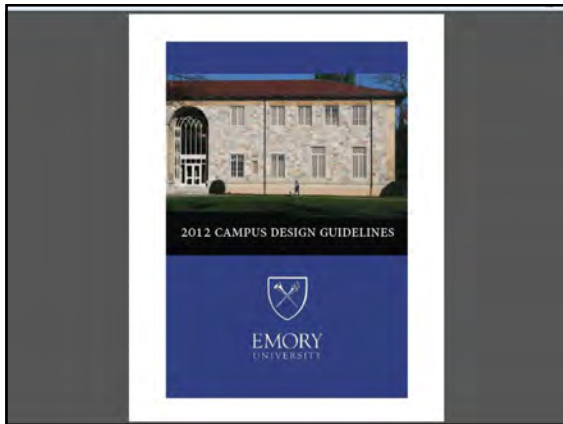


 APPA Institute Developing & Using Campus Standards	Standards
<ul style="list-style-type: none"> • <u>Design</u> <ul style="list-style-type: none"> Policies Graphics • <u>Construction</u> <ul style="list-style-type: none"> Systems Products 	<p>History has forgotten Lambini & Sons who are credited with the Sistine Chapel floor.</p> 

 APPA Institute Developing & Using Campus Standards	Design Standards
<ul style="list-style-type: none"> • Design Philosophy <ul style="list-style-type: none"> • Quality/Consistent Design • Process • Aesthetics • Planning Principles • Owner Responsibilities • Design Submittals <ul style="list-style-type: none"> • Submittal Requirements • Contract Forms 	

	<p>APPA Institute Developing & Using Campus Standards</p>	<p>Design Standards</p>
<p>Design Guidelines</p> 		

[illegible]







APPA Institute
 Developing & Using Campus Standards

Compliance?

GLASBERGEN

APPA Institute
 Developing & Using Campus Standards

Construction Standards

Organization

Generic
Guidelines/ideas

Specific
Detailed/specifications

Types

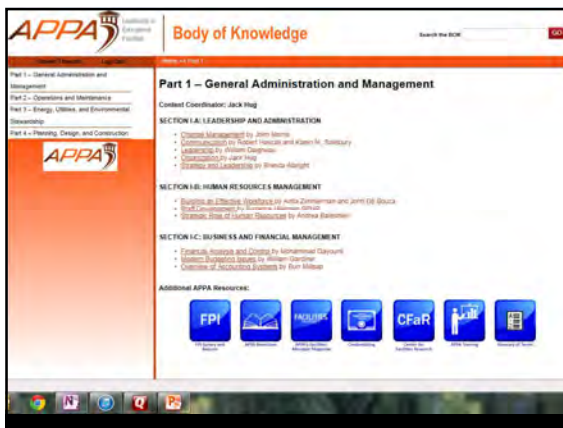
- Prescriptive
- Descriptive
- Performance

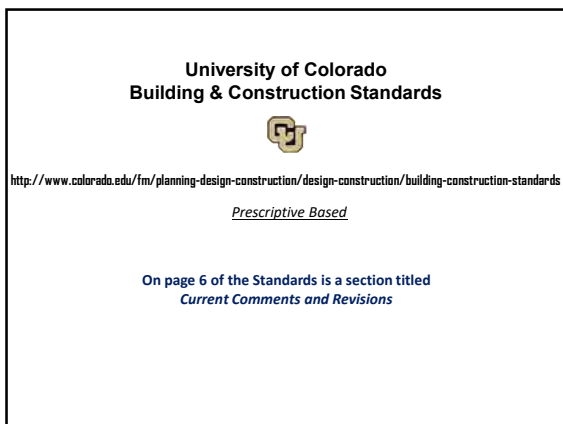
APPA Institute
 Developing & Using Campus Standards

Construction Standards

- General
 - Life Expectancy
 - Design Palette
 - Graphic Standards (CAD)
 - BIM
 - Codes
- Acceptable Products
- Accessibility Issues
- Utilities / Haz. Materials
- Technical Sections









<http://www.fm.emory.edu/design.shtml>



Descriptive Based

www.sdstate.edu/sites/default/files/2026-08/FacilityDesignStandards.pdf

Performance Based
www.abc.uci.edu/resources/constructionstandards.html

University of California, Irvine
Construction Standards and Costs

UC Irvine new construction pursues performance goals and applies quality standards that affect the cost of capital projects. Periodic re-examination of these goals and standards is warranted.

Construction costs are not "high" or "low" in the abstract, but rather in relation to specific quality standards and the design solutions, means, and methods used to attain these standards. Thus, evaluating whether construction costs are appropriate involves determining whether:

- Quality standards are excessive, insufficient, or appropriate;
- Resultant project costs are reasonable compared to projects with essentially the same quality parameters.



"Quality" encompasses the durability of building systems and finishes; the robustness and life-cycle performance of building systems; the aesthetics of materials, their composition, and their detailing; and the resource-sustainability and efficiency of the building as an overall system.



Overall Goals and Quality Standards



UC Irvine, in order to support distinguished research and academic programs, builds facilities of high quality. As such, UC's facilities aim to convey the "look and feel," as well as embody the inherent construction quality, of the best facilities of other UC campuses, leading public universities, and other research institutions with whom we compete for faculty, students, sponsored research, and general reputation.

UCI Administrative and Business Services




 APPA Institute Developing & Using Campus Standards	Process
<p><u>Process Decisions</u></p> <ul style="list-style-type: none"> • <u>Closed</u> <ul style="list-style-type: none"> • Exclusive 	

 APPA Institute Developing & Using Campus Standards	Process
<p><u>Process Decisions</u></p> <ul style="list-style-type: none"> • <u>Closed</u> <ul style="list-style-type: none"> • Exclusive • <u>Open</u> <ul style="list-style-type: none"> • Inclusive • Identify Stakeholders 	

 APPA Institute Developing & Using Campus Standards	Process
<p><u><i>Process Decisions</i></u></p> <ul style="list-style-type: none"> • <u>Closed</u> <ul style="list-style-type: none"> • Exclusive • <u>Open</u> <ul style="list-style-type: none"> • Inclusive <ul style="list-style-type: none"> • Identify Stakeholders • Establish Format • Develop Standards as a Team 	

 APPA Institute Developing & Using Campus Standards	Process
<p><u><i>MSU Case Study</i></u> <small>July/August 2018 Facilities Manager Magazine</small></p> <ul style="list-style-type: none"> • 10 Staff are designated: "Construction Standards Stewards" • Responsible for changes to standards in their "field of expertise" • Emphasize collaboration • Project teams can also make decisions w/approval • 100 year buildings called into question 	

 <p><i>Has anyone conducted any critical reviews of your standards?</i></p>

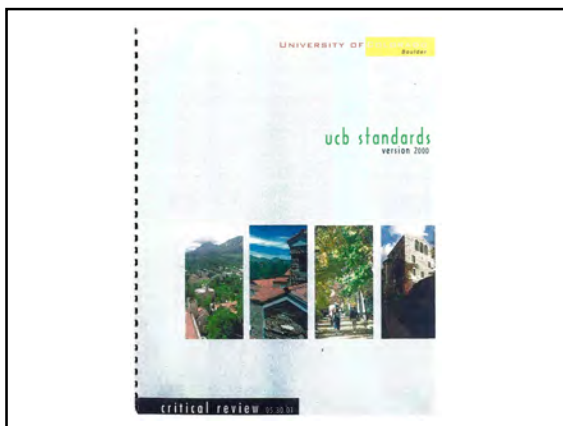


APPA Institute
 Developing & Using Campus Standards

Critical Reviews

Critical Reviews

- UCB
 - Why? Complaints about "gold plated"
 - Good Practice - 2001



University of Colorado at Boulder		June 22, 2001		
UCB Standards Review				
SHORT-LIST SUMMARY LIST OF ITEMS HAVING SIGNIFICANT COST SAVINGS POTENTIAL FOR THE COLLEGE OF BUSINESS AND ADMINISTRATION EXPANSION AND RENOVATION PROJECT				
Section	Part	Description	Accepted	Rejected
General	UCB Table 20A	Allow minimum required future credits based on an approach to calculating total occupancy acknowledging all parts of the building will not be fully occupied at the same time. For instance, it is unlikely that the Library and all Classrooms and all Board Space would be fully occupied simultaneously.		
0221 - Terracing, Backfilling and Compaction	Part 1.3 Item A	Allow pipe bedding to be 6-inches above pipe in lieu of 12-inches.		
0230 - Portland Cement Concrete Paving	Part 1.1 Item B	Allow the use of fly ash in the concrete.		
	Part 1.1 Item A	Allow use of steel reinforcing in pavement slabs.		
0260 - Water Systems	Part 1.1 Item B	Allow Class 150 PVC pipe instead of Class 200 for four-inch through twelve-inch diameter. Most jurisdictions, including Denver Water Department, allow the Class 150.		
0272 - Drainage Structures and Piping	Part 1.3 Item A.3	Manholes for drainage structures are specified based on pipe sizes. Most jurisdictions in this area allow four-foot diameter manholes to be used for pipe sizes of twenty-four inches and smaller. Four-foot manholes are used for pipes thirty to thirty-six inches in diameter. Allow manholes sized on this basis.		
0310 - Framework	General	Allow use of Class B framework tolerance for concrete exposed to public view and Class C tolerance for structural concrete.		
0330 - Cast-in-place Concrete	General	Review the Rotating Machinery Base Detail to allow the mechanical equipment to anchor to the backslapping post which is itself anchored to the structural slab.		
	General	Allow industry standard tolerance and levelness tolerances for concrete floors with finished finish.		
0340 - Architectural Precast Concrete	Part 1.1 Item D	Udette Requirement for metal roofs.		
	Part 1.1 Item A.1	Udette requirement for an independent testing laboratory, hired by the proponent, if the proponent is self-certified.		
	Part 1.1 Item A.1, 1, C	Udette requirement for a U.E. label on precast products.		
	Part 1.1 Item A.1, 1, C	Review the information on embedded anchors and specify the size and type of anchors.		

Again in 2004
Standards "Lite"

UNIVERSITY OF COLORADO
AT
BOULDER

CRITICAL REVIEW
OF
UCB STANDARDS – VERSION 2004

TOWARDS CREATING
"UCB STANDARDS LITE"

November 5, 2004

Prepared by:

Shaffer Buscom Engineering
7323 West Jefferson Avenue
Suite 230
Lakewood, Colorado 80235
303-866-8200 Phone
303-866-8222 FAX

Davis Partnership Architects
2301 Blake Street
Suite 100
Denver, Colorado 80205
303-861-8555 Phone
303-861-3027 FAX

APP A Institute
Developing & Using Campus Standards

Critical Reviews

Critical Reviews

- UCB
 - Good Practice - 2001
 - Business School - 2004
 - 20% Savings Claim

APP A Institute
Developing & Using Campus Standards

Critical Reviews

Critical Reviews

- UCB
 - Good Practice – 2001
 - Business School - 2004
 - 20% Savings Claim
- Emory
 - Recession Driven – 2010
 - Gave us credibility
 - Deflected criticism
 - Saved money


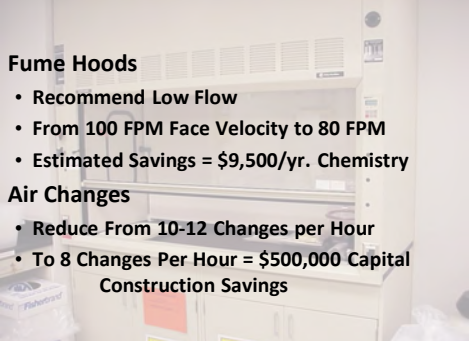
A Critical Review of Emory Design & Construction Standards			
21-Apr-13			
A review of the current Emory Design & Construction Standards produced several areas for consideration of recommended revisions. The sheet summarizes the substance of the major areas of recommendations which can be implemented.			
General	Issue	Recommendation	Outcome
Full Global reviews are underway (inflight and completed)	Review the review process for more efficiency and challenge FM Global recommendations that do not add sufficient value	We are actively engaging FM Global with each project and questioning their recommendations with the caveat of ensuring the best value to Emory before recommending that recommendations. We have noted the review process is too time efficient and have an on the negative process	
Construction lights are on all night	Require the construction lights to be turned off at night after work hours	This requirement has been added to the standards	
Review of space allocation to support functions in new buildings (i.e. janitor, maintenance, security, Netcom, etc.) is forthcoming	Review the actual need and potentially reduced service space and consider some sharing of space; this will require broad discussion	This issue will be discussed on a project by project basis with the actual need requiring justification before implementation, rather than just default to an automatic requirement of space	
The use of expensive security screens on windows falls to expense	Explore lower cost alternatives	The expense of alternative screen materials resulted in a conclusion that the change would increase long term maintenance costs, not from the potential to impact the critical security, thereby the savings to the building have not should not be pursued further	
Testing new wallboard products for asbestos	Eliminate GRSO required testing of new products and rely on manufacturer's warranties	Emory has agreed to eliminate the requirement for the submission of appropriate manufacturer's certification for the exclusion of asbestos in the manufacturing of their products	
Ball in wall off state are required	Use floor mats	While this was previously discussed, the USGBC has now agreed to allow LEED credits for the use of floor mats	
Turn head face velocity and air changes are higher than necessary	Explore reductions in the face velocity and air change requirements for turn heads, this will require discussion with USGBC	We have worked cooperatively with USGBC to reduce the air changes per hour in turn heads for air change from 12 and to consider the use of high performance turn heads, when appropriate. This change has resulted in a projected savings of \$1.2 million in capital costs and \$72,000 per building in operating costs in the new HSSD project alone	
Heater rooms require strict environmental conditions	Reduce environmental requirements on heater machine rooms	There have been some requirements that have been relaxed recently, so our new heater standards will reflect those relaxed requirements. We are also extending the effects of increasing the range of acceptable environmental conditions for the machine rooms so that we can determine the need for a dedicated HVAC unit or combine the unit with the VTS requirements for a more efficient and cost effective design. This is an ongoing discussion	
Conclusion			
Engineering and code issues requirements on many planning phases and projects	Eliminate allowable product lines	The acceptable manufacturers for these products have been expanded	
Secondary containment traps are required for laboratory vacuum exhaust	Eliminate laboratory containment procedures and eliminate secondary traps	This is a secondary containment project that requires more information and procedures. We should not change this in the Cambridge site, but we are in discussion with USGBC to see if this requirement can be relaxed in other sites	
Mechanical	Issue	Recommendation	Details
High environmental controls in the design of mechanical systems	Reduce allowable range of design parameters	After a great deal of research and discussion on this topic, we reached the conclusion that any changes to the weather design parameters would result in numerous occupant complaints about design discomfort during extreme weather cycles. This could result in a perception that new systems are built in a purely budget and cost based method as the primary consideration. Considering the potential consequences, a new formal review discussion with appropriate support for the data would be recommended implementation	
Mechanical rooms are to be serviced by residents	Consider alternative building designs to eliminate the need for resident access to mechanical rooms	This requirement will be re-evaluated soon. The security situation during operational years must be discussed with Campus Services Engineering group in	



Emory Design & Construction Standards 2009 Edition - Room Requirements			
	Room Name	Requirement	Notes
Basic Program Requirements	Changing Rooms (USGBC LEED Credit 4.3)	0.5% of FTE	Single Occupancy ADA compliant shower and changing room
	Unisex Storage Rooms (USGBC LEED Credit 4.3)	0.5% of FTE	New property owner consider storage storage. Emory is conscientiously locating these spaces throughout the campus and a new project may not not be required to have this space depending on
	Recycling Room (Section 01.78.21)	100 sq. ft. for 100,000 sq. ft. bldg. One recycling room per floor is required for residential projects.	10 x 10 ft. close to loading dock.
	Universal Design Basic Program		
Building Services, Custodial & Building Maintenance	Lactation Rooms	Single occupant ADA compliant room	Except for residential projects, typically located near a women's restroom.
	Single Occupancy/Family Restroom	Unisex ADA compliant restrooms	Except for residential projects, can be used as a single change room.
Building Services, Custodial & Building Maintenance	Custodial Rooms	80 sq. ft. per floor	min. 8 ft x 10 ft.
	Custodial Support Room	Up to 50,000 sq. ft. = 30' x 30' Between 50,000 & 100,000 sq. ft. = 15'x45' Between 100,000 & 200,000 sq. ft. = 20' x 20' Over 200,000 sq. ft. = 20' x 20'	Convenient access to the loading dock, lockable double doors are preferred.
	Custodial Staff	Up to 50,000 sq. ft. = 30' x 30' Between 50,000 & 100,000 sq. ft. = 15'x45' Between 100,000 & 200,000 sq. ft. = 20' x 20' Over 200,000 sq. ft. = 20' x 20'	
	Building Maintenance Shop	Up to 50,000 sq. ft. = 30' x 30' Between 50,000 & 100,000 sq. ft. = 15'x45' Between 100,000 & 200,000 sq. ft. = 20' x 20' Over 200,000 sq. ft. = 20' x 20'	
	Building Maintenance Office	Up to 50,000 sq. ft. = 30' x 30' Between 50,000 & 100,000 sq. ft. = 15'x45' Between 100,000 & 200,000 sq. ft. = 20' x 20' Over 200,000 sq. ft. = 20' x 20'	
	Building Maintenance Office	Up to 50,000 sq. ft. = 30' x 30' Between 50,000 & 100,000 sq. ft. = 15'x45' Between 100,000 & 200,000 sq. ft. = 20' x 20' Over 200,000 sq. ft. = 20' x 20'	



A calculation of the cost of these spaces when applied to a new 200,000 SF building:



Changing Room (Bicycle riders)	50 SF
Bicycle Storage	100 SF
Recycling	100 SF
Lactation Room	30 SF
Unisex Restroom	30 SF
Custodial Closet	450 SF (80 per floor X 5 floors)
Custodial Support	225 SF
Custodial Staff	200 SF
Building Maintenance Shop	625 SF
Building Maintenance Office	625 SF
Attic Stock Storage	100 SF
Communications Room (Netcom)	2200 SF (110 SF per 10,000 SF floor area)
Building Security Room (access services)	80 SF
	4,815 SF



Total area required = 4,815 SF @ \$200 / SF = **\$963,000**



	APPA Institute Developing & Using Campus Standards	Critical Reviews
<div style="display: flex;"> <div style="flex: 1;"> <ul style="list-style-type: none"> • Fume Hoods <ul style="list-style-type: none"> • Recommend Low Flow • From 100 FPM Face Velocity to 80 FPM • Estimated Savings = \$9,500/yr. Chemistry • Air Changes <ul style="list-style-type: none"> • Reduce From 10-12 Changes per Hour • To 8 Changes Per Hour = \$500,000 Capital Construction Savings </div> <div style="flex: 1;">  </div> </div>		

	APPA Institute Developing & Using Campus Standards	Process
<div style="display: flex;"> <div style="flex: 1;"> <ul style="list-style-type: none"> • Feedback Mechanism <ul style="list-style-type: none"> • Memo's • Letters • Spreadsheets • Marked up Drawings • PDF </div> <div style="flex: 1;">  </div> </div>		

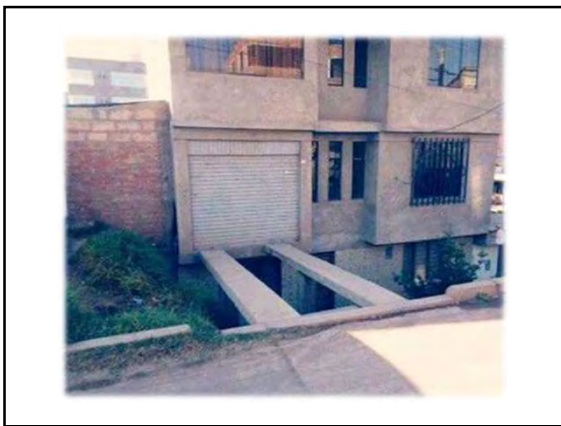
	APPA Institute Developing & Using Campus Standards	Process
<div style="display: flex;"> <div style="flex: 1;"> <ul style="list-style-type: none"> • Feedback Mechanism • Conflict Resolution Plan <ul style="list-style-type: none"> • Conflicting Requirements • Initial \$ vs. Continuing \$ • Visual vs. Functional • Corporate vs. Personal </div> <div style="flex: 1;">  </div> </div>		

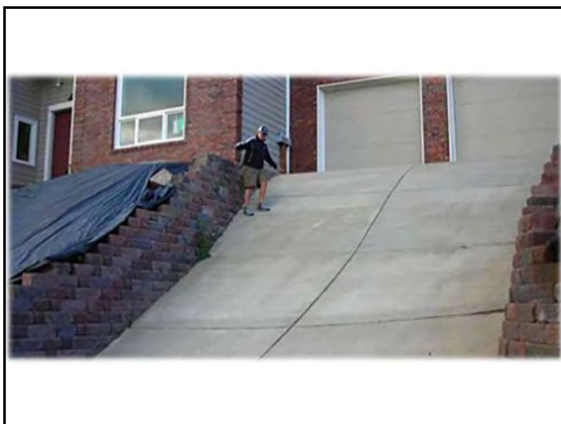
	APPA Institute Developing & Using Campus Standards	What's Important?
<div>  </div> <p>In your opinion, what <u>one single thing</u> can make or break the effectiveness of campus standards?</p>		

	APPA Institute Developing & Using Campus Standards	Process
<div> <ul style="list-style-type: none"> • Feedback Mechanism • Conflict Resolution Plan <ul style="list-style-type: none"> • Conflicting Requirements • Initial \$ vs. Continuing \$ • Visual vs. Functional • Corporate vs. Personal • Plan Reviews <ul style="list-style-type: none"> • Collaboration between PDC and Operations </div> <div>  </div>		


	APPA Institute Developing & Using Campus Standards	Plan Reviews
<div> <p><u>Purpose of Plan Reviews</u></p> </div> <div> <ul style="list-style-type: none"> • Insures Standards are Followed • Confirm / Challenge Design </div> <div>  </div> <p>Some Choices are Tough!</p>		












APPA Institute
Developing & Using Campus Standards

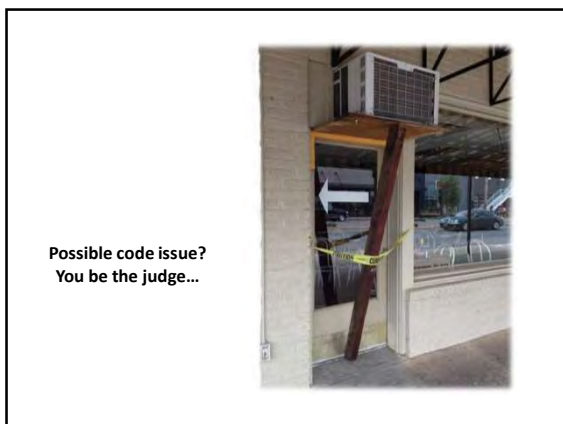
Plan Reviews

Purpose of Plan Reviews



- Insures Standards are Followed
- Confirm / Challenge Design
- Code Review

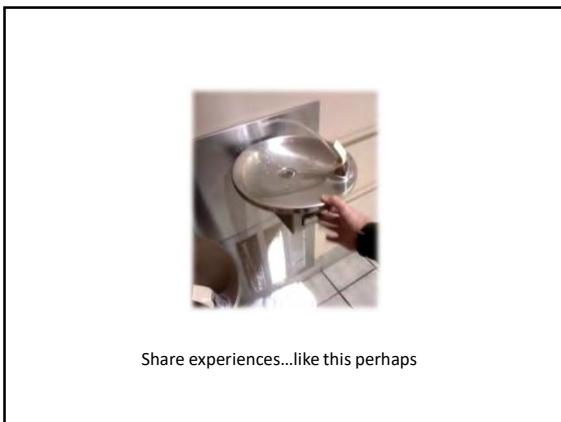




Some Choices are Tough!





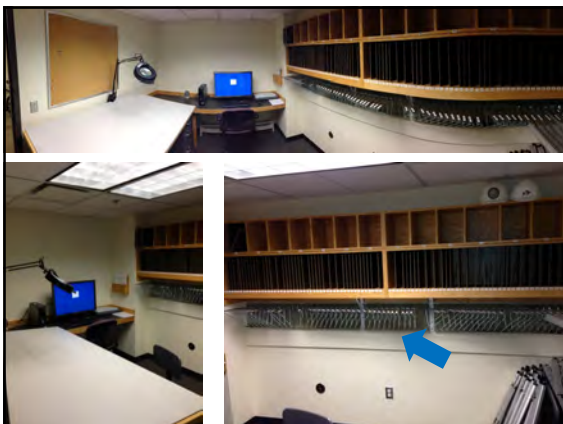




 <p>APPA Institute Developing & Using Campus Standards</p>	<p>Plan Reviews</p>
<p><u><i>Purpose of Plan Reviews</i></u></p> <ul style="list-style-type: none"> • Insures Standards are Followed • Confirm / Challenge Design • Code Review • Match Situation w/ Standards • Shares Experiences 	 <p style="text-align: center;">Some Choices are Tough!</p>





 APPA Institute Developing & Using Campus Standards	Plan Reviews
<p><u><i>Benefits of Plan Reviews</i></u></p> <ul style="list-style-type: none"> Involve Stakeholders Insures Quality Establish Expectations Verify Results Develops Process 	

 APPA Institute Developing & Using Campus Standards	Plan Reviews
<ul style="list-style-type: none"> Plan Review Coordinator <ul style="list-style-type: none"> Part time retiree Email request for plan review Log the request Establish due date Check for required information Reviewers log-in each morning to check for new notices Plan review room w/30" HD monitor (all electronic) 	<p style="text-align: center;"><u><i>Current CU Process</i></u></p> 

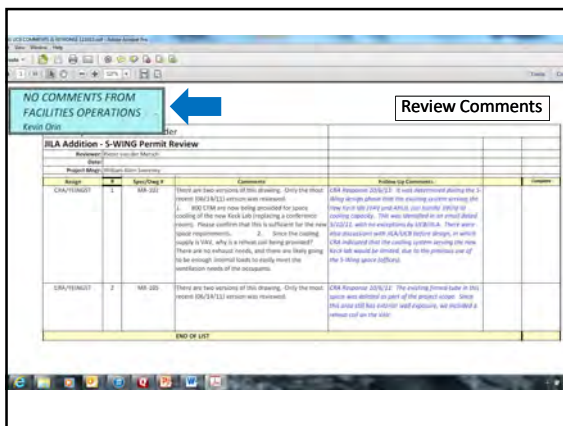


 APPA Institute Developing & Using Campus Standards	Plan Reviews
<ul style="list-style-type: none"> Plan Review Coordinator <ul style="list-style-type: none"> Part time retiree Email request for plan review Log the request Establish due date Check for required information Reviewers log-in each morning to check for new notices Plan review room w/30" HD monitor (all electronic) PRC checks deadlines Emails comments to PM's 3-5 day turnaround 	<p><i>Current Process</i></p> 


 APPA Institute Developing & Using Campus Standards	Process
<p><i>UT Austin Case Study</i></p> <p>Kate Haenchen</p> <ul style="list-style-type: none"> 5+/- Staff are designated: <ul style="list-style-type: none"> "Plan Review Team" Responsible for plan reviews in their "field of expertise" Emphasize collaboration In place for 3+ years < 5% construction change orders 	









 EMORY
UNIVERSITY

Campus Services

**Design Review Form
for
Clinic Utility Relocation**

August 27, 2007


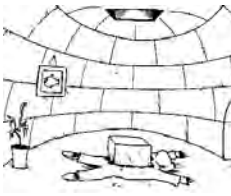
Emory University
Atlanta, Georgia 30322
Attn: Robert J. McCarthy, Jr. | robert.mccarthy@emory.edu

505 PMA Drive


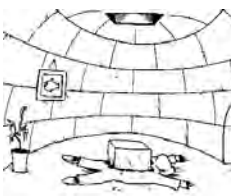
tel: 404.727.1151



Fax: 404.727.2127



[illegible]

 APPA Institute Developing & Using Campus Standards	Standards
<u>Standards Utilization</u> <ul style="list-style-type: none"> • Guide Only <ul style="list-style-type: none"> • Oops list/hot buttons 	


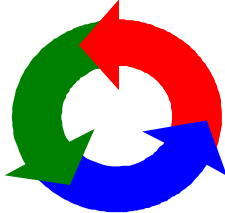




 APPA Institute Developing & Using Campus Standards	Standards
<u>Standards Utilization</u> <ul style="list-style-type: none"> • Guide Only • Doesn't Relieve Consultants <ul style="list-style-type: none"> • Codes • Standard of Care • Professional Judgment • Professional Duty 	

 APPA Institute Developing & Using Campus Standards	Standards
<p style="text-align: center;"><u><i>Why Aren't They Followed?</i></u></p> <ul style="list-style-type: none"> Too Long Too Detailed Can Override Design Ideas Can Deflect Liability Might Be Outdated 	

 APPA Institute Developing & Using Campus Standards	Compliance
<p style="text-align: center;"><u><i>Insure Compliance?</i></u></p> <ul style="list-style-type: none"> Contractual Obligation Shared Cost Be Reasonable Don't Use as Specifications 	

 <p>How Often Should You Update?</p>
--

	APPA Institute Developing & Using Campus Standards	Updates
<p><u>Updates</u></p> <ul style="list-style-type: none"> • Continuous • Semi-Annual • Annual • Formal vs. Informal 		

	APPA Institute Developing & Using Campus Standards	Questions
<div>  </div> <p>Questions & Answers</p>		
