

Implementing Lean Construction through Design Build

Presented by

David Umstot, PE

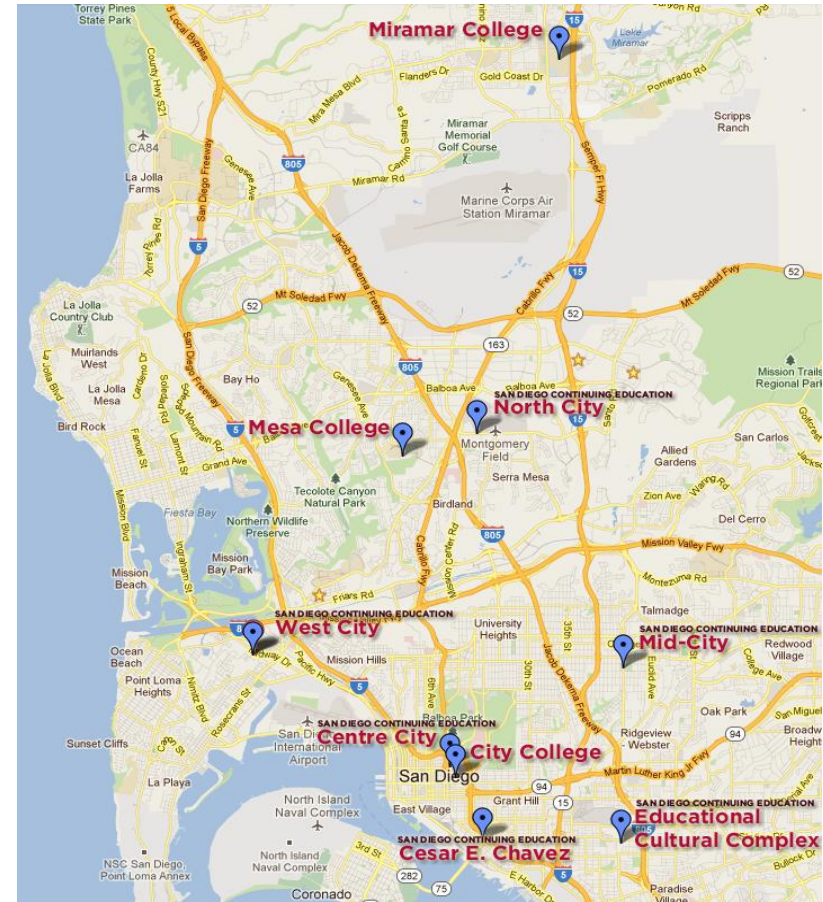
San Diego Community College District



**2012 DESIGN-BUILD
CONFERENCE & EXPO**

San Diego Community College District (SDCCD) Overview

- The Second Largest Community College District in California
- Sixth Largest in Nation
- Three Colleges - City, Mesa, Miramar
- 111,667 students served in 2011-2012
- Six Continuing Education Campuses
- District Square Footage - 2,218,031



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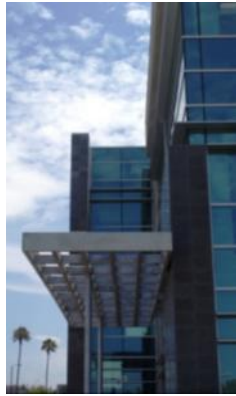
Why Go Lean?

- Reduced operating budgets of **\$46 million** in past 4 years (-16%)
- Increased build environment footprint of 1.3 million square feet (+65%)
- Capital funding from locally approved and funded general obligation bonds
- Reduce waste, create greater value



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About the District (Current State)



Current Square Footage

(As of September 2012)

Buildings = 2,560,187 Gross Square Feet (GSF)

Parking = 377,712 Gross Square Feet (GSF)



Current Acres of Landscape = 199.2

Current Utilities Consumption

Electric = \$4,119,936

Gas = \$334,632

Water = \$790,322

Total = \$5,244,890



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About the District (Future State)

Projected Square Footage

Additional Building GSF = 720,608

Total Building GSF = 3,280,795

Additional Parking GSF = 279,265

Total Parking GSF = 1,372,622

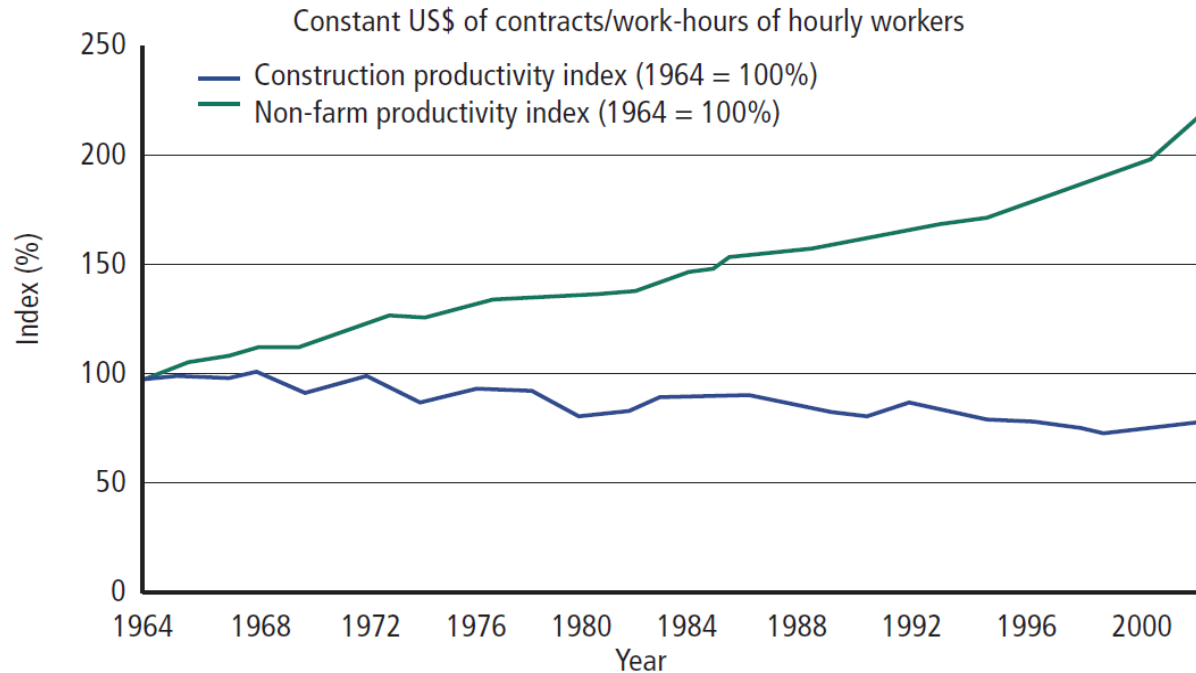
Grand Total GSF = 5,653,290



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Construction Productivity in the U.S.

Construction and Non-farm Labor Productivity Index (1964-2003)



Source: U.S. Department of Commerce, Bureau of Labor Statistics

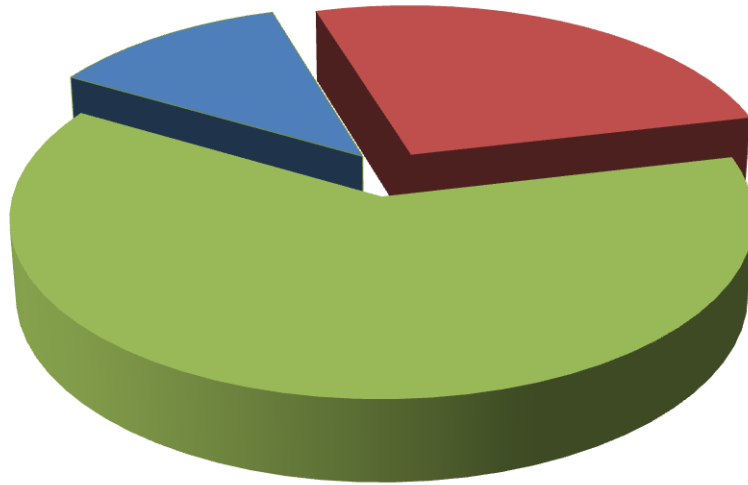


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Construction Waste in the U.S.

Current Manufacturing

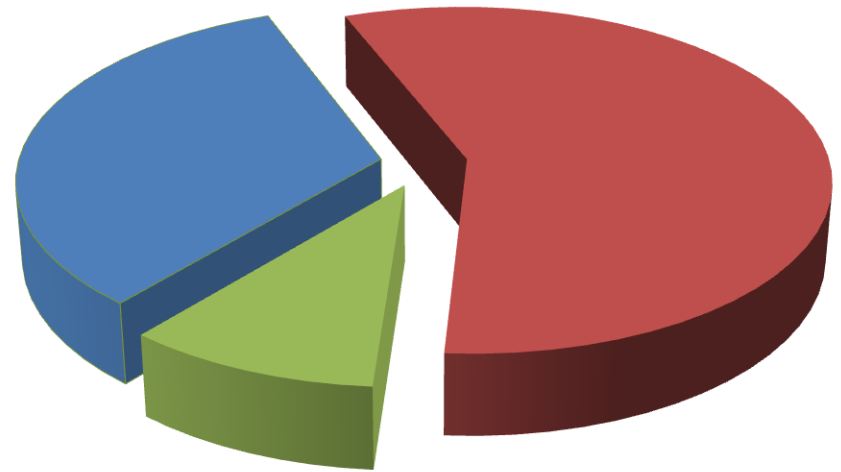
Support Activity 12% Waste 26%



Value Added 62%

Current Construction

Support Activity 33% Waste 57%



Value Added 10%

Source: Construction Industry Institute™



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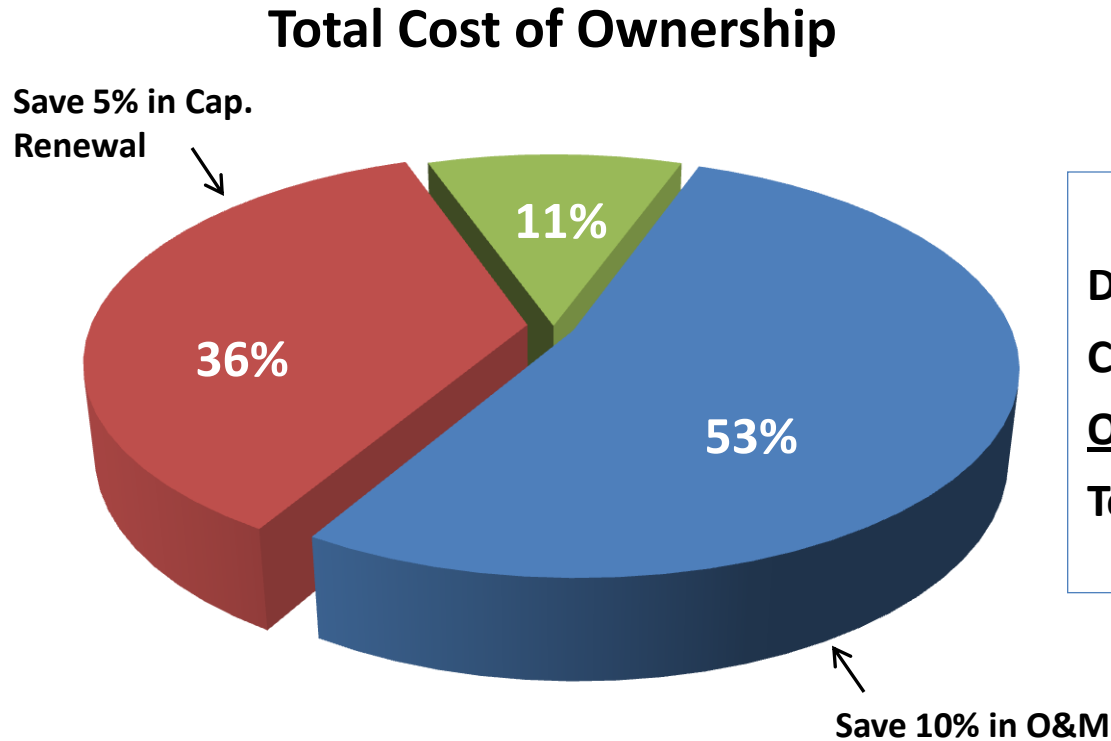
Total Cost of Ownership

- 50-year design life
- 100,000 square foot classroom building
- Design and construction cost - \$30 million
- Capital Renewal: 2% of current replacement value (APPA benchmark)
- O&M Budget \$5.69/square foot
- Inflation: 3%



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Total Cost of Ownership

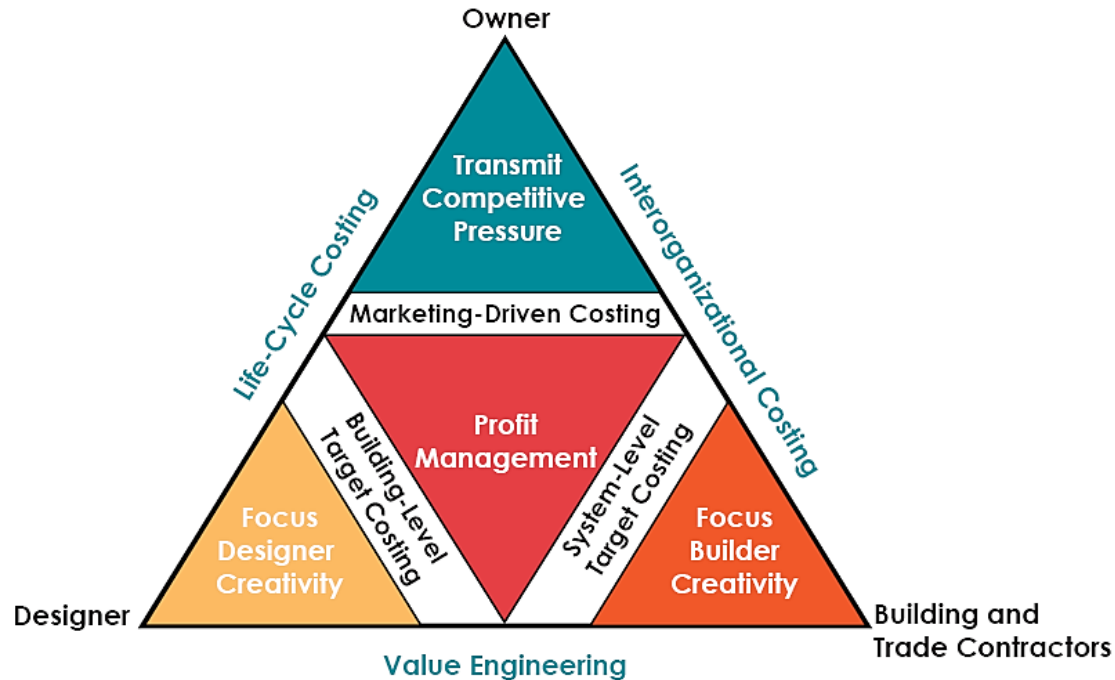


Savings			
D&C:	\$30M	<u>Total</u>	<u>NPV</u>
Cap. R.:	\$101M	\$ 5M	\$1.1M
O&M:	\$149M	\$15M	\$3.4M
Total:	\$280M	\$20M	\$4.4M



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Target Costing



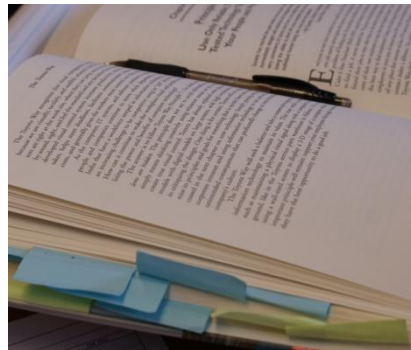
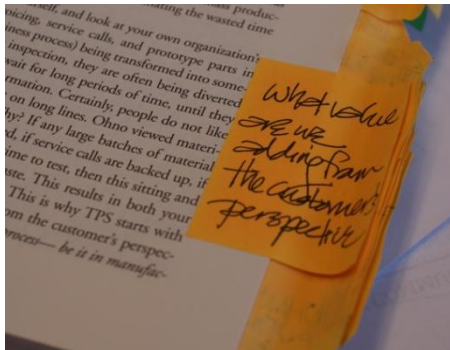
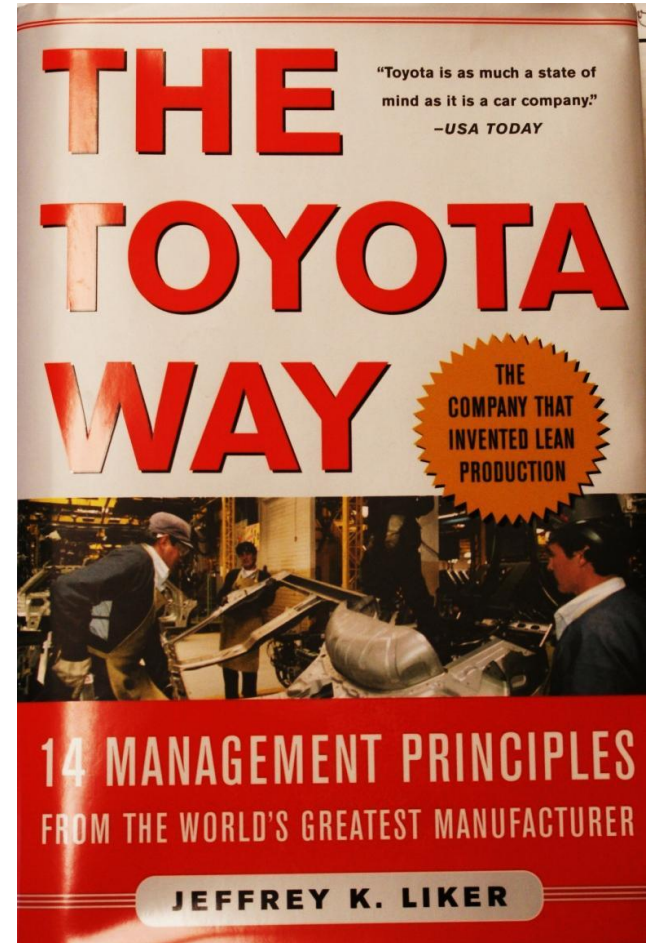
The Target Costing Triangle
(After Cooper and Slagmulder, 1997)



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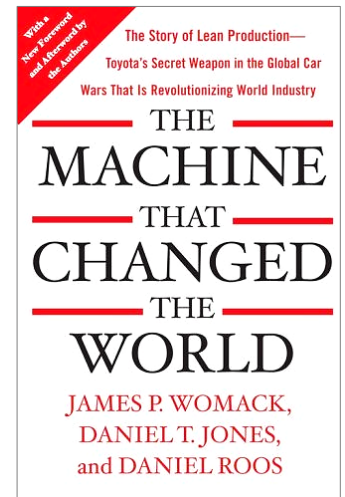
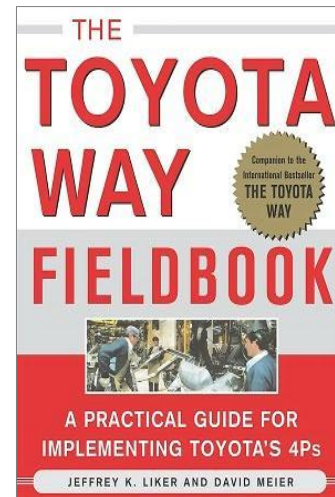
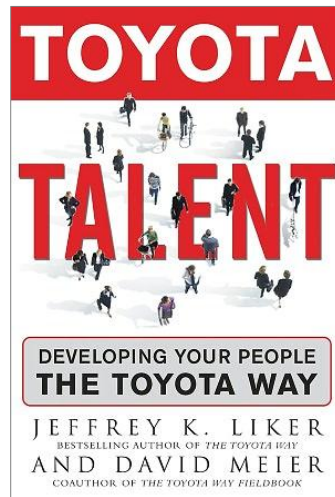
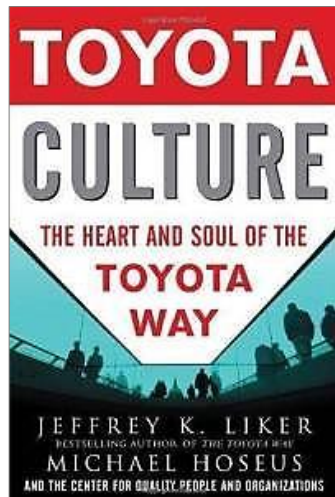
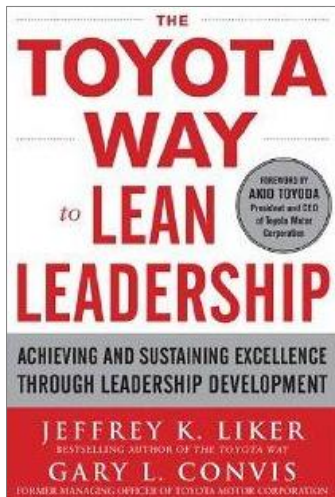
Practicing the Toyota Way Business Principles



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The Toyota Way Business Tools

- The Machine that Changed the World – *James Womack*
- Toyota Way – *Jeffrey Liker*



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Early (and continued) Attitudes Toward Lean



Credit: Lean Construction Institute

- We've tried that.
- We already do that.
- We don't need it.
- It won't work here.
- We don't build cars.
- We're different.
- The other guy needs it, not me.
- We're doing well, so why change?



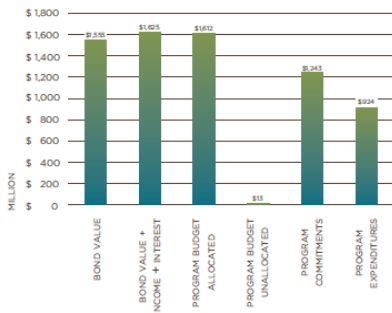
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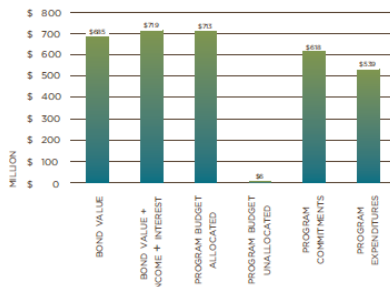
Program A3 Report

SDCCD FACILITIES PROGRAM FINANCIAL STATUS

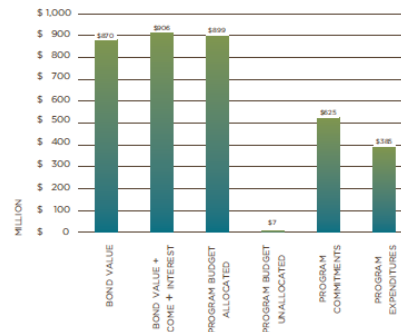
SDCCD PROPOSITIONS S & N SUMMARIZED



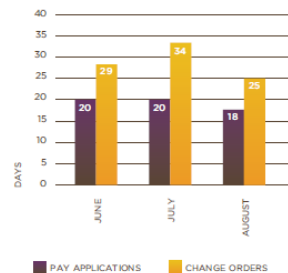
SDCCD PROPOSITION S SUMMARIZED



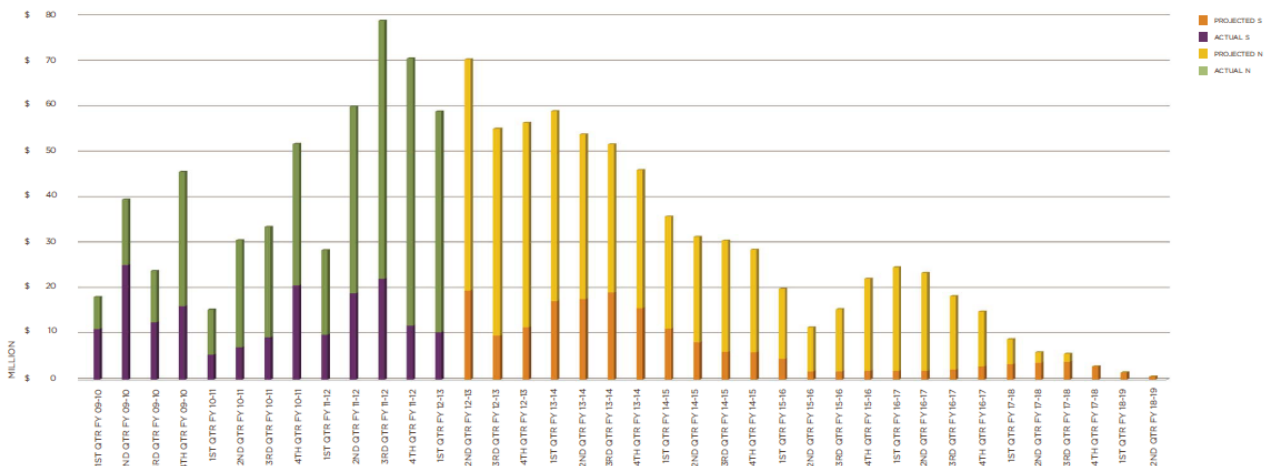
SDCCD PROPOSITION N SUMMARIZED



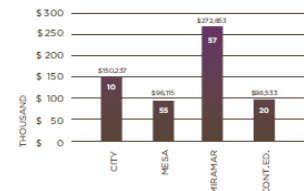
PAY APPLICATIONS - CHANGE ORDER TURNOVER



SDCCD PROPOSITIONS S & N EXPENDITURES - PLANNED & ACTUALS



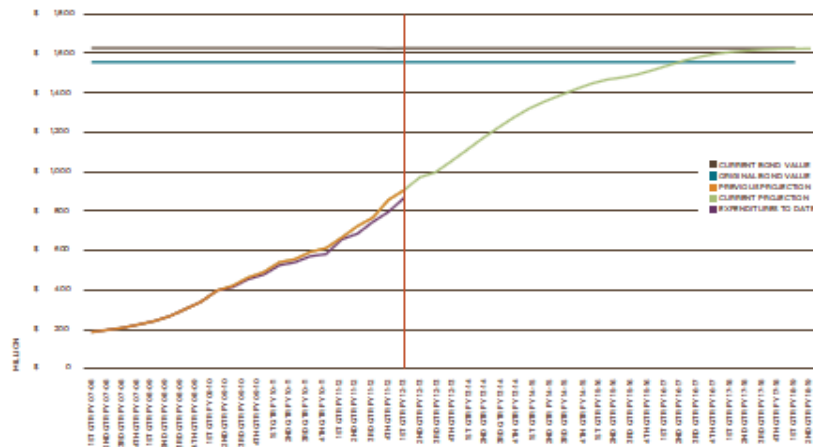
AGING CHANGE ORDERS OVER 60 DAYS



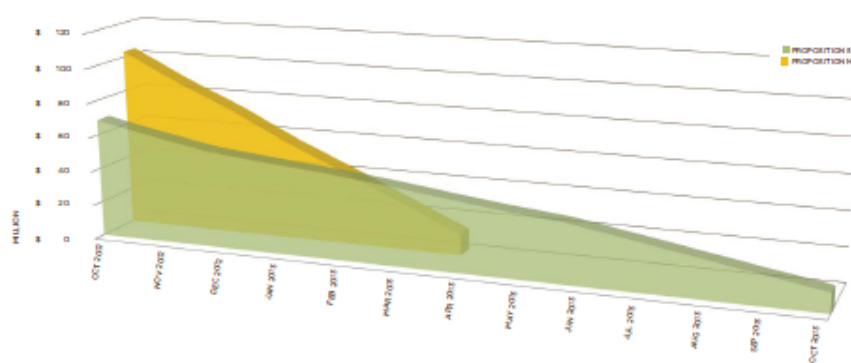
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San Diego Community College District Program A3 Report

SDCCD PROPOSITIONS S & N FORECAST EXPENDITURE CURVE



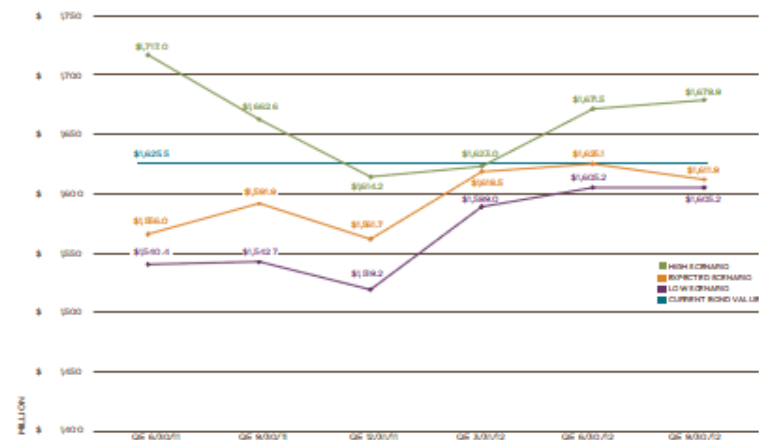
SDCCD PROPOSITIONS S & N BOND SERIES DRAWDOWN



SDCCD PROPOSITIONS S & N EXPENDITURES AT A GLANCE

PROP	BUDGET	\$ COMMITTED	% COMMITTED	\$ SPENT	% SPENT
S	\$719,700,555.00	\$618,734,751.00	85.97%	\$519,910,855.00	75.02%
N	\$905,811,241.00	\$625,023,527.00	69.00%	\$385,655,411.00	42.58%
TOTAL	\$1,625,511,796.00	\$1,243,748,278.00	76.51%	\$905,566,266.00	56.94%

SDCCD PROPOSITIONS S & N TOTAL INDICATED COST



SAN DIEGO
CITY COLLEGE

SAN DIEGO
MESA COLLEGE

SAN DIEGO
MIRAMAR
COLLEGE

SAN DIEGO
CONTINUING
EDUCATION

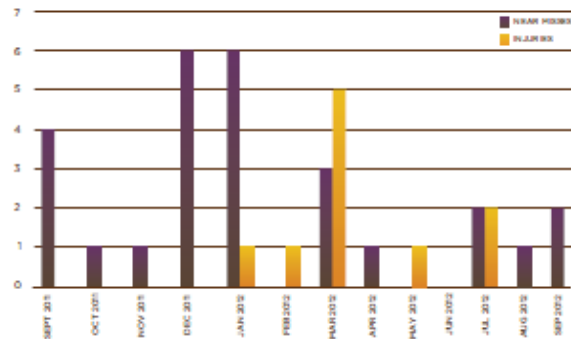
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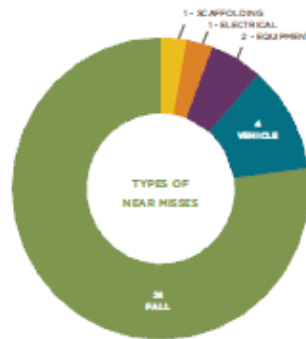
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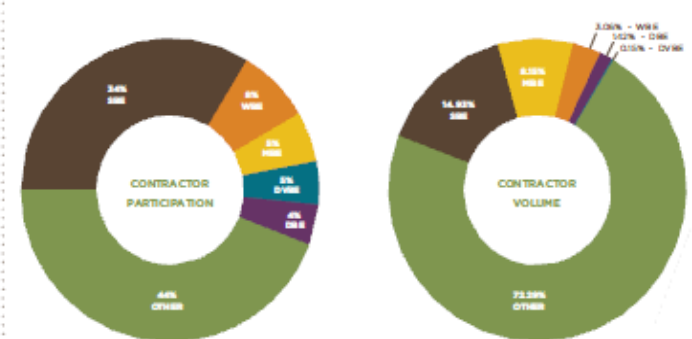
SDCCD PROPOSITIONS S & N SAFETY
NEAR MISSES & INJURIES



SDCCD PROPOSITIONS S & N SAFETY



SDCCD PROPOSITIONS S & N OUTREACH

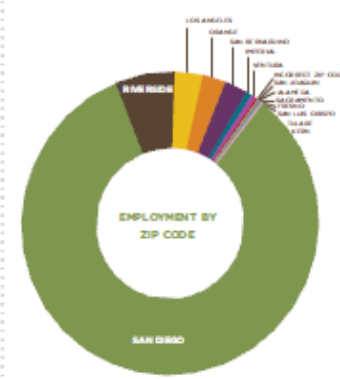


SMALL BUSINESS ENTERPRISE (SMB) • WOMAN-OWNED BUSINESS ENTERPRISE (WBE) • MINORITY BUSINESS ENTERPRISE (MBE)
DISABLED VETERAN BUSINESS ENTERPRISE (DVBE) • GOAL-DIVERSITY BUSINESS ENTERPRISE (GDBE)

SDCCD PROPOSITIONS S & N FF&E/IT EXPENDITURES
RECENTLY COMPLETED AND ONGOING PROJECTS

PROP	CAMPUS	PROJECT	FF&E BUDGET	FF&E EXPENDITURES	IT BUDGET	IT EXPENDITURES
x	City	Land Acquisition + General Purpose Classroom Building (Land \$21.8M)	\$ 2,339,816	\$ 7,174	\$ 1185,000	\$ 782,764
x	Mesa	Student Services Facility	\$ 2,475,937	\$ 526,534	\$ 1,183,526	\$ 735,181
x	CE	North City Campus	\$ 1,434,736	\$ 0	\$ 1,140,021	\$ 34,177
N	City	Humanities & Business Technology Building	\$ 4,156,833	\$ 0	\$ 1,981,000	\$ 312,91
N	City	Science Building	\$ 3,350,731	\$ 18,546	\$ 1,000,000	\$ 0
N	Mesa	Math and Science Building	\$ 6,607,258	\$ 44,991	\$ 2,162,184	\$ 66,448
N	Minamr	Aviation Maintenance Technology Center	\$ 1,187,831	\$ 344,508	\$ 202,800	\$ 60,884
N	Minamr	College Service Center	\$ 258,957	\$ 44,989	\$ 118,000	\$ 55,656
N	Minamr	Library/Learning Resource Center	\$ 3,400,000	\$ 2,359,678	\$ 125,000	\$ 1124,569
N	Minamr	Cafeteria/Bookstore + Student/Campus Center	\$ 1,165,290	\$ 25,479	\$ 850,000	\$ 131,746
N	Minamr	Heavy Duty Advanced Transportation Technology Center	\$ 900,000	\$ 0	\$ 148,050	\$ 0
N	Cont.Ed.	Cleimont/Unda Vista - Land Acquisition & Building (Land \$18M)	\$ 1,103,702	\$ 0	\$ 935,297	\$ 302,577
N	Cont.Ed.	Educational Cultural Complex - Phase IIB Wing	\$ 1,305,388	\$ 0	\$ 516,500	\$ 137,882

SDCCD PROPOSITIONS S & N LABOR COMPLIANCE



ZIP/ST NAME	TOTAL HOURS	ANNA PER CENT
SAN DIEGO COUNTY	227,282.65	83.10 %
RIVERSIDE COUNTY	17,615.35	6.47 %
LOS ANGELES COUNTY	9,293.00	3.04 %
ORANGE COUNTY	6,908.25	2.54 %
SAN BERNARDINO COUNTY	6,790.00	2.50 %
IMPERIAL COUNTY	1,789.00	0.66 %
VENTURA COUNTY	1,698.00	0.63 %
INCORRECT ZIP CODES	323.50	0.27 %
SAN JOAQUIN COUNTY	657.50	0.26 %
ALAMEDA COUNTY	603.00	0.26 %
SACRAMENTO COUNTY	608.00	0.25 %
FRESNO COUNTY	185.00	0.07 %
SAN LUIS OBISPO COUNTY	68.00	0.02 %
TULARE COUNTY	4.800	0.00 %
KERN COUNTY	8.00	0.00 %
TOTAL	274,924.8	10.00 %*

* ROUNDED

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"Rainbow" Report

#	Prop.	Campus	Project Description	Contract Manager Project Budget as of 2011_08_12	Contract Manager Commitments to 2011_09_02	Soft Cost	Hard Cost	FFE AV / IT	IT	Expenditures as of 2011_06_30	DSA Submit	DSA Approved	Board Approval	Construction Complete	Change Order Rate	Status
1	S	CE	ECC - Land Acquisition & Relocation Skills Center (Land \$7.4M)	\$ 31,650,000	\$ 31,681,400	\$ 11,297,890	\$ 10,782,697	\$ 1,560,878	\$ 614,124	\$ 31,737,281	Jan-06	Oct-06	May-07	Aug-09	8.0	100%
2	S	CE	West City Campus	\$ 17,409,369	\$ 17,409,369	\$ 2,484,567	\$ 13,482,064	\$ 1,073,191	\$ 369,546	\$ 17,409,495	Oct-05	Nov-06	Jul-07	May-09	10.0	100%

Miramar	Cafeteria/Bookstore & Student/Campus Center	\$ 34,519,245	\$ 31,515,776
Miramar	Aviation Maintenance Technology Center	\$ 10,251,857	\$ 8,475,465
Miramar	Parking Structure #1 & Police/Emergency Center	\$ 17,848,765	\$ 16,608,677
City	Infrastructure - Central Plant /Sewer & Storm Drain/ Data & IT projects	\$ 19,441,050	\$ 17,017,141
Mesa	Infrastructure - Fire Lane/Central Plant/IT/Stadium Restrooms	\$ 8,127,797	\$ 9,637,103
Miramar	Infrastructure Phase II	\$ 41,564,305	\$ 17,108,101
District	Proposition N Program Management	\$ 41,992,026	\$ 17,874,745
CE	Fire Science / EMT Training Facility	\$ 13,000,000	\$ 1,774,354
City	Science Building	\$ 54,014,278	\$ 14,369,196

Legend:

Project Completed
Construction Phase
Design/Bid Phase
Ongoing
Future Projects

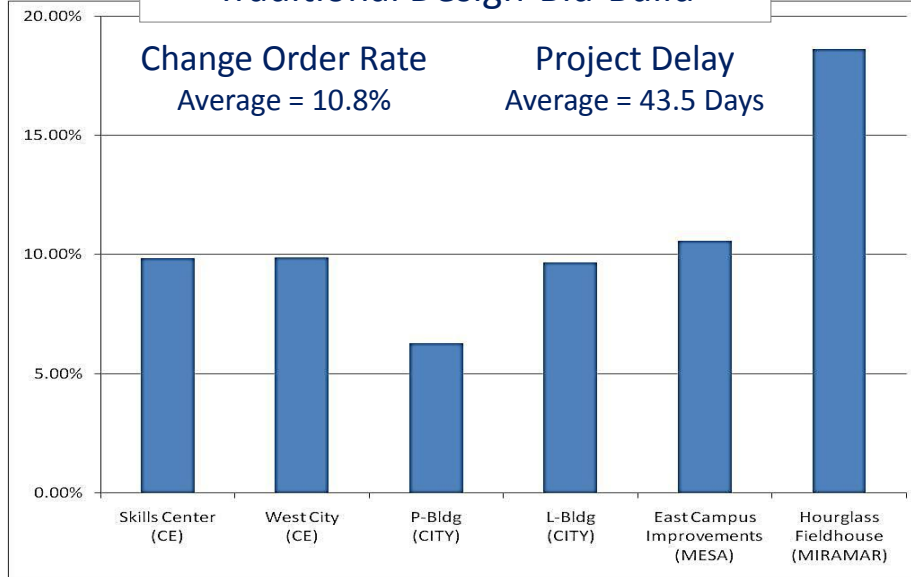


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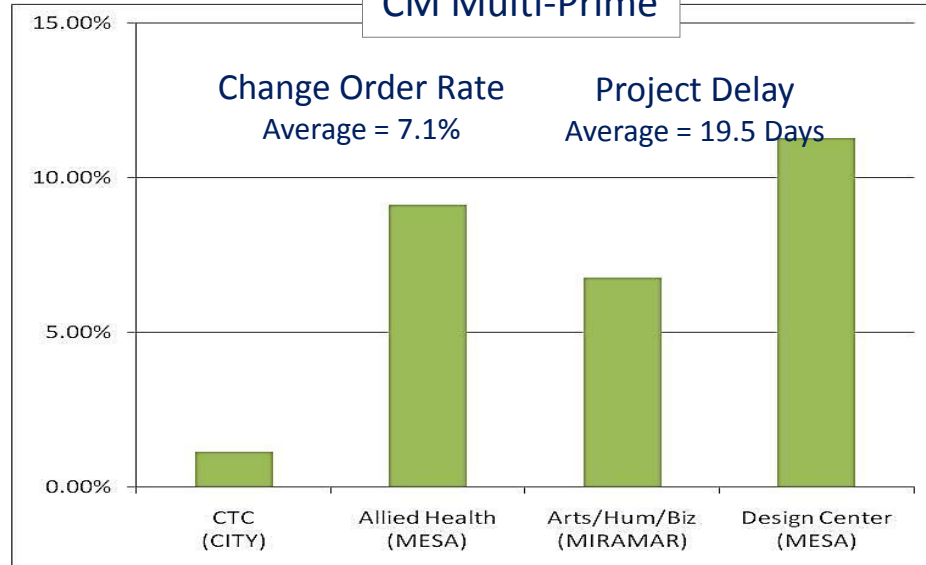
San Diego Community College District

Schedule Performance

Traditional Design-Bid-Build

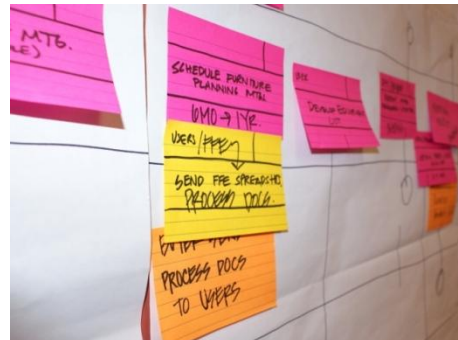


CM Multi-Prime



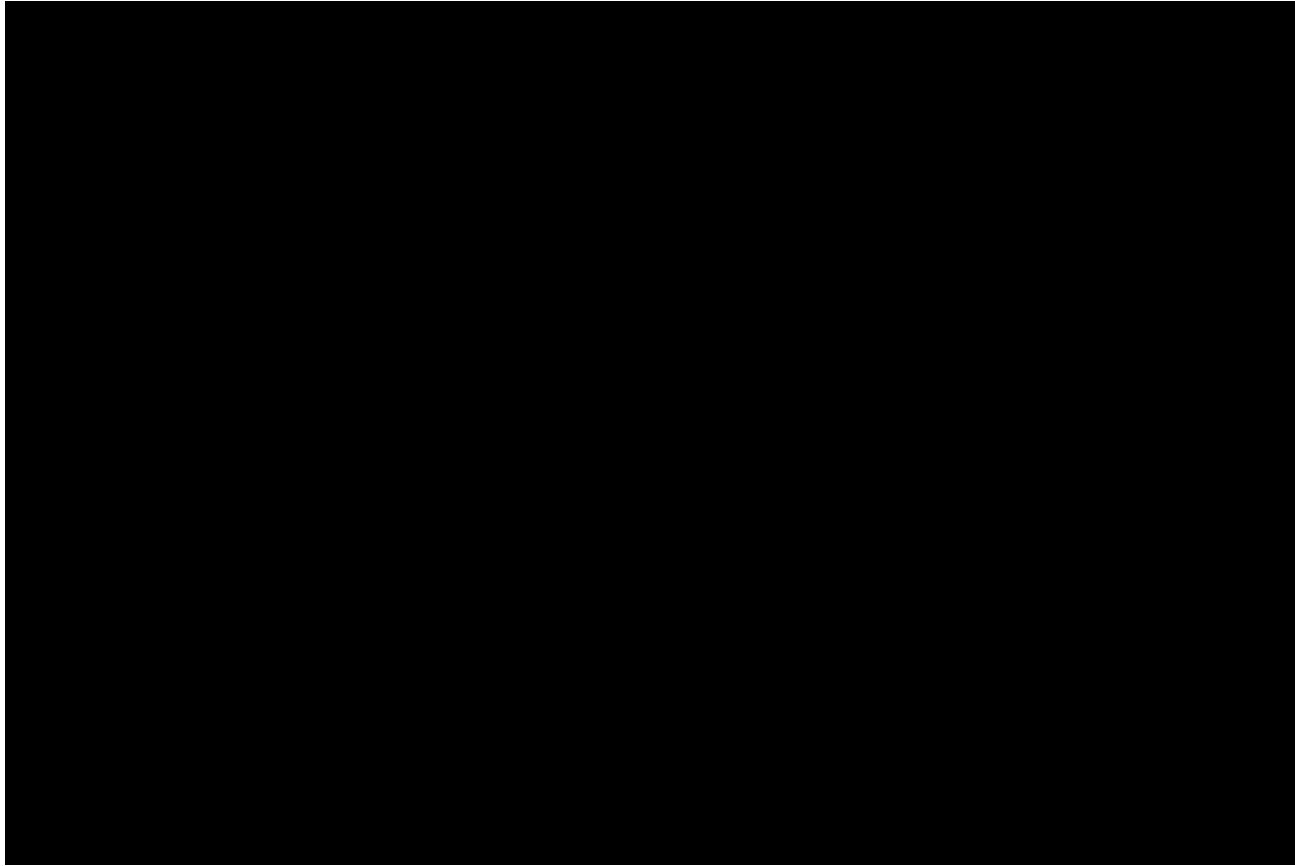
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San Diego Community College District Pull Planning



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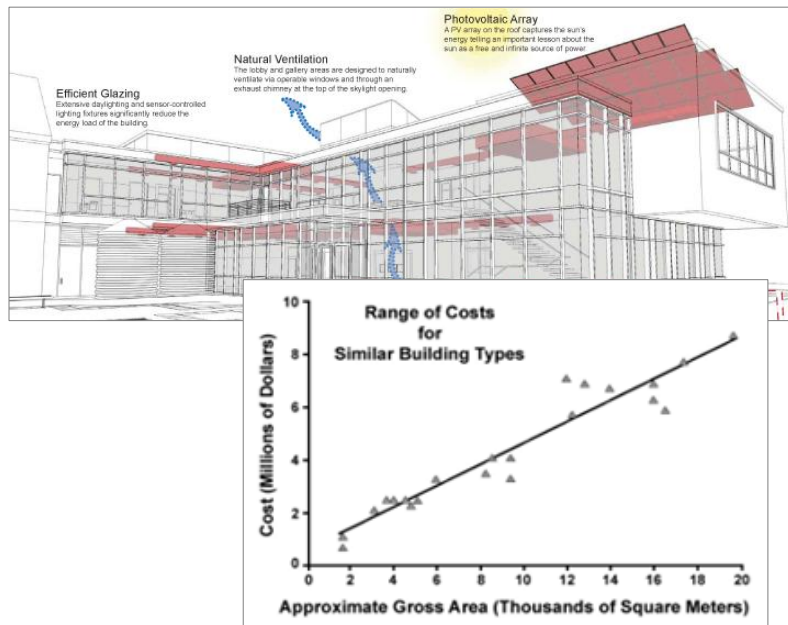
Pull Planning



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Target Costing – Project Budget Development

- Space Programming
- Efficiency
- Targeted Cost Per Sq. Ft.

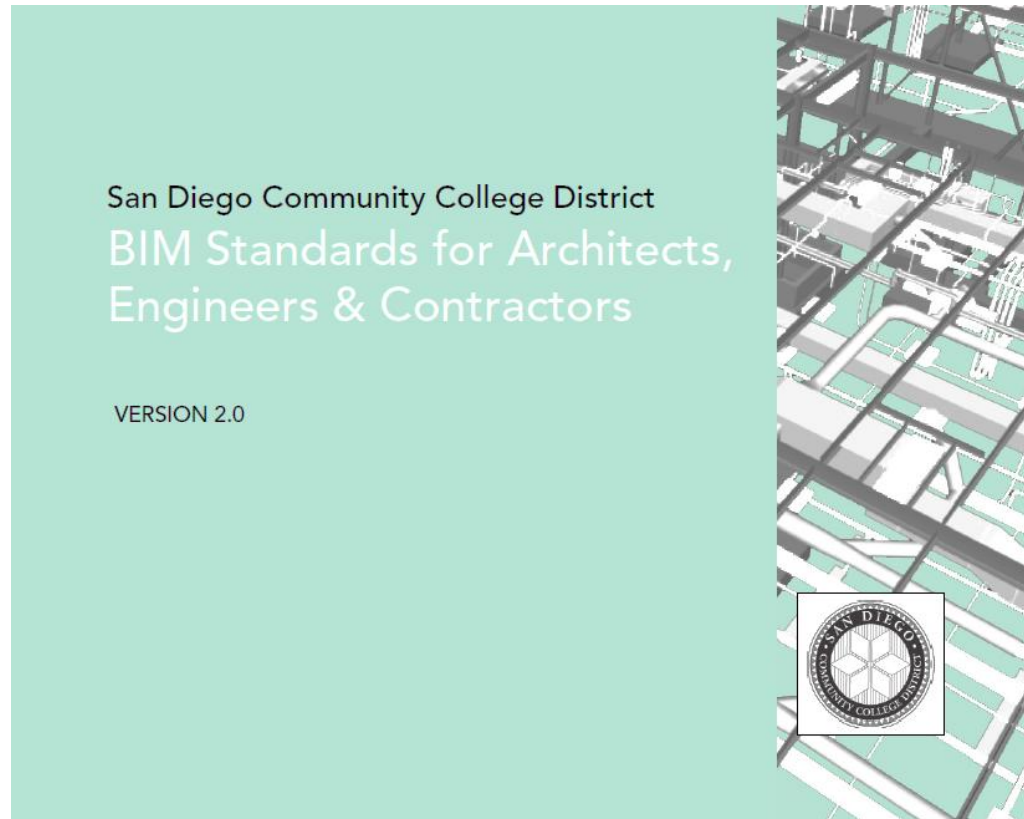


BUILDING	SPACE DESCRIPTION	2024 ASF	Quantity	Extended 2024 ASF	Extended 2007 ASF	Variance	2007 Room Nos., Comments
Life Sciences	32-Seat Dry Lecture/Lab-Biology	1,600	x 1.0	1,600	836	764	supplements A202
	32-Seat Wet Lab-Biology/Botany	1,728	x 1.0	1,728	1,092	636	supplements A210
	32-Seat Wet Lab-Biotech/Microbiology	1,728	x 3.0	5,184	2,048	3,136	supplement A204, A231
	32-Seat Wet Lab-Physiology/Anatomy	1,728	x 3.0	5,184	1,834	3,350	supplement A226, A206
	32-Seat Lecture/Dry Lab-Life Science (computer)	1,600	x 1.0	1,600	1,053	547	supplements A207
	Prep/Stg/Lab Tech Rm (1 per 2 wet labs; 7 wet labs total)	800	x 4.0	3,200	1,232	1,968	supplement A203, A205, A226A
	Storage	1,200	x 1.0	1,200	0	1,200	supplements A206A, A209, A211
	Marine Biology/Oceanography Lab	500	x 1.0	500	0	500	Aquarium
	Microbiology Culture/Autoclave Room	200	x 1.0	200	0	200	
	Biology/Anatomy Dissection Room	200	x 1.0	200	0	200	
				20,596	8,095	12,501	
Physical Sciences	32-Seat Wet Lab-Chemistry	1,728	x 4.0	6,912	3,018	3,894	M201, M202, M203
	Chemistry Lab Instrument Room (1 per 2 labs)	250	x 2.0	500	180	320	M220
	Chem. Prep/Storage/Lab Tech Rm (1 per 2 labs)	800	x 2.0	1,600	1,337	263	M216, M217, M218
	Hazardous Chemicals Storage Room	175	x 1.0	175	120	55	M219
	32-Seat Lecture/Dry Lab-Physics, Physical Science, Geography, Geology	1,600	x 4.0	6,400	2,014	4,386	M204, M205
	40-Seat Lecture/Dry Lab-Geography	2,000	x 1.0	2,000	0	2,000	
	Physics/Physical Science/Astronomy Prep/Stg/Lab	1,600	x 1.0	1,600	1,059	541	M214, M215, M215A
	Tech Rm	1,600	x 2.0	3,200	0	3,200	
	32-Seat Computer Lab-GIS, Physics, Chemistry	1,600	x 2.0	3,200	0	3,200	
	100-Seat Planetarium	2,500	x 1.0	2,500	0	2,500	
				24,887	7,728	14,659	



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BIM Standards



<http://public.sdccdprops-n.com/Design/SDCCD%20-%20Building%20Design%20Standards/SDCCD%20BIM%20Standards%20Version%202.pdf>



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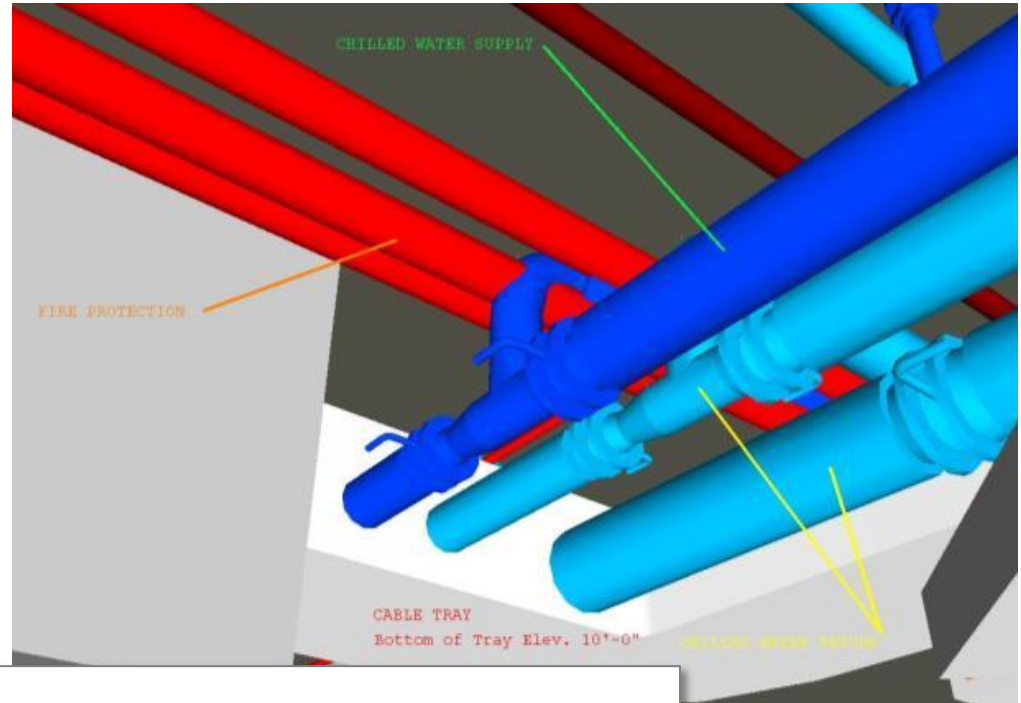
BIM Clash Detection

■ Building Construction

Mechanical piping hits cable tray and fire protection piping in ceiling space

■ Survey Average Results

- *Man-hour Savings = 61*
- *Delay Savings = 3 Days*
- *Cost Savings = \$30,349.00*



- **Number of Clashes Shown in Example = 9**
- **Savings per Clash Resolved = \$3,372.00**

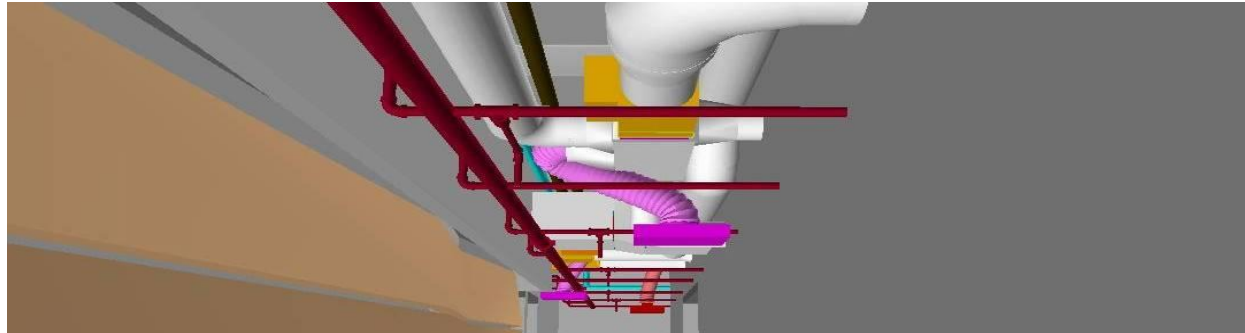


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Change Order Metrics - BIM vs. No BIM

Change Orders

	<u>Errors & Omissions</u>	<u>Total</u>
BIM:	1.1%	4.1%
No BIM	3.3%	8.6%



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Schedule Impacts - BIM vs. No BIM

Average Days of Delay

BIM: 24.5

No BIM: 79.6

Activity ID	Activity Name	Original Duration	Actual Duration	Start	Finish	Duration %
General Purpose Classroom Bldg (West Block)		1217	1037	10/09/08 A	01/09/13	94%
11810-080	Budget	1208	1037	10/09/08 A	01/09/13	93.93%
11810-100	Design	261	333	10/09/08 A	01/18/10 A	100%
11810-110	DSA	200	187	01/19/10 A	10/06/10 A	100%
11810-120	Bid & Award	10	10	11/01/10 A	11/12/10 A	100%
11810-130	Construction	460	464	11/15/10 A	08/24/12 A	100%
11810-300	Prepare FF&E Spec Binder	200	347	02/04/11 A	06/04/12 A	100%
11810-310	VPA Processing	52	1	06/04/12 A	06/05/12 A	100%
11810-320	Purchasing	264	84	06/05/12 A	01/09/13	72.35%
11810-330	Occupancy	0	0		01/09/13	0%

BIM - Math & Social Science Bldg.

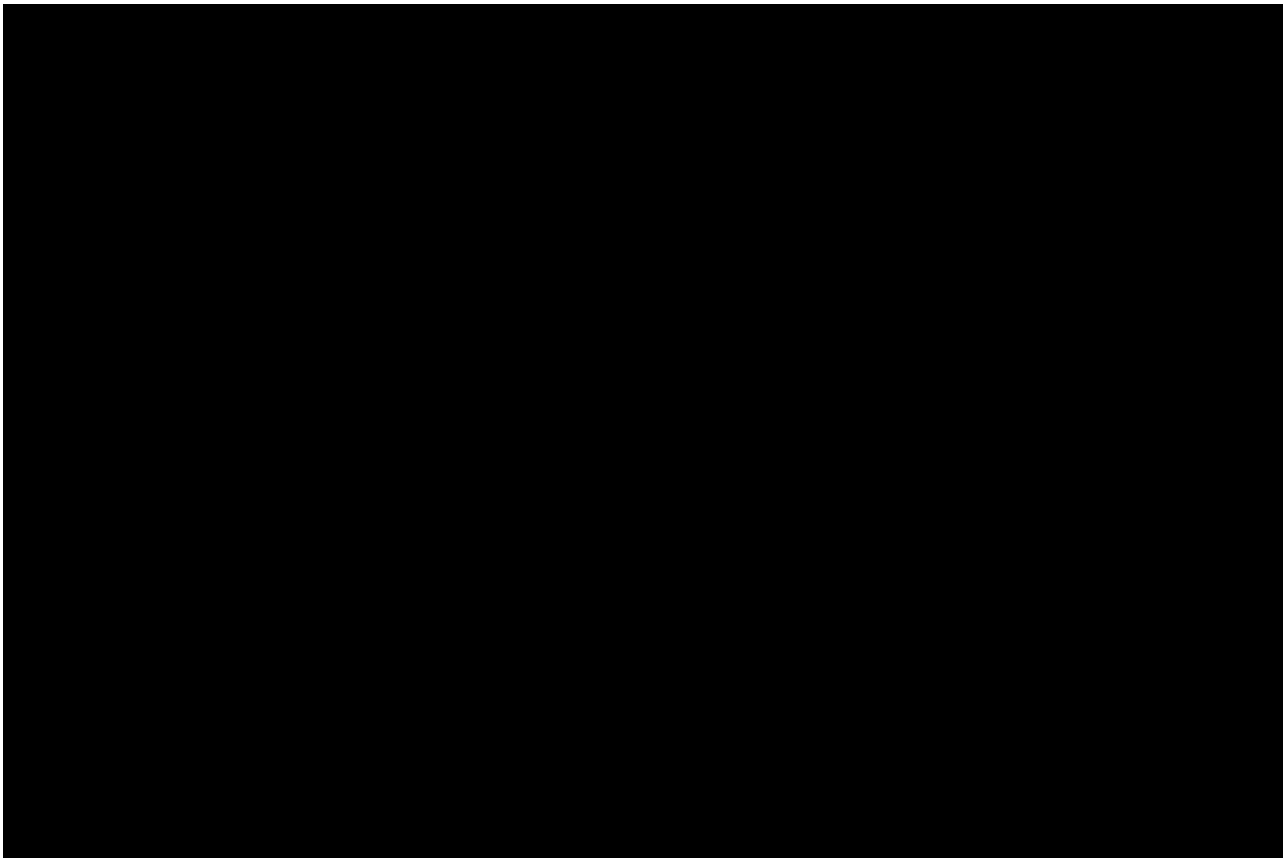
Original Schedule – 1217 days

Actual Schedule 1037 days



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San Diego Community College District
BIM Integration: Mesa College Social & Behavioral Sciences Building



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San Diego Community College District Off-site Fabrication Trends



↑ Exterior skin – Mesa College Math & Science Building



Columns and Double Ts – City College Arts & Humanities Building ↓



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Off-site Pre-Fabrication Trends

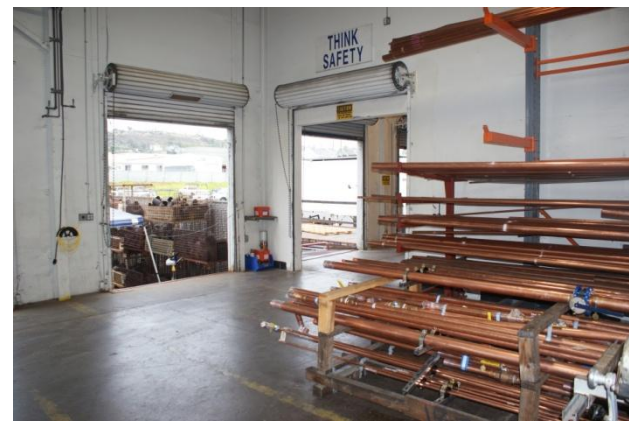


**Mechanical systems off-site racking –
Mesa College Math & Science Building**



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Off-site Pre-Fabrication Trends



Pre-fabrication warehouse – University Mechanical & Engineering



**2012 DESIGN-BUILD
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Design/Build Statute in California for CCS

- **As of January 1, 2008, Community Colleges can use design build under SB614.**
 - Must be at least \$2.5M in value
 - Requires project-specific Board resolution
- **Need to evaluate the project based on five minimum criteria.**
 - Price (10%)
 - Technical Experience (10%)
 - Life cycle cost over 15 years (10%)
 - Skilled Labor Force (10%)
 - Safety Record (10%)



**2012 DESIGN-BUILD
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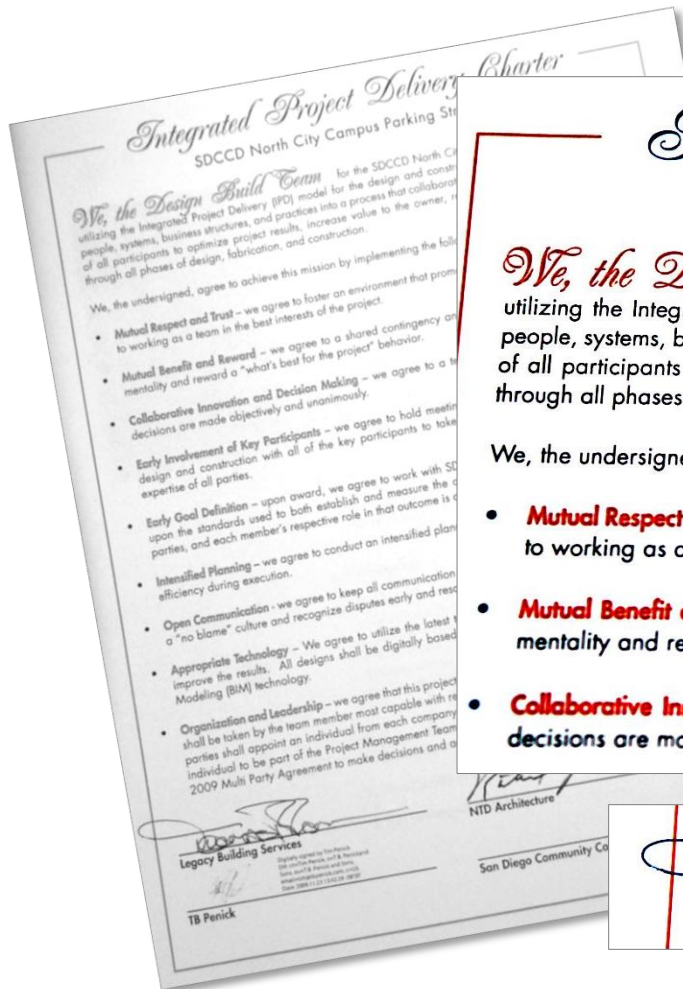
Design/Build Scoring Criteria and Weight

	1	2	3	4	5	6	7		
	TECHNICAL EXPERTISE / 20%	DESIGN EXCELLENCE/ 20%	LIFE CYCLE COST/ 10%	SKILLED LABOR FORCE AVAILABILITY/ 10%	PRICE/ 20%	COMMITMENT TO DIVERSITY/ 10%	SAFETY RECORD / 10%	TOTAL	RANK
Point Value	200	200	100	100	200	100	100	1000	
FIRM									
Balfour Beatty	193	190	90	100	200	77	100	950	1
McCarthy Construction	198	193	96	100	180	76	85	928	2
Hensel Phelps	188	188	85	100	180	82	95	918	3
TB Penick	183	178	95	100	180	74	95	904	4
PCL Construction	174	171	92	100	180	82	100	899	5
Davis Reed Construction	156	171	86	100	200	75	90	878	6
Swinerton	164	173	80	100	160	93	100	870	7
Rudolph and Sletten	166	174	78	100	190	76	85	869	8
Turner Construction	171	178	73	100	160	74	100	856	9
Harper	158	164	75	100	180	67	95	839	10
Tilden-Coil	171	148	68	100	180	69	100	836	11
CV Driver	174	175	91	100	180	0	100	820	12



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Integrated Project Delivery Charter




Integrated Project Delivery Charter

SDCCD North City Campus Parking Structure

We, the Design Build Team for the SDCCD North City Campus Parking Structure, will be utilizing the Integrated Project Delivery (IPD) model for the design and construction of this project to integrate the people, systems, business structures, and practices into a process that collaboratively harnesses the talents and insights of all participants to optimize project results, increase value to the owner, reduce waste and maximize efficiency through all phases of design, fabrication, and construction.

We, the undersigned, agree to achieve this mission by implementing the following objectives:

- **Mutual Respect and Trust** – we agree to foster an environment that promotes collaboration, and we are committed to working as a team in the best interests of the project.
- **Mutual Benefit and Reward** – we agree to a shared contingency and a shared savings to breakdown the silo mentality and reward a “what’s best for the project” behavior.
- **Collaborative Innovation and Decision Making** – we agree to a team decision making structure where major decisions are made objectively and unanimously.

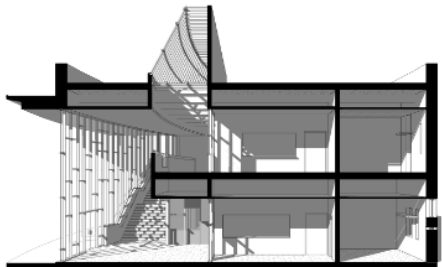
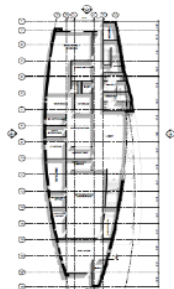

Legacy Building Services


NTD Architecture



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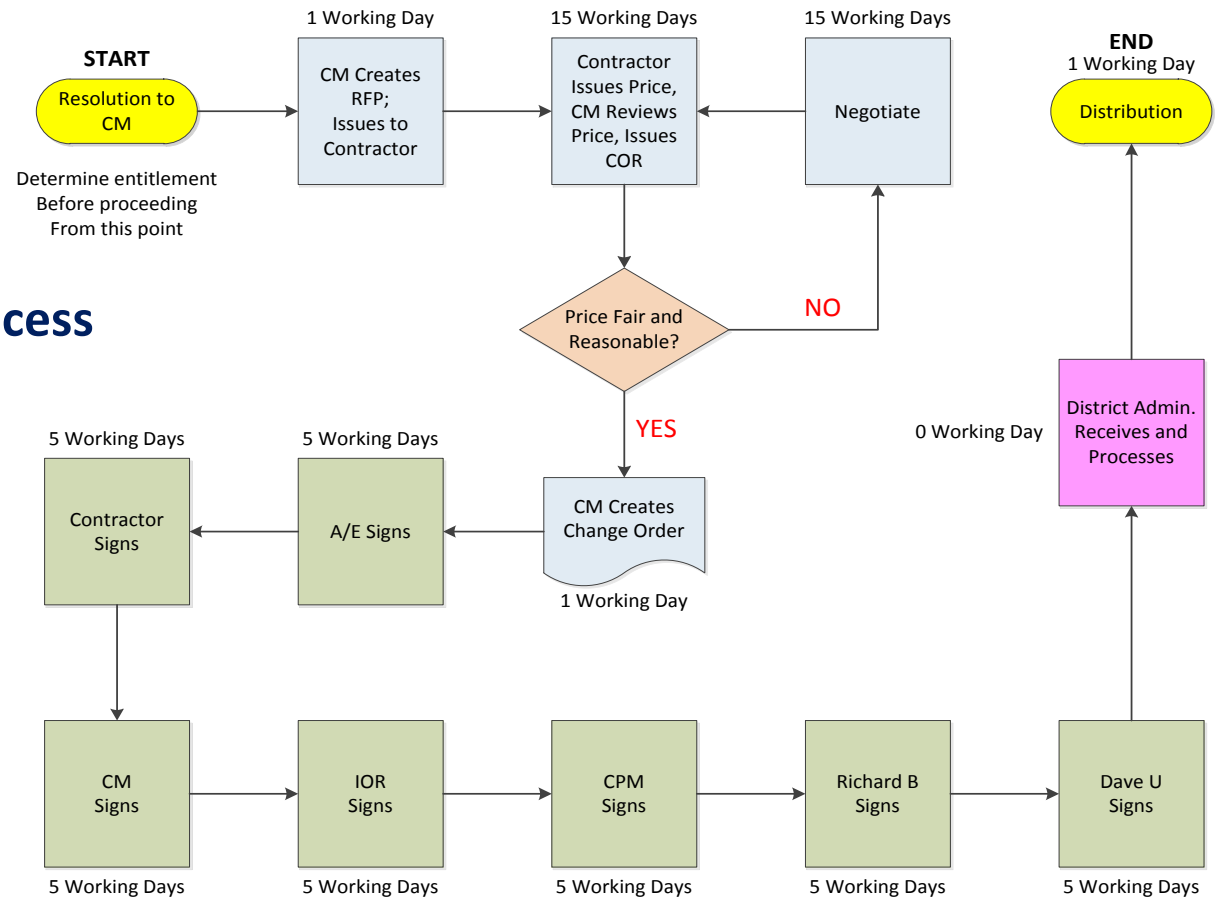
A3 Reporting System Design - Structural

A3 No	Theme / Title			Champion	Collaborator	Additional Collaborators	Sponsor	Customer Group	Sign-off																																																						
S-001	Structural System Selection Comparison			Aldrin Orue	Jorge Rivera	Patrick Meek																																																									
	Discipline	Element	Date Opened	Path Forward Date	Category	A3 Status																																																									
	Structural	Framing	12/7/2010	12/13/2010	N/A	Idea Development	Sponsor Identified	A3 Development	Customer accepts																																																						
Section 1 - Background - Relevance to Project Comparison of structural system options to determine which option is the most appropriate and efficient for the facility while meeting project goals of cost, schedule, and aesthetics.																																																															
Section 2 - Current Condition Two-story 15,000 SF facility located in San Diego CA with an open high bay lobby area. A facility of this size and type is typically constructed of a steel frame system due to the many advantages of steel as noted in the following sections below. A comparison analysis with other structural systems will be performed to make sure that advantages from other systems are not overlooked and properly evaluated.																																																															
Section 2 - Current Condition - Design <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>3D Section</p> </div> <div style="text-align: center;">  <p>Level 1 Floor Plan</p> </div> </div>																																																															
Section 3 - Analysis <table border="1"> <thead> <tr> <th>Structural System Options</th> <th>Construction Schedule</th> <th>Flexibility</th> <th>Durability [Life Cycle]</th> <th>Cost</th> <th>Sustainability</th> <th>Sound Attenuation</th> <th>Floor Vibration</th> <th>Total</th> </tr> </thead> <tbody> <tr> <td>Structural System</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>1 Steel System</td> <td>+</td> <td>+</td> <td>+</td> <td>+</td> <td>+</td> <td>+</td> <td>+</td> <td>7</td> </tr> <tr> <td>2 Concrete System</td> <td>0</td> <td>0</td> <td>+</td> <td>0</td> <td>+</td> <td>+</td> <td>+</td> <td>4</td> </tr> <tr> <td>3 Masonry System</td> <td>0</td> <td>0</td> <td>+</td> <td>+</td> <td>+</td> <td>0</td> <td>0</td> <td>3</td> </tr> <tr> <td>4 Wood</td> <td>+</td> <td>0</td> <td>0</td> <td>+</td> <td>0</td> <td>0</td> <td>0</td> <td>2</td> </tr> </tbody> </table> <p>+ Meets "Should" Criteria 0 Does Not Meet "Should" Criteria</p>										Structural System Options	Construction Schedule	Flexibility	Durability [Life Cycle]	Cost	Sustainability	Sound Attenuation	Floor Vibration	Total	Structural System									1 Steel System	+	+	+	+	+	+	+	7	2 Concrete System	0	0	+	0	+	+	+	4	3 Masonry System	0	0	+	+	+	0	0	3	4 Wood	+	0	0	+	0	0	0	2
Structural System Options	Construction Schedule	Flexibility	Durability [Life Cycle]	Cost	Sustainability	Sound Attenuation	Floor Vibration	Total																																																							
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Section 4 - Unresolved Issues - Identify any problems or constraints that still exist Need structural analysis to determine preliminary steel member sizes to confirm steel option.																																																															
Section 5 - Recommendations Based on the current information at hand the option of a steel structural system is recommended.																																																															
Section 6 - Path Forward Follow-up 1. Structural analysis to determine preliminary steel member sizes- Aldrin Orue 2. Confirm structural steel member sizes with budget - Dustin Smith 3. Confirm structural system selection with entire team and approve A3- Aldrin Orue 4. Incorporate/proceed with structural steel design- Aldrin Orue																																																															



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Value Stream Mapping – Change Order Process



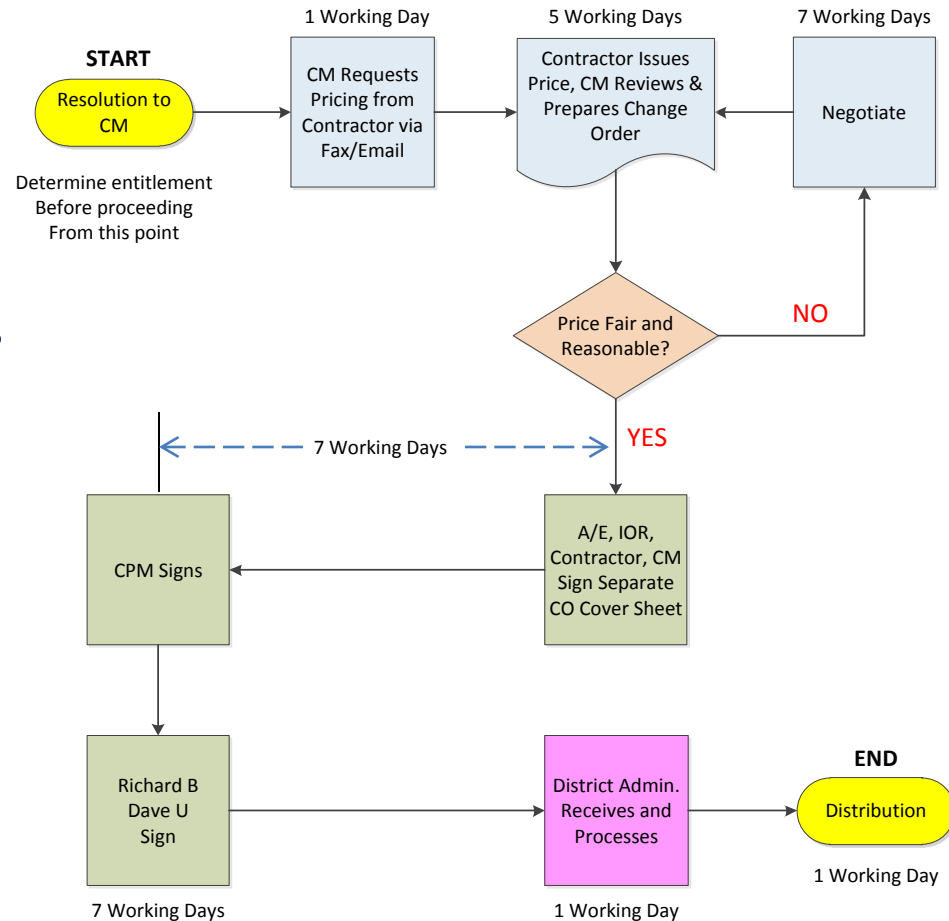
Old Change Order Process

Total Process Duration:
67 Working Days
With Negotiation



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Value Stream Mapping – Change Order Process



New Change Order Process

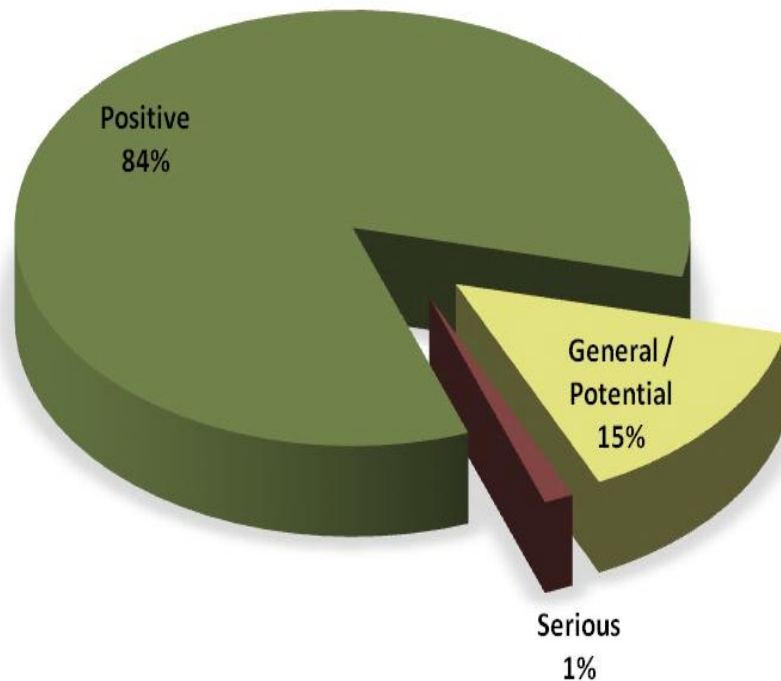
Effective January 2011

Total Process Duration:
28 Working Days
With Negotiation

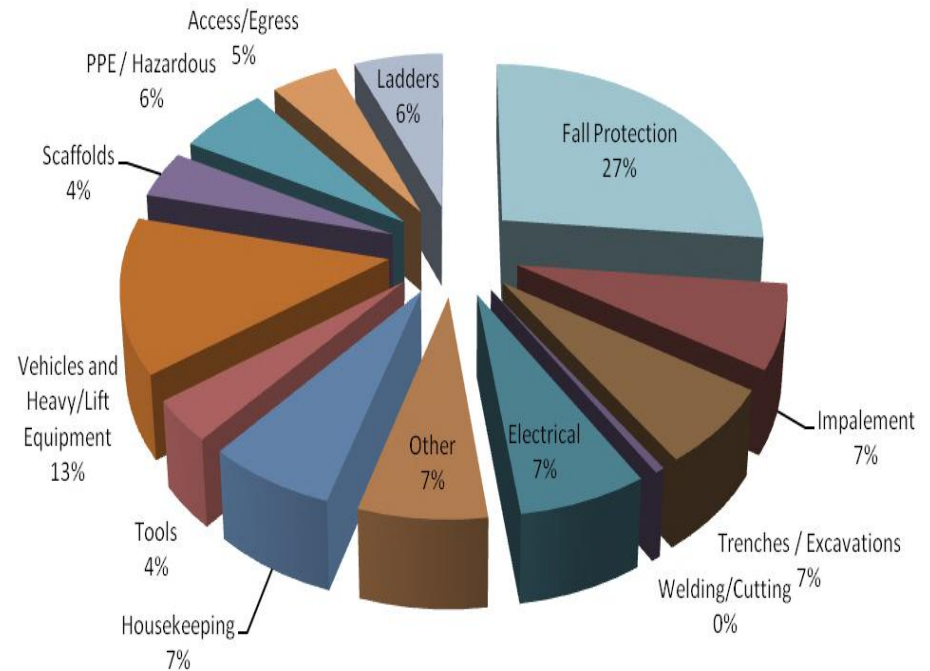
Safety – Root Cause Analysis of Repeated Incidents

City College Campus Safety Report – February 2012

Overall Safety Comments

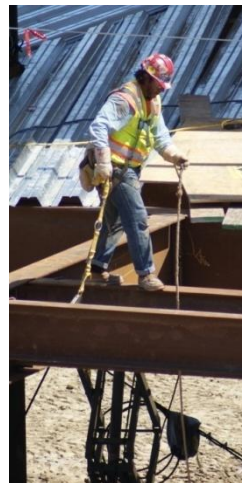


Overall Safety Issues



Safety – Root Cause Analysis of Repeated Incidents

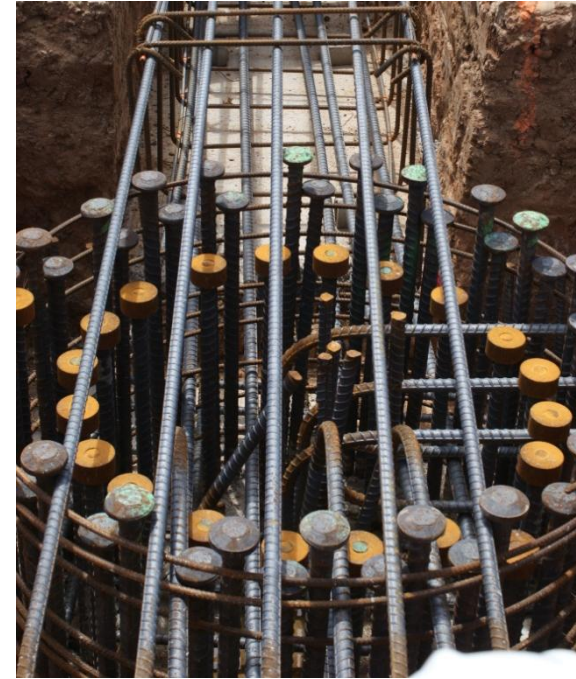
- Required fall protection refresher training
- Enhanced training for spotters
- Enhanced focus on safety culture



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San Diego Community College District

Genchi Genbutsu



2012 DESIGN-BUILD CONFERENCE & EXPO

Hourensou

CONSTRUCTION STATUS:

Award Amount:	\$49,838,376		Contract Number: 2520
Approved COs:	\$76,465	0.15%	Contract Start Date: Noven
Revised Contract Amount:	\$49,914,841		% Complete: 45
Invoiced To Date:	\$19,432,050	38.93%	Contract Duration: 627 day
Balance:	\$30,482,791		Original Completion: July 31,
			Estimated Completion: August 2
CORs by Contractor:		0.00%	



Parking garage concrete pour

Summary: Crews are working to install concrete walls and columns on level five of the west side of the classroom building on the third level. Installation of perimeter guardrail protection tier 2, west side, of the parking structure on Wednesday, and preparations are being made Saturday. Framing subcontractor has mobilized and has begun laying out metal stud walls interceptor along 16th street, and our utility subcontractor is back onsite tying into that system. We have concrete pitchers filling in tie holes from the formwork.



SAN DIEGO COMMUNITY COLLEGE DISTRICT Proposition 5 Project FACILITIES MANAGEMENT WEEKLY REPORT

Updated: September 22, 2011
Project Name: General Purpose Classroom Building
Campus: City College

CM/CPM: Guy Meades/Tom Fine
Inspector: Joe Gorak
A-E/Contractor: RNT Architects/Sundt Construction

Project Description: The Math & Social Sciences building will consist of approximately 84,000 square feet of new building construction or the addition of new general purpose classrooms, a Family Health Center, Corporate Education Center, Math, Chicano Studies, Black studies, History and Political Science, Behavioral Sciences, and Military Education programs. In addition, the project will consist of an additional parking structure that will provide approximately 400 new parking spaces.

CONSTRUCTION STATUS:

Award Amount:	\$49,838,376		Contract Number: 2520
Approved COs:	\$76,465	0.15%	Contract Start Date: November 12, 2010
Revised Contract Amount:	\$49,914,841		% Complete: 45
Invoiced To Date:	\$19,432,050	38.93%	Contract Duration: 627 days
Balance:	\$30,482,791		Original Completion: July 31, 2012
		0.00%	Estimated Completion: August 21, 2012

CORs by Contractor:

PROJECT STATUS/Comments:



Sewer tie in at 16th street



Parking garage concrete pour



Bird's eye view from the CTC building

Summary: Crews are working to install concrete walls and columns on level five of the west side of the classroom building. The deck formwork below level five is being removed, and reshoring is being placed subsequently. Exterior curb is being installed on the west side of the classroom building on the third level. Installation of perimeter guardrail protection is also ongoing at the third level. We poured tier 2, west side, of the parking structure on Wednesday, and preparations are being made to stress the post tensioning cables this Saturday. Framing subcontractor has mobilized and has begun laying out metal stud walls. Plumbers have installed the grease interceptor along 16th street, and our utility subcontractor is back onsite tying into that system. Throughout the classroom building, we have concrete pitchers filling in the holes from the formwork.

Job Look-ahead: Next week, level 5, west side will continue with walls and columns installation. On the east side of the classroom building, level four, walls and columns will be ongoing, with preparations being made for installation of the roof deck shoring. In the parking garage, we will be removing formwork from the previously poured deck and moving it over for the tier 3, east side deck. Electricians and plumbers will continue with hanger installation, and sleeve installation in conjunction with the reinforcement steel installation. Layout of walls will be ongoing at level 2.

Change Orders: Last change order received was Change Order #15

All pending change orders have been responded to by the District at this time. The question regarding markup calculation has been answered. We will provide an additional spreadsheet of calculations to supplement Exhibit B.

Schedule: The current contract completion date is 7/31/2012. We are approximately one week behind schedule on the classroom building, and three weeks behind on the parking structure. Sundt will continue to work selected overtime to make up as much time as possible.

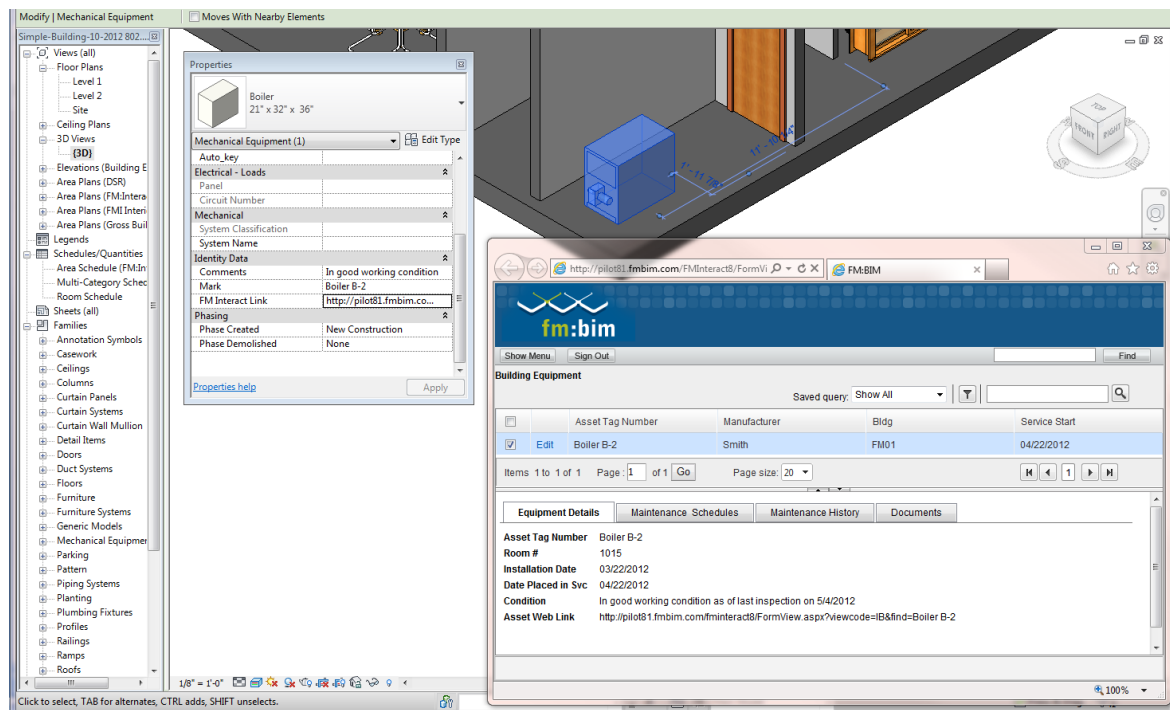


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Future Improvements Focus Areas

BIM to FM

Goal: Leverage Building Information model into CMMP to improve productivity of maintenance workers in the field.



Source:
FMBIM.com

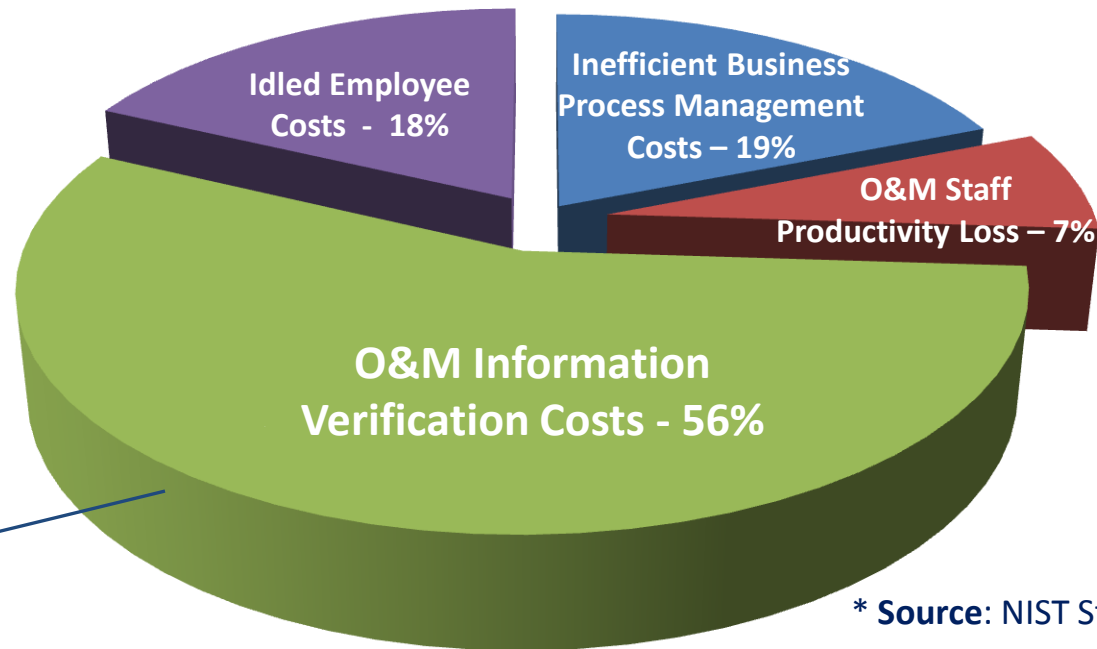


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Facilities Services Lean Enterprise Efforts

NIST Industry Findings: Cost of O&M Inefficiencies

Operations & Maintenance Stage
(Distribution of Inadequate Interoperability Costs)



* Source: NIST Study - August 2004



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Facilities Services Lean Enterprise Efforts

Building the Solution: BIM to FM

Inexpensive access to BIM model

Any time, anywhere access to facilities docs

Consistent, scalable, unified database

Collaboration and communication productivity platform

Integration with and extension of existing Program Portal



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SAN DIEGO COMMUNITY COLLEGE DISTRICT



Questions?

David Umstot, PE

Vice Chancellor, Facilities Management
San Diego Community College District

dumstot@sdccd.edu

(619) 388-6456



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