



Lean Design Forum P2SL/AIA/LCI 2016-Day Two P2SLDF20162

January 29, 2016



4 LU/HSW Credit(s) earned on completion of this course will be reported to AIA CES for AIA members. Certificates of Completion for both AIA members and non-AIA members are available upon request. This course is registered with AIA CES for continuing professional education. As such, it does not include content that may be deemed or construed to be an approval or endorsement by the AIA of any material of construction or any method or manner of handling, using, distributing, or dealing in any material or product.

Questions related to specific materials, methods, and services will be addressed at the conclusion of this presentation.



Course Description

Kanban Method (the pull production system invented by Toyota) will be analyzed and shown to coordinate and improve design and knowledge-based work in the construction industry. Use of Kanban Method in a variety of design applications will be explained. Discussion will include how embracing reliable promising (linguistic action) and system design concepts drawn from Last Planner® are included in Lean practices. Findings of a survey on Integrated Project Delivery will be presented and analyzed.



Learning Objectives

- 1. At the end of this presentation, participants will be able to recognize the difference between push and pull planning
- 2. At the end of this presentation, participants will be able to define Kanban, its core practices, and terminology.
- 3. At the end of this presentation, participants will recognize how Kanban Method can be a powerful commitment-based approach to design and knowledge-based work in the construction industry.
- 4. At the end of this presentation, participants will have a better understanding of Integrated Project Delivery, and be able to discuss current trends and opinions regarding IPD.



IPD: Performance, Expectations and Future Use

Markku Allison, AIA, Scan Consulting Renée Cheng, AIA, University of Minnesota About this study

About IPD

Projects

Cathedral Hill Hospital

MERCY Master Plan Facility Remodel

Lawrence & Schiller Remodel

SpawGlass Austin Regional Office

Edith Green Wendell Wyatt Federal Building Modernization

IPD Case Studies

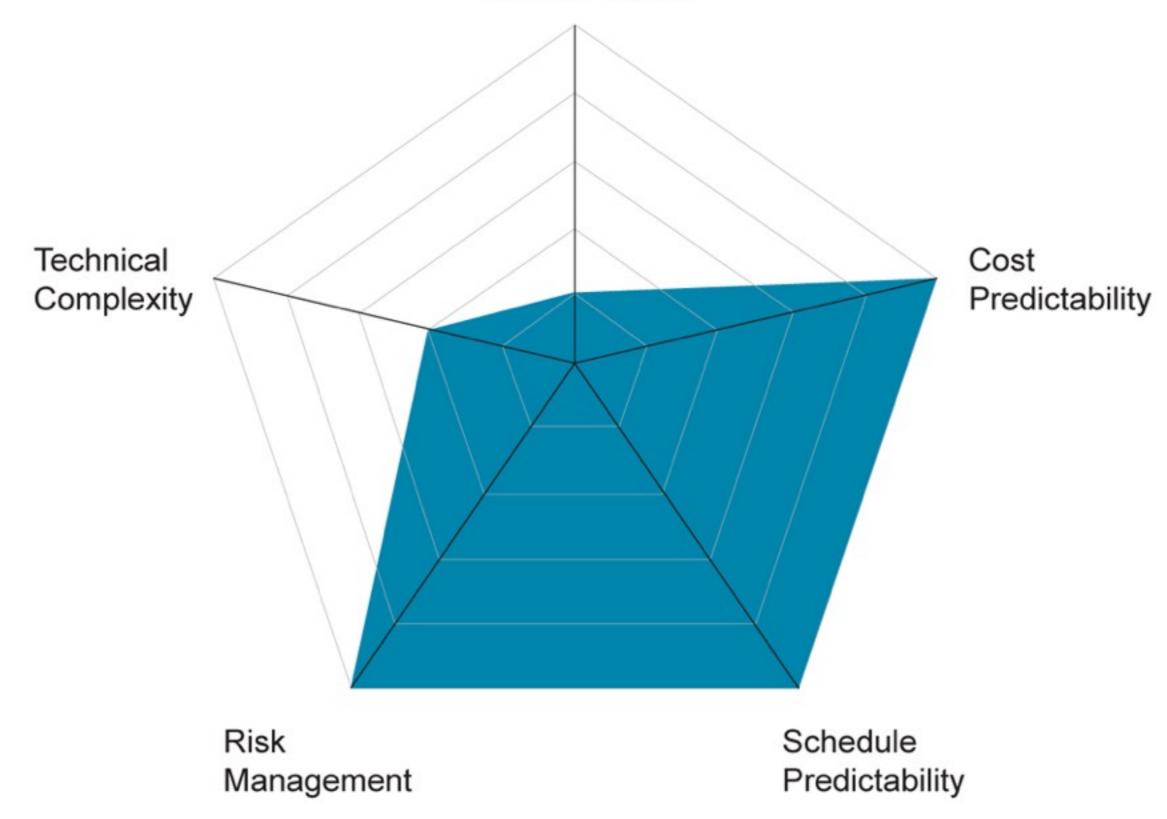
AIA, AIA Minnesota, School of Architecture University of Minnesota February, 2011

Interactive PDF (Click any button on the left to begin)

Table of Contents	Overview					Legal and Commercial Strategies					Managment Strategies					Socia Strate		Workplace and Technological Strategies				
About this study								nce						8				aking				rt ()
Definition of Terms			uals)		(\$ millions)	t		insura	-	S	~		/ɓı	alignec	ucture	sloc	of	sion ma)g	s (Sma it. tools
National Map of IPD	tor	ate)	individ	e (sf)		contra	ivers	oroject	'rewarc	centive s	parenc	dership	l planning/ ling	efined/ Is	Inegrated team structure	Implementation Tools (i.e. Lean)	ement	/e deci			sharing	artifact al mgm
Degree of IPD	Market Sector	Location (state)	Team Size (individuals)	Building Size (sf)	Project Cost	Multi-party contract	Liability Waivers	Integrated project insurance	Shared risk/reward	Financial Incentives tied to goals	Fiscal Transparency	Strong Leadership	Intensified pla team building	Mutually defined/aligned project goals	rated t	ement -ean)	Early Involvement of key players	Collaborative decision making	Co-location		Networked sharing/ communication	Interactive artifacts (Smart board, visual mgmt. tools)
Case Studies	Marl	Loca	Tean	Build	Proje	Mult	Liab	Integ	Shar	Fina	Fisca	Stroi	lnter tear	Muti proj	lneg	lmpl (i.e. l	Early key I	Colla	Co-l	BIM	Netv com	Inter boar
Cathedral Hill Hospital	Health	CA	123	858,000	1028.5	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
MERCY Master Plan Facility Remodel	Health	он	60	94,439	19.4	•			•		•	•	•	•	•	•	•	0		•	•	•
Lawrence & Schiller Remodel	Office	SD	10	7,000	.5	•			•			0	0	0	0		•	0				
SpawGlass Austin Regional Office	Office	тх	16	15,370	2.8	•	•		0	0	•			0	0			0		0	•	
Edith Green Wendell Wyatt Federal Building	Office	OR	114	525,421	123.2				•	•	•	•	•	•	•		•	•	•	•	•	•
Autodesk Inc.	Office	МА	-	55,000	13.4	•	•		•	•	•	•		•	•		•	•	0	•		
Sutter Health Fairfield Medical Office Building	Health	CA		69,948	19.5	•			0		•	•	•	•	•	•	•	•		•	•	
Cardinal Glennon Children's Hospital Expansion	Health	мо	-	138,000	45.6	•			•		•	•			•	0	•	•				
St. Clare Health Center	Health	мо		430,000	157.2	•					•	•	•	•	•	•	•	•	0	•	•	
Encircle Health Ambulatory Care Center	Health	WI	-	157,000	38.6	•			•	•	•			•	•	0	•	•		0	•	
Walter Cronkite School of Journalism	Edu	AZ	-	230,000	72.1						•			•	0	0	•	•	•	•		0
UCSF Mission Bay Medical Center	Health	CA	-	878,000	1300.0					•	0	•	•	•	•	•	0	•	•	•	2	•

IPD profiles (markers or motivations)

Market Position



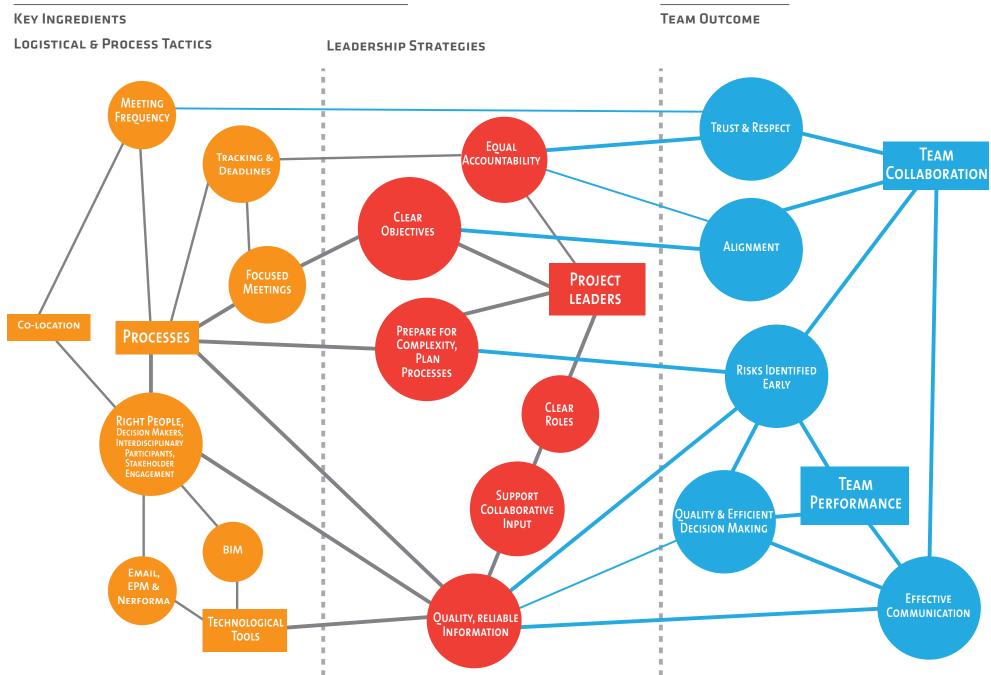
CASE STUDIES

COLLABORATIVE PRACTICE

close to final report for august 20, 2013 review meeting

PUBLISHED AUGUST 12, 2013

KEY INGREDIENT RELATIONSHIP MAP



	OVERVIEW				Key ingre	DIENTS	Team outcomes									
							COLLABOR	ATION	TEAM PER	RFORMANCE						
Supplemental Information	At a Glance	Survey Outcomes	Context	Timelines	Leadership Strategies	Logistical & Process Tactics	Alignment	Mutual Trust & Respect	Effective Communication	Risk Management	Quality & Efficient Decision Making					
Project Cumulative	TIMELINE		04	06 05	07 08	60 01	=	13 12	41	5						
		2002 2003	2004	2005 2006	2007 2008	2009	1	2012 2013	2014	2015						
						ARRA	OBLIGATION DEADL	INE								
								••••								
			_				• • •	_								
				-				_								
							•									
							• • • •			_						
							• • • • •	•••								
				_		_										
							•••	•••								
				-												
		PLANNI		• TURNOVER (LARG												
		Design Constr		 TURNOVER (MED TURNOVER (SMA 							6					
											Ū					

TRUTH TABLE

Cont	ext						Кеу	Ingred	ients															Out	comes											
							Com	imerci	al	Lead	lership)									Logictical & Process Tactics			Team Outcomes						Building Outcomes						
Project Size	Complexity and Risk	Logistical Complexity	Level of scope development at ARRA award	Frquency of scope refinement after ARRA award	Experience Level (Years in Career)	Experience Level (Familiarity)	Presence of shared savings (1=n, 2=y)	Impact of savings and funding process	Impact of GSA funding decisions	Impact of ARRA visionary goals	GSA PM Leadership Capability	GSA Leadership Impact on goal achievment	GSA Regional Leadership Involvement	Accountability	Effective and healthy relationships	Continuity	Core team supported planing for complexity	Early process planning	Processes supported joint planning and decisior	Timely Involvement of partners & stakeholders	Meeting Quality	Extend and Breath of BIM usage	Degree of Co-location	Trust and Respect	Aligned Goals	Effective Communication	Decisions Quality	Collaboration	Team Capability	BIM Impact	Design includes Innovative Technology	Conribution to advancing sustainable technol-	Impact of scope refinement	Cumulative ARRA Outlay Performance	Monthly ARRA Outlay Deadline Performance	Overall Project Success
1.00	3.88	2.2	1.38	2.88	4.00	1.67	2.00	3-45	3.82	3.91	4.30	3.83	3.48	2	4.11	1.00	4.14	3.00	2.86	2.63	4.19	3.50	2.00	2.88	3.71	2.86	4.08	4.25	4.00	3.86	4.00	2.00	3.38	3.00	3.60	4.34
5.00	4.19	3.00	1.15	3.63	4.00	2.37	2.00	3.02	3.87	4.18	4.30	3.84	3.16	1.95	3.93	2.80	4.06	2.88	2.82	2.72	3.96	3.96	5.00	2.8	3.49	2.69	3.84	4.58	4.31	3.88	5.00	1.94	3.94	5.00	4.20	4.24
2.00	3.90	2.60	3.60	3.50	2.00	1.94	1.00	-	3.69	3.68	4.34	3.85	2.50	1.94	4.29	4.00	4.29	2.86	2.86	2.49	4.13	3.2	3.00	2.71	3.70	3.00	4.05	3.92	4.43	2.42	-	2.00	3.17	2.00	3.10	4.71
1.00	3.76	2.60	2.50	2.89	4.00	2.55	1.86	3.42	3.33	3.58	4.24	3.70	2.89	1.89	4.17	1.00	4.13	2.89	2.89	2.66	4.24	2.57	2.00	2.78	3.67	2.67	4.11	4.17	4.28	2.40	2.00	2.00	3.89	1.00	2.80	4.27
5.00	3.87	3.00	1.57	2.67	4.00	2.34	1.17	4.40	3.50	3.47	4.01	3.79	3.26	1.89	3.86	3.50	4.22	2.67	3.00	2.70	3.61	2.10	4.00	2.78	3.56	2.67	3.99	3.98	4.00	1.87	4.00	2.00	3.44	2.00	2.70	4.34
1.00	3.54	1.00	1.40	3.21	3.00	2.31	1.00	-	3.32	3.58	3.81	3.71	3.11	1.87	3.86	2.90	3.90	2.65	2.78	2.61	3.74	3.25	3.00	2.64	3.30	2.71	3.46	3.64	3.96	2.88	1.00	1.75	2.95	3.00	3.10	3.96
3.00	3.92	-	3.80	2.75	5.00	2.17	1.00	-	3.47	3.94	3.76	3.60	2.67	2.00	3.95	-	3.75	2.50	2.40	2.26	3.60	-	4.00	2.46	3.00	2.50	3.29	3.85	4.20	-	2.00	2.00	3.50	3.00	2.80	4.01
1.00	4.45	-	1.00	2.88	1.00	2.02	1.67	3.00	3.01	3.53	3.96	3.76	3.26	1.88	3.50	-	3.33	2.43	2.29	2.29	3.79	3.00	3.00	2.55	3.07	2.00	3.66	3.81	3.14	1.92	1.00	1.71	2.00	4.00	3.50	3.42
2.00	4.13	-	2.11	3.45	3.00	2.23	1.89	3.21	2.93	3.32	3.34	3.24	3.32	2.00	3.47	-	3.18	2.73	2.33	2.33	3.25	2.81	4.00	2.35	3.10	2.36	2.86	3.23	3.33	3.22	1.00	1.82	2.33	3.00	2.40	3.88
4.00	4.38	3.80	2.48	3.59	3.00	2.17	1.08	3.00	2.94	3.31	3.36	3.51	3.15	1.87	3.40	4.20	3.27	2.30	2.27	2.28	3.48	2.75	5.00	2.24	2.89	2.30	2.98	3.16	3.10	2.46	1.0	1.93	2.40	2.00	2.90	3.61
2.00	4.16	4.00	3.31	3.78	2.00	1.82	1.50	2.81	2.23	2.76	2.38	2.58	3.04	1.80	2.67	5.80	2.38	1.69	1.67	1.72	2.92	-	2.00	1.76	2.20	1.67	2.33	2.40	1.79	-	1.00	1.43	1.39	1.00	2.80	2.39



_	En	ergy Metr	rics	Dayligh	nt & IAQ M	etrics	Water Cycle	e & Mate	rials Metrics
Wayne N. Aspinall Federal Building	Total Net EUI 0 kBtu/sf/year	Total EUI 14 kBtu/sf/year	Reduction 78% reduction from national median building type EUI	Fully Daylit 50% of occupied areas have daylighting at levels that allow lights to be turned off	Views to Outdoors 92% of occupied spaces have views to the outdoors	Operable Windows 0% of occupied areas are within 15 feet of an operable window	Water Reduction 40% reduction of regulated potable water %	Potable Irrigation No permanent landscape irrigation system	Stormwater Cntrl ??% of rainwater from 2-year storm event can be managed onsite
Edith Green Wendell Wyatt W	Total Net EUI 0 kBtu/sf/year	Total EUI 14 kBtu/sf/year	Reduction 78% reduction from national median building type EUI	Fully Daylit 50% of occupied areas have daylighting at levels that allow lights to be turned off	Views to Outdoors 92% of occupied spaces have views to the outdoors %	Operable Windows 0% of occupied areas are within 15 feet of an operable window	Water Reduction 40% reduction of regulated potable water %	Potable Irrigation No permanent landscape irrigation system	Stormwater Cntrl ??% of rainwater from 2-year storm event can be managed onsite
Federal Center South Bldg 1202	Total Net EUI 0 kBtu/sf/year	Total EUI 14 kBtu/sf/year	Reduction 78% reduction from national median building type EUI	Fully Daylit 50% of occupied areas have daylighting at levels that allow lights to be turned off	Views to Outdoors 92% of occupied spaces have views to the outdoors	Operable Windows 0% of occupied areas are within 15 feet of an operable window	Water Reduction 40% reduction of regulated potable water %	Potable Irrigation No permanent landscape irrigation system	Stormwater Cntrl ??% of rainwater from 2-year storm event can be managed onsite %

IPD: Performance, Expectations, and Future Use

A Report On Outcomes of a University of Minnesota Survey

September 25th, 2015



Contents

Overview Key findings Challenges and Needs Description of data set Performance / Expectations / Likelihood (all responses) Performance / Expectations / Likelihood (by stakeholder group) Survey Still Open! Acknowledgements



Overview

Effective project delivery meets or exceeds owner's expectations for schedule, cost and quality. There is an emerging body of research that shows more collaborative/integrated delivery is more likely to lead to successful outcomes and high-level team performance. Within that context, this survey takes a snapshot of current perceptions of effectiveness on projects using multiparty agreements, the most formal and contractually binding of the integrated delivery methods.

Conducted by the University of Minnesota and sponsored by Canada's Integrated Project Delivery Alliance, the goal of this survey was to understand the current state of Integrated Project Delivery (IPD).

This goal was pursued through use of a broad-based comparative survey. Each survey response collected data for one IPD project from one respondent's experience. If the respondent had multiple IPD project experience, they could take the survey multiple times, entering data for one project each time. Individual stakeholders on the same project could be matched by project name during the data analysis. For the purpose of this survey, IPD was defined as a multi-party agreement.

The survey was short and required no preparation. With one specific IPD project in mind, respondents began the survey by verifying the use of a multiparty agreement (those with other types of agreement were thanked and survey ended). For those who confirmed multiparty, survey gathered basic demographic data about the respondent and their project, followed by three questions:

- · Comparison of this IPD experience with non-IPD project experience
- The meeting of expectations on this project
- Likelihood of future use of IPD



Key Findings

Significantly Positive

- Responses are significantly positive, strongly supportive of IPD as a superior delivery method.
- Distribution of responses is weighted heavily toward the most positive possible answers, not clustered around the neutral point.
- The overwhelmingly positive response is consistent across all demographics: stakeholder type, project type, project progress, project averages, and past respondent experience.

Owner Expectations

• Owners' expectations were met or exceeded more than architects, contractors, or others. When owners compare their expectations of IPD at the start of the project to the project outcomes, they overwhelmingly say their expectations were met, exceeded, or significantly exceeded.

Choosing IPD

• Reasons for choosing IPD are varied but seem to be most important where there is a desire for more team integration, a challenging budget, and/or where the owner requires the use of IPD.

Diverse Data Set

 The 108 response / 59 project data set represents a broad cross-section of building type, project location, project scope, project progress, and stakeholder background. BIM and Lean tools were used to varying degrees on almost all projects.

For Consideration

Positive survey outcomes may reflect interest, engagement, and approval of early adopter owners and AEC professionals, and may additionally be influenced by project teams constructed of skilled and motivated practitioners.



Challenges and Needs

Respondents had an opportunity to comment on their experience. Some comments reflect challenges and needs:

Challenges IPD teams face

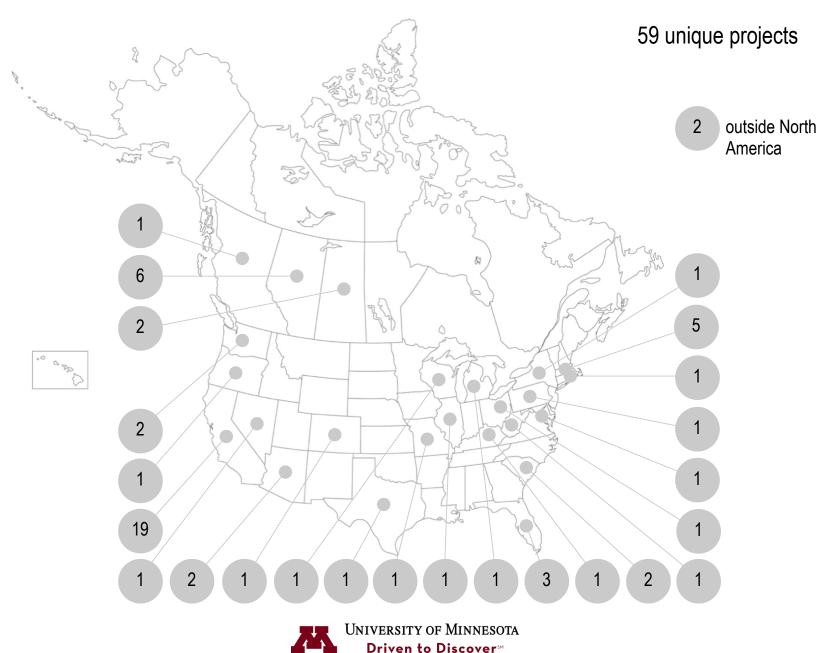
- Unwillingness to fully embrace IPD, its hard to let go of traditional roles
- Understanding of what is IPD (and what it takes to succeed) is uneven in the industry
- Negative performance by any single stakeholder can disrupt the whole team
- Changes in personnel can have a large negative impact

IPD Teams have particular need for:

- Alignment and commitment across the team
- Strong owner involvement
- Strong leadership
- Having the right people involved at the right time
- Increased and earlier planning
- Careful attention to fees/time
- Maintaining focus on key project goals
- Accountability among team members.



Projects | Distribution



Projects | Breakdown

Arizona Health Care \$10-\$25 million Completed 2014 Government/Civic under \$10 million Completed 2014 Completed 2015 Completed 2014 Completed 2014 Completed 2014 Completed 2014 Completed 2016 Completed 2018 Completed 2018 Complet	Location		Туре	Scope	Progress	Year
industrial over \$50 million Completed 2010 Government/Civic under \$10 million Completed 2010 Completed 2010 Completed 2011 Completed 2014 Completed 2015 Sotttttt Sottt <tdcover< td=""> Sot</tdcover<>	Arizona	1	Health Care	\$10-\$25 million	Completed	2014
California	Alizona	2	Industrial		Completed	2014
California		3	Government/Civic	under \$10 million	Completed	2015
California California Health Care Completed 2010 Completed 2011 Completed 2011 Completed 2011 Completed 2011 Completed 2011 Completed 2011 Completed 2013 Completed 2013 Completed 2013 Completed 2013 Completed 2014 Completed 2014 Completed 2013 Completed 2014 Completed 2015 Construction Design Construction De		4			Completed	2010
California California Health Care Health Care Learning Health Care Learning Health Care Learning Health Care Learning Learning Health Care Learning		5			Completed	2014
California Health Care Health Care Health Care Health Care S10-\$25 million Completed 2015 Completed 2010 Completed 2010 Completed 2010 Completed 2010 Construction Construction Completed 2013 Completed 2013 Completed 2013 Completed 2013 Completed 2013 Completed 2013 Completed 2014 Completed 2015 C		6		under \$10 million	Completed	2012
California California Health Care California Health Care California Health Care Leattrace California Health Care Completed 2015 Completed 2014 Completed 201		7				2014
California Health Care Health Care Health Care Finite Health Care Finite Finite Finite Finite Finite Finite Finite Finite		8				2015
California Health Care Lealth		9				
California Health Care Alternation Alternation California Health Care Alternation Health Care Completed Completed Completed Construction Construction Completed Construction Completed Co		10				
California Floats Calo Completed 2014 California 12 Completed 2014 California 13 over \$50 million Completed 2014 Completed 2014 Completed 2014 Completed 2014 Completed 2014 Completed 2014 Completed 2014 Completed 2014 St0-\$25 million Completed 2013 Concord 22 Education (college/university) over \$50 million Completed 2015 District of Columbia 20 Cultural over \$50 million Completed 2015 Florida 20 Other over \$50 million Construction 2014 Kentucky 21 Education (college/university) \$25 \$50 million Design 2014 Mixed Use \$10-\$25 million Completed 2014 2014 Mixed Use \$10-\$25 million Completed 2014 Mixed Use \$10-\$25 million Completed 2014 <t< td=""><td></td><td>11</td><td>Health Care</td><td>\$10-\$25 million</td><td></td><td></td></t<>		11	Health Care	\$10-\$25 million		
Construction Completed Construction over \$50 million Completed 2014 over \$50 million Completed 2014 Completed 2014 Completed 2014 industrial \$10-\$25 million Completed 2015 Colorado Education (college/university) over \$50 million Completed 2015 Florida Other over \$50 million Completed 2015 Florida Other over \$50 million Design 2015 Mixed Use \$10-\$25 million Design 2014 2014 Kentucky Health Care \$10-\$25 million Design 2014 Mixed Use \$10-\$25 million Completed 2014 Miseau Stores Stores 2014 2014 Miseau Stores	Colifornia		Tiediti Odre			
over \$50 million construction Completed 2013 Completed 2014 Completed 2013 Completed 2014 Other under \$10 million Construction 2 Other under \$10 million Completed 2015 Other under \$10 million Completed 2015 Other over \$50 million Design 2014 Kentucky Health Care Startuction Design Office \$10-\$25 million Construction Design Construction Design Mixed Use \$10-\$25 million Construction Design Construction Design Mixed Use \$10-\$25 million C	California					2014
All All Completed 2014 Completed 2013 Completed 2013 Completed 2013 Completed 2014 Completed 2013 Storastaction Completed 2014 Completed 2014 Storastaction Completed 2015 Colorado 22 Education (college/university) over \$50 million Completed 2008 District of Columbia 2 Cultural over \$50 million Completed 2015 Florida Other over \$50 million Completed 2016 2016 Pinda Other over \$50 million Completed 2017 Micol Other over \$50 million Completed 2014 Kentucky Health Care \$25-\$50 million Design Construction District of Columa Office \$10-\$25 million Completed 2014 Missouri Health Care \$25-\$50 million Completed 2014 Missouri Health Care \$25-\$50 million Completed 2014 Missouri Health C				over \$50 million		
Image: construction Completed 2014 Industrial \$10-\$25 million Completed 2013 Industrial \$10-\$25 million Completed 2013 Other under \$10 million Construction 2005 Other under \$10 million Construction 2005 District of Columbia Cultural over \$50 million Design 20 Health Care under \$10 million Completed 2015 Florida 20 Health Care \$25-\$50 million Design 2014 1llinois 21 Education (college/university) \$25-\$50 million Design 2014 Mixed Use \$10-\$25 million Design 2014 2014 2014 Massachusetts 0ffice \$10-\$25 million Design 2014 2014 Mixed Use \$10-\$25 million Construction 2014 2014 2014 Missachusetts 0ffice \$10-\$25 million Completed 2014 2014 2015 2014 2015 2						0044
over \$50 million Completed 2016 Completed 2013 Completed 2013 1 mdustrial \$10-\$25 million Completed 2013 2 Other under \$10 million Completed 2014 2 Other under \$10 million Completed 2008 District of Columbia Cultural over \$50 million Completed 2014 2 Health Care under \$10 million Completed 2015 2 Other over \$50 million Construction Construction 2 Education (college/university) \$25-\$50 million Design Construction 3 Mixed Use \$10-\$25 million Construction Design 3 Office \$10-\$25 million Construction Design 3 Office \$10-\$25 million Construction Design 4 Health Care \$10-\$25 million Construction Design 5 Office \$10-\$25 million Completed 2014 <						
Additional and a stress of the stress of				over \$50 million		
Industrial \$10-\$25 million Completed 2015 Other under \$10 million Construction 2015 Colorado Education (college/university) over \$50 million Completed 2005 District of Columbia Cultural over \$50 million Completed 2008 Plorida Other over \$50 million Completed 2015 Florida Other over \$50 million Completed 2015 Florida Other over \$50 million Completed 2016 Mixed Use \$10-\$25 million Design Construction Design Mixed Use \$10-\$25 million Design Construction Massachusetts Office \$10-\$25 million Completed 2014 Missouri Health Care \$25-\$50 million Completed 2014 Mesoari Other over \$50 million Completed 2014 Mixed Use \$10-\$25 million Completed 2014 Mixed Use \$25-\$50 million Completed 2015 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Industrial \$25-\$50 million Design Other under \$10 million Construction Colorado Education (college/university) over \$50 million Completed 2008 District of Columbia Cultural over \$50 million Completed 2018 Plantia Cultural over \$50 million Construction Construction Recreational over \$50 million Construction Construction Construction Mixed Use \$10-\$25 million Completed 2014 Construction Design Mixed Use \$10-\$25 million Construction Design Construction Design Mixed Use \$10-\$25 million Design Construction Design Construction Nevada Health Care \$10-\$25 million Completed 2014 Nevada Health Care \$25-\$50 million Completed 2018 Nevada Health Care \$25-\$50 million Completed 2018 Origo Other over \$50 million Completed 2015 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
20 St2>-St0 million Design Colorado 22 Education (college/university) over \$50 million Construction 20 Utural over \$50 million Completed 2008 21 Health Care under \$10 million Construction Completed 2015 21 Health Care under \$10 million Construction Construction Construction 22 Education (college/university) \$25-\$50 million Construction Design 32 Mixed Use \$10-\$25 million Construction Design 33 Office \$10-\$25 million Construction Design 34 Mixed Use \$10-\$25 million Construction Design 34 Grice \$10-\$25 million Construction Design 35 Office \$10-\$25 million Construction Design 34 Health Care \$25-\$50 million Completed 2014 Missouri Health Care over \$50 million Completed 2015			Industrial			2015
Colorado 22 Education (college/university) over \$50 million Completed 2008 District of Columbia 22 Cultural over \$50 million Completed 2008 Florida 20 Other over \$50 million Completed 2015 Florida 20 Other over \$50 million Construction Design Illinois 27 Education (college/university) \$25-\$50 million Design Illinois 27 Education (college/university) \$25-\$50 million Design Massachusetts 4 Mixed Use \$10-\$25 million Design 20 Office \$10-\$25 million Construction Design 20 Office \$10-\$25 million Completed 2015 20 Other over \$50 millio						
Colorado 22 Education (college/university) over \$50 million Completed 2008 District of Columbia 22 Cultural over \$50 million Completed 2015 Plonda Other over \$50 million Completed 2015 Plonda Other over \$50 million Completed 2014 Kentucky Health Care s25-\$50 million Design Construction Mixed Use \$10-\$25 million Design Construction Design Mixed Use \$10-\$25 million Construction Design Construction Mixed Use \$10-\$25 million Construction Design Construction Mixed Use \$10-\$25 million Completed 2014 Missouri Health Care \$10-\$25 million Completed 2014 Missouri Health Care \$25-\$50 million Completed 2015 New York Other over \$50 million Completed 2015 New York Other over \$50 million Completed <t< td=""><td></td><td>21</td><td></td><td>under \$10 million</td><td>Construction</td><td></td></t<>		21		under \$10 million	Construction	
District of Columbia 22 Cultural over \$50 million Design 2015 Florida 20 Other over \$50 million Construction 2016 Recreational over \$50 million Construction 2016 Recreational over \$50 million Design 2017 Recreational 00000 \$25,550 million Construction 2016 Mixed Use \$10,\$25 million Construction 2017 Mixed Use \$10,\$25 million Construction 2018 Nevada 44 Health Care \$25,\$50 million Completed 2018 Nevada 44 Health Care \$25,\$50 million Construction 2018 Nevada 44 Health Care \$25,\$50 million Construction 2018 Nevada 44 Health Care 0000 New York 47 Other 0000 \$50 million Construction 2018 Nevada 44 Health Care 0000 \$50 million Construction 2018 Nevada 44 Health Care 0000 \$50 million Construction 2018 Nevada 44 Health Care 00000 \$25,\$50 million Completed 2015 Origon 40 Other 00000 \$25,\$50 million Completed 2013 South Carolina 45 Education (college/university) \$10,\$25 million Completed 2018 Over \$50 million Completed 2018 Over \$50 million Completed 2018 Over \$50 million Completed 2018 New South Carolina 46 Education (college/university) \$10,\$25 million Completed 2018 Mixed Use \$25,\$50 million Completed 2018 Mixed Use \$25,\$50 million Completed 2018 Mutil-family Residential under \$10 million Completed 2019 Mixed Use \$25,\$50 million Completed 2019 Mixed Use \$25,\$50 million Completed 2019 Mutil-family Residential under \$10 million Completed 2019 Mixed Use \$25,\$50 million Completed 2019 Mutil-family Residential under \$10 million Completed 2010 New South Wales 45 Single-family Residential under \$10 million Completed 2010 New South Wales 45 Single-family Residential under \$10 million Completed 2015 New South Wales 45 Single-family Residential under \$10 million Completed 2015 New South Wales 45 Single-family Residential under \$10 million Completed 2015 Net South Wales 45 Si	Colorado	22	Education (college/university)	over \$50 million		2008
24 Health Care under \$10 million Completed 2015 Florida 20 Other over \$50 million Construction 27 Education (college/university) \$25-\$50 million Design 28 Recreational over \$50 million Design 29 Mixed Use \$10-\$25 million Construction 20 Mixed Use \$10-\$25 million Construction 20 Office \$10-\$25 million Design 20 Office \$10-\$25 million Construction 20 Office \$10-\$25 million Completed 2014 Missouri 31 Health Care \$10-\$25 million Completed 2008 Newada Health Care \$10-\$25 million Completed 2014 New York Other over \$50 million Completed 2015 Oregon Other over \$50 million Completed 2015 Oregon Other over \$50 million Completed 2013 South Carolina 4 Health Care over \$50 million Completed 2014	District of Columbia	23				
Florida 20 Other over \$50 million Construction Illinois 225-\$50 million Design Kentucky Health Care \$25-\$50 million Design Massachusetts Mixed Use \$10-\$25 million Construction Design Construction Design Construction Mixed Use \$10-\$25 million Construction Design Office \$10-\$25 million Construction Design Mixed Use \$10-\$25 million Construction Design New York Other over \$50 million Completed 2014 New York Other over \$50 million Completed 2013 Rhode Island Education (college/university) \$10-\$25 million Completed 2013 Rhode Island Education (college/university) \$10-\$25 million Completed 2013 South Carolina Education (college/uni		24				2015
20 Recreational over \$50 million Design Illinois 21 Education (college/university) \$25-\$50 million Completed 2014 Kentucky 21 Health Care \$25-\$50 million Design Construction Massachusetts 30 Mixed Use \$10-\$25 million Construction Design 01 07fice \$10-\$25 million Construction Design Construction 030 07fice \$25-\$50 million Design Construction Design 11 10-\$25 million Construction Design Construction Design 11 10-\$25 million Completed 2018 Construction Design 11 10-\$25 million Construction Design Construction Design	Florida	25				
Illinois 22 Education (college/university) \$25-\$50 million Completed 2014 Kentucky Health Care \$25-\$50 million Design Construction Construction Construction Design Construction	Tionda	26				
Kentucky Health Care \$25-\$50 million Design Mixed Use \$10-\$25 million Construction Design Mixed Use \$10-\$25 million Construction Design Office \$10-\$25 million Construction Design Mixed Use \$10-\$25 million Design Construction Michigan Health Care \$10-\$25 million Completed 2014 Nevada Health Care \$10-\$25 million Completed 2008 Newada Health Care \$10-\$25 million Completed 2014 Newada Health Care \$25-\$50 million Completed 2015 Ohio Health Care over \$50 million Completed 2015 Oregon Other over \$50 million Completed 2013 Rhode Island Education (college/university) \$10-\$25 million Completed 2013 South Carolina Health Care ver \$50 million Completed 2012 Yespina Office \$25-\$50 million Completed 2012 South Carolina Health Care \$25-\$50 million </td <td>Illinoie</td> <td>27</td> <td></td> <td></td> <td></td> <td>2014</td>	Illinoie	27				2014
20 Massachusetts Mixed Use \$10-\$25 million \$25-\$50 million Construction Design Massachusetts Office \$10-\$25 million Construction Design Michigan Education (college/university) Health Care \$10-\$25 million Completed Completed 2014 New York Other over \$50 million Completed 2015 Onio Health Care \$25-\$50 million Completed 2015 Onio Health Care over \$50 million Completed 2015 Orio Health Care over \$50 million Completed 2015 Orio Health Care over \$50 million Completed 2013 Rhode Island Education (college/university) \$10-\$25 million Completed 2013 South Carolina Health Care over \$50 million Completed 2013 South Carolina Health Care \$10-\$25 million Completed 2013 South Carolina Health Care \$10-\$25 million Completed 2013 Washington Health Care \$10-\$25 million Completed 2014 West Virginia Utilizes/Power/Wate						2014
Mixed Use \$10-\$25 million Design Massachusetts Office \$10-\$25 million Construction Michigan Education (college/university) \$10-\$25 million Comstruction Nevada Health Care \$10-\$25 million Completed 2014 Nevada Health Care \$25-\$50 million Completed 2008 Nevada Health Care \$25-\$50 million Completed 2015 New York Other over \$50 million Completed 2015 Oregon Other over \$50 million Completed 2013 South Carolina Education (college/university) \$10-\$25 million Completed 2013 South Carolina Health Care over \$50 million Completed 2013 South Carolina Health Care over \$50 million Completed 2012 South Carolina Health Care suder \$10 million Completed 2014 Washington Health Care suder \$10-\$25 million Completed 2014 Wisconsin Edu	Кепциску		Healui Gale	\$20-\$50 million		
Massachusetts 37 Construction Design 0 Gfice \$10-\$25 million Construction 133 Generation (college/university) \$10-\$25 million Construction Newada Health Care \$25-\$50 million Construction New York Other over \$50 million Completed 2014 New York Other over \$50 million Completed 2015 Oregon Other over \$50 million Completed 2017 Pennsylvanid Utilizes/Power/Water/Sewer S10-\$25 million Completed 2013 Rhode Island Education (college/university) \$10-\$25 million Completed 2013 South Carolina 47 Health Care under \$10 million Completed 2013 South Carolina 47 Health Care sto \$25,\$50 million Completed 2013 Suscensin 48 Health Care wore \$50 million Completed 2013 Suscensin 49 Health Care \$10-\$25 million Completed 2014 Washington 46 Health Care \$10-\$25 m			Mixed Use	\$10-\$25 million		
30 Office \$10-\$25 million Design 31 S25-\$50 million Design Missouri Health Care \$10-\$25 million Completed 2014 Missouri Health Care \$10-\$25 million Completed 2014 New York Other over \$50 million Completed 2015 Onio Health Care \$10-\$25 million Completed 2016 New York Other over \$50 million Completed 2015 Oregon Other over \$50 million Completed 2013 Rhode Island Education (college/university) \$10-\$25 million Completed 2013 South Carolina Health Care under \$10 million Completed 2012 Version Office \$25-\$50 million Completed 2012 over \$50 million Design Design 2013 South Carolina Health Care under \$10 million Completed 2014 Washington Health Care \$10-\$25 million Completed 2012 West Virginia Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2014 Alberta Government/Civic under \$10 million Completed 2017 <tr< td=""><td></td><td></td><td></td><td></td><td></td><td></td></tr<>						
South Carolina Session 30 \$25-\$50 million Design Michigan 34 Education (college/university) \$10-\$25 million Completed 2014 Missouri 36 Health Care \$10-\$25 million Completed 2008 Nevada 36 Health Care \$10-\$25 million Completed 2008 Nevada 36 Health Care \$25-\$50 million Construction New York 37 Other over \$50 million Completed 2015 Oregon 30 Other over \$50 million Completed 2013 Rhode Island 41 Education (college/university) \$10-\$25 million Completed 2013 South Carolina 42 Health Care under \$10 million Completed 2013 South Carolina 44 Health Care woer \$50 million Completed 2013 South Carolina 44 Health Care woer \$50 million Completed 2014 Washington 46 Health Care \$10-\$25 million Completed 2014 Wisconsin 47 Health Care \$10-\$25 million Completed 2014 Wisconsin 47 Education (K-12) over	Massachusetts			\$10-\$25 million		
Michigan 3 Education (college/university) \$10-\$25 million Completed 2014 Missouri 3 Health Care \$10-\$25 million Completed 2008 Nevada 4 Health Care \$10-\$25 million Completed 2008 New York 7 Other over \$50 million Completed 2015 New York 7 Other over \$50 million Completed 2015 Oregon 30 Other over \$50 million Completed 2013 Rhode Island 4 Education (college/university) \$10-\$25 million Completed 2013 South Carolina 4 Health Care under \$10 million Completed 2013 South Carolina 4 Health Care under \$10 million Completed 2013 South Carolina 4 Health Care \$25-\$50 million Completed 2013 South Carolina 4 Health Care \$10-\$25 million Completed 2014 Washington 4 Health Care \$10-\$25 million Completed 2010 West			Office			
Missouri Image: Health Care \$10-\$25 million Completed 2008 Newada Health Care \$25-\$50 million Construction Other Over \$50 million Completed 2015 New York Other over \$50 million Completed 2016 2015 Ohio Health Care over \$50 million Completed 2016 Oregon Other over \$50 million Completed 2017 Pennsylvania Ulitizes/Power/Water/Sewer \$10-\$25 million Completed 2013 South Carolina Health Care under \$10 million Completed 2013 South Carolina Health Care voer \$50 million Completed 2013 South Carolina Health Care voer \$50 million Completed 2013 Washington Health Care \$10-\$25 million Completed 2014 West Virginia Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2011 Wisconsin Education (K-12) over \$50 million Completed 2011 Mixed Use \$25-\$50 million Completed 2011		00				
Nevada Health Care \$25,\$50 million Construction New York Other over \$50 million Completed 2015 Onio Health Care over \$50 million Completed 2015 Oregon Other over \$50 million Completed 2015 Pennsylvania Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2013 South Carolina Health Care under \$10 million Completed 2012 South Carolina Health Care under \$10 million Completed 2012 Washington Health Care \$10-\$25 million Completed 2013 West Virginia Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2014 Wisconsin Education (college/university) over \$50 million Completed 2012 Mixed Use S25-\$50 million Completed 2014 2012 Government/Civic under \$10 million Completed 2017 Multi-family Residential under \$10 million Completed 2015	Michigan	34	Education (college/university)	\$10-\$25 million	Completed	2014
New York Other over \$50 million Completed 2015 Ohio Health Care over \$50 million Completed 2015 Oregon Other over \$50 million Completed 2015 Pennsylvania Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2013 South Carolina Health Care under \$10 million Completed 2013 South Carolina Health Care under \$10 million Completed 2013 South Carolina Health Care over \$50 million Completed 2013 South Carolina Health Care over \$50 million Completed 2012 Washington Health Care \$10-\$25 million Completed 2014 West Virginia Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2012 Wisconsin Education (college/university) over \$50 million Completed 2011 Alberta Government/Civic under \$10 million Completed 2017 Mixed Use \$25-\$50 million Design </td <td>Missouri</td> <td>35</td> <td></td> <td>\$10-\$25 million</td> <td>Completed</td> <td>2008</td>	Missouri	35		\$10-\$25 million	Completed	2008
Ohio Image: Second	Nevada	36	Health Care	\$25-\$50 million	Construction	
Oregon Other over \$50 million Design Pennsylvania Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2013 Rhode Island Education (college/university) \$10-\$25 million Completed 2013 South Carolina Health Care under \$10 million Completed 2013 South Carolina Health Care under \$10 million Completed 2014 Washington Health Care \$10-\$25 million Completed 2014 West Virginia Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2014 Wisconsin Education (college/university) over \$50 million Completed 2014 Wisconsin Education (K-12) over \$50 million Completed 2017 Alberta Government/Civic under \$10 million Completed 2017 Multi-family Residential under \$10 million Completed 2017 Saskatchewan Office under \$10 million Completed 2015 Mealth Care over \$50 million Completed	New York	37	Other	over \$50 million	Completed	2015
Oregon Other over \$50 million Design Pennsylvania Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2013 Rhode Island Education (college/university) \$10-\$25 million Completed 2013 South Carolina Health Care under \$10 million Completed 2013 South Carolina Health Care under \$10 million Completed 2013 Washington Health Care \$10-\$25 million Completed 2014 West Virginia Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2014 Wisconsin Education (college/university) over \$50 million Completed 2014 Alberta Government/Civic under \$10 million Completed 2017 Mixed Use \$25-\$50 million Completed 2017 Multi-family Residential under \$10 million Completed 2017 Multi-family Residential under \$10 million Completed 2015 Multi-family Residential under \$10 million Completed 2016	Ohio	38	Health Care	over \$50 million	Completed	2015
Pennsylvania Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2013 Rhode Island Education (college/university) \$10-\$25 million Completed 2013 South Carolina Health Care under \$10 million Design 2013 Texas Office \$25-\$50 million Completed 2013 Washington Health Care \$10-\$25 million Completed 2014 Washington Health Care \$10-\$25 million Completed 2014 West Virginia Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2012 Wisconsin Education (college/university) over \$50 million Completed 2010 Alberta Government/Civic under \$10 million Completed 2017 Mutti-family Residential under \$10 million Design 2015 Mixed Use \$25-\$50 million Completed 2017 Mutti-family Residential under \$10 million Design 2015 Mixed Use \$25-\$50 million Design 2015 Mixed Use \$25-\$50 million Completed 2016 <		39				
Rhode Island 41 Education (college/university) \$10-\$25 million Completed 2013 South Carolina 42 Health Care under \$10 million Completed 2012 Texas 40 Office \$25-\$50 million Completed 2013 Washington 46 Health Care \$10-\$25 million Completed 2013 Washington 46 Health Care \$10-\$25 million Completed 2014 West Virginia 47 Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2010 Wisconsin 46 Education (college/university) over \$50 million Completed 2011 Alberta 50 Govermment/Civic under \$10 million Completed 2017 Mutei-family Residential under \$10 million Design 2016 2015 50 Grice under \$10 million Design 2015 51 Govermment/Civic under \$10 million Design 2015 52 Muti-family Residential under \$10 million Completed 2015 53 Office unde		40				2013
South Carolina 42 Health Care under \$10 million Completed 2012 Texas 40 Office \$25,\$50 million Design 2013 Washington 40 Health Care \$10,\$25 million Completed 2014 Washington 40 Health Care \$10,\$25 million Completed 2014 West Virginia 41 Utilizes/Power/Water/Sewer \$10,\$25 million Completed 2014 Wisconsin 42 Education (college/university) over \$50 million Completed 2017 Alberta 50 Education (K-12) over \$50 million Completed 2017 Government/Civic under \$10 million Completed 2017 Mixed Use \$25,\$50 million Design 2015 50 Millor Design 2015 51 Mixed Use \$25,\$50 million Completed 2017 52 Millor Design 2015 2015 2015 53 Million Design 2015 2016 2016 2015 54 Health Care ov		41				
South Carolina Health Care Over \$50 million Design Texas 40 Office \$25-\$250 million Completed 2012 Washington 40 Health Care \$10-\$25 million Completed 2014 Washington 40 Health Care \$10-\$25 million Completed 2014 Washington 40 Health Care \$10-\$25 million Completed 2014 Wisconsin 40 Education (college/university) over \$50 million Completed 2010 Alberta 50 Government/Civic under \$10 million Completed 2017 Mixed Use \$25-\$50 million Design Completed 2010 50 Government/Civic under \$10 million Design 2015 50 Millio Lise \$25-\$50 million Design 2015 50 Grifice under \$10 million Design 2015 50 Grifice under \$10 million Completed 2015 50 Office under \$10 mil						
Texas 40 Office \$25-\$50 million Completed 2013 Washington 46 Health Care \$10-\$25 million Completed 2014 West Virginia 47 Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2010 Wisconsin 46 Education (college/university) over \$50 million Completed 2011 Wisconsin 46 Education (K-12) over \$50 million Completed 2011 Alberta 47 Education (K-12) over \$50 million Completed 2017 Mixed Use \$25-\$50 million Completed 2017 Construction 2016 40 Office under \$10 million Design 2015 2015 57 Multi-family Residential under \$10 million Completed 2011 58 Office under \$10 million Completed 2011 58 Office under \$10 million Completed 2011 59 Health Care over \$50 million Completed 2015 50 Flanth over \$50 million Completed	South Carolina		Health Care			2012
State State <th< td=""><td>Toxos</td><td></td><td>Office</td><td></td><td></td><td>2012</td></th<>	Toxos		Office			2012
Washington Image: Plant Care over \$50 million Completed 2010 West Virginia Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2012 Wisconsin Education (college/university) over \$50 million Completed 2012 Alberta Education (K-12) over \$50 million Completed 2017 Government/Civic under \$10 million Construction Construction Multi-family Residential under \$10 million Design 0 Multi-family Residential under \$10 million Completed 2015 Saskatchewan Malth Care over \$50 million Completed 2015 New South Wales Single-family Residential under \$10 million Completed 2015	10702		Unice			
Alberta ⁶⁰ / ₆₇ Utilizes/Power/Water/Sewer \$10-\$25 million Completed 2010 Wisconsin ⁶⁰ / ₆₇ Education (college/university) over \$50 million Completed 2011 Misconsin ⁶⁰ / ₆₇ Education (college/university) over \$50 million Completed 2011 Alberta ⁶⁰ / ₆₇ Government/Civic under \$10 million Completed 2015 Mixed Use §25-\$50 million Design ⁶⁰ Office 2010 British Columbia Office under \$10 million Completed 2015 Saskatchewan ⁶⁰ / ₆₇ Health Care over \$50 million Design voer \$50 million Completed 2015 New South Wales ⁶⁰ Single-family Residential under \$10 million Completed 2015	Washington		Health Care			
Wisconsin 4ª Education (college/university) over \$50 million Completed 2011 Alberta 4 Education (K-12) over \$50 million Completed 2017 Alberta 5 Government/Civic under \$10 million Completed 2015 Mixed Use \$25-\$50 million Design 2015 2016 2017 Mixed Use \$25-\$50 million Design 2015 2016 2017 Mixed Use \$25-\$50 million Design 2015 2016 2016 Mixed Use \$25-\$50 million Design 2017 2017 2017 Mixed Use 0 Office under \$10 million Completed 2010 Saskatchewan 57 Health Care over \$50 million Completed 2015 New South Wales Single-family Residential under \$10 million Completed 2015	5		1101 10 011 10			
Alberta Albert						
Alberta Government/Civic under \$10 million Construction Completed 2015 Mixed Use \$25-\$50 million Design 2015	Wisconsin	48	Education (college/university)	over \$50 million	Completed	2011
Alberta Government/Civic under \$10 million Construction Completed 2015 Mutei family Residential under \$10 million Design 2015 Mutei family Residential under \$10 million Design 2015 Mixei family Residential under \$10 million Completed 2015 British Columbia Office under \$10 million Completed Saskatchewan Featth Care over \$50 million Design New South Wales Single-family Residential under \$10 million Completed						
Alberta Government/Civic under \$10 million Completed Completed 2015 Mixed Use \$25-\$50 million Design 0 Multi-family Residential under \$10 million Completed 2015 Multi-family Residential under \$10 million Completed 2015 British Columbia Office under \$10 million Completed 2010 Saskatchewan Mealth Care over \$50 million Completed 2015 New South Wales Single-family Residential under \$10 million Completed 2015			Education (K-12)	over \$50 million	Completed	2017
Alberta Mixed Use \$25-\$50 million Completed 2015 Multi-family Residential under \$10 million Design Multi-family Residential under \$10 million Completed 2016 Pritish Columbia Office under \$10 million Completed 2010 Saskatchewan Multi-family Residential over \$50 million Completed 2015 New South Wales Single-family Residential under \$10 million Completed 2015			Government/Civic	under \$10 million	Construction	
Aubertal Mixed Use \$25-\$50 million Design Multi-family Residential under \$10 million Design Mixed Use Office under \$10 million Completed British Columbia Office under \$10 million Completed 2010 Saskatchewan Mealth Care over \$50 million Completed 2015 New South Wales Single-family Residential under \$10 million Completed 2015	Alberta	51	Government/GIVIC		Completed	2015
Multi-family Residential under \$10 million Design Office under \$10 million Completed British Columbia Office under \$10 million Completed Saskatchewan Health Care over \$50 million Completed 2015 New South Wales Single-family Residential under \$10 million Completed 2015	Alberta	52	Mixed Use	\$25-\$50 million		
Office under \$10 million Completed British Columbia 50 Office under \$10 million Completed 2010 Saskatchewan 50 Health Care over \$50 million Completed 2015 New South Wales 50 Single-family Residential under \$10 million Completed 2015		53				
British Columbia Office under \$10 million Completed 2010 Saskatchewan Mealth Care over \$50 million Completed 2015 New South Wales Single-family Residential under \$10 million Completed 2015						-
Saskatchewan Statuth Care over \$50 million Completed 2015 over \$50 million Design New South Wales Single-family Residential under \$10 million Completed 2015	British Columbia					2010
New South Wales Single-family Residential under \$10 million Completed 2015	BIULINIO IIGINIO		Unite			
over \$50 million Design New South Wales [∞] Single-family Residential under \$10 million Completed 2015	Saskatchewan		Health Care			2015
		57		over \$50 million	Design	
Jordan ⁵⁹ Health Care over \$50 million Construction						2015
	Jordan	59	Health Care	over \$50 million	Construction	

59 unique projects

- 48 in U.S.
- 9 in Canada
- 2 outside of North America

Project Types

Education (K 12)	1
• Education (K-12)	•
 Education (college/university) 	5
Health Care	28
Cultural	1
 Recreational 	1
Office	5
 Industrial 	3
Mixed Use	3
 Government/Civic 	3
 Single Family Residential 	1
 Multi-Family Residential 	1
Utilities Power/Water/Sewer	2
• Other	5
Project Scopes	
• Under \$10M	15
	-
• \$10M to \$25M	16
• \$25M to \$50M	7

• \$25M to \$50M • Over \$50M 21

Project Status

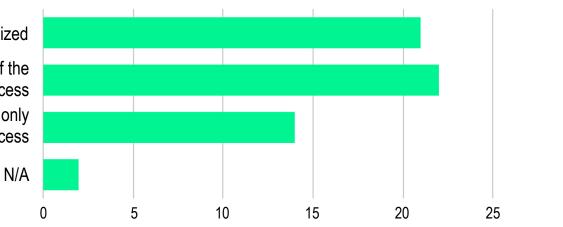
 Design 12 Construction 38

9

Complete



Projects | Use of BIM and Lean

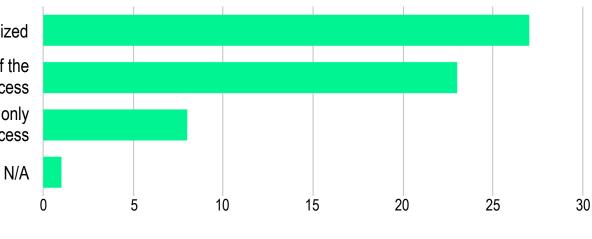


BIM tools and processes utilized on this project (n=59)

High - extensively used and customized

Medium – used frequently with most of the known capacity of the tool/process Low – used but not extensively and with only some of the power of the tool / process



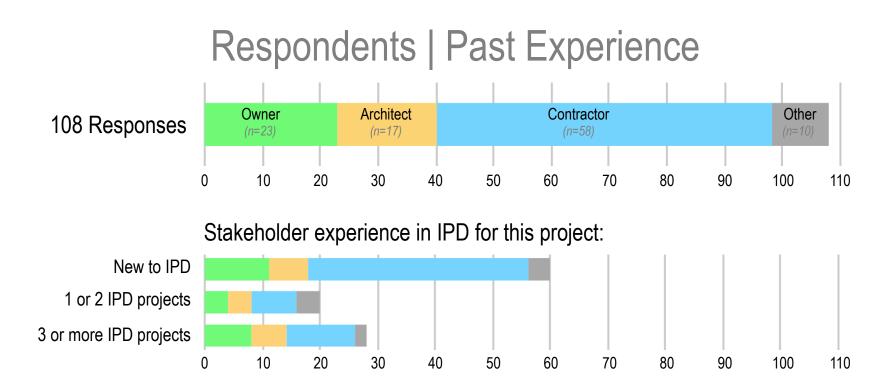


High – extensively used and customized

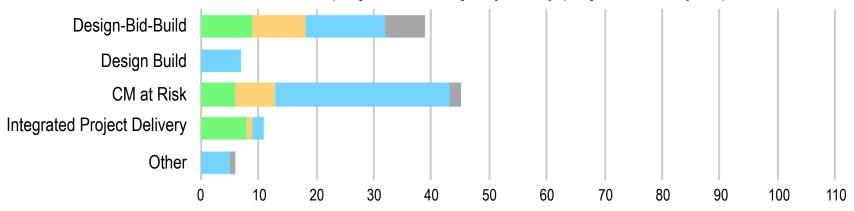
Medium – used frequently with most of the known capacity of the tool/process Low – used but not extensively and with only some of the power of the tool / process



30

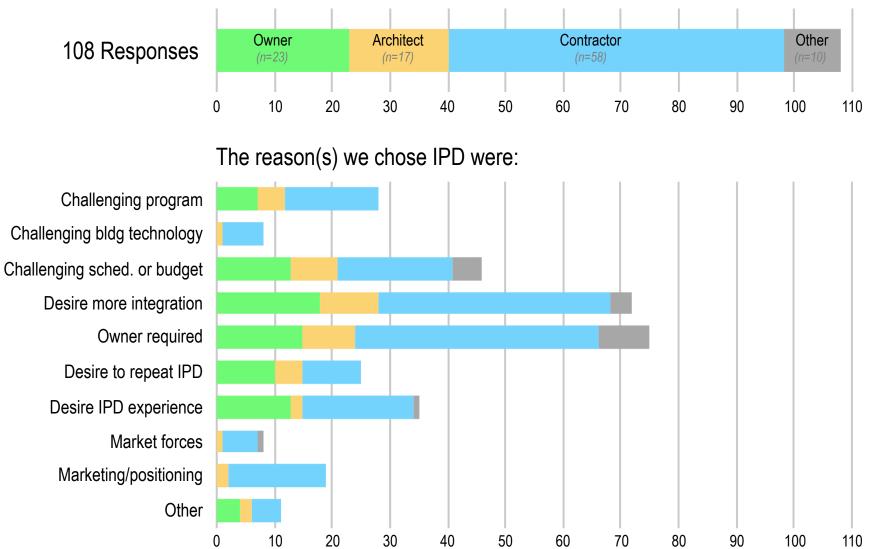


Outside of this project, the majority of my project delivery experience is in:





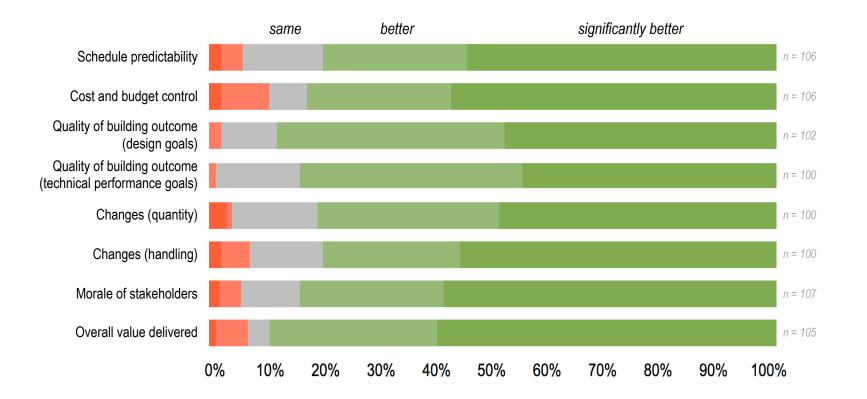
Respondents | Why IPD?





Performance | All Responses

Compared to your experience on non-IPD projects, rate your impression of the performance of this project in each of the categories below.

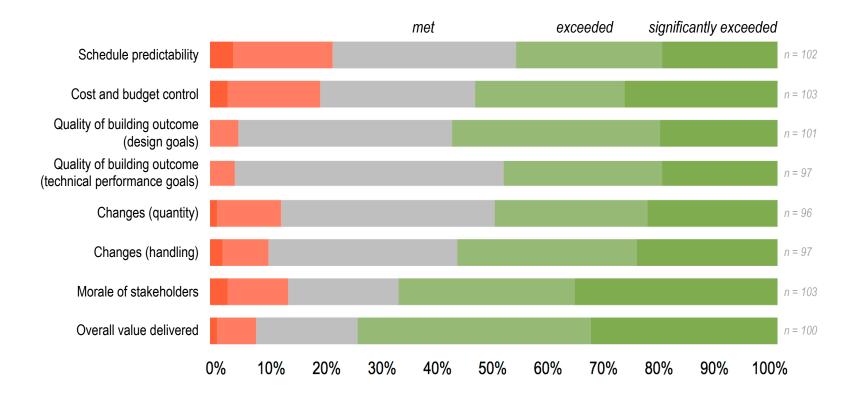


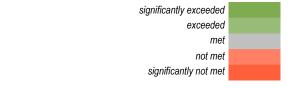




Expectations | All Responses

Considering your expectations at the start of this project, rate the outcomes of this project in each of the categories below.

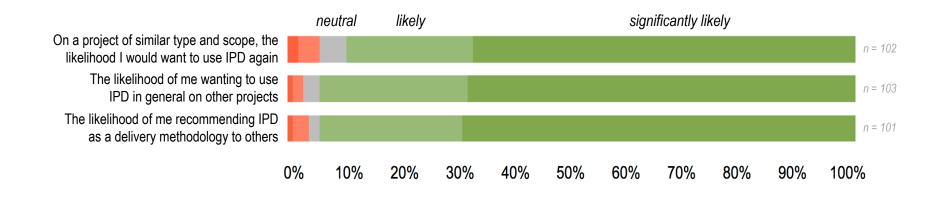


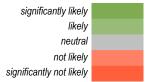




Likelihood | All Responses

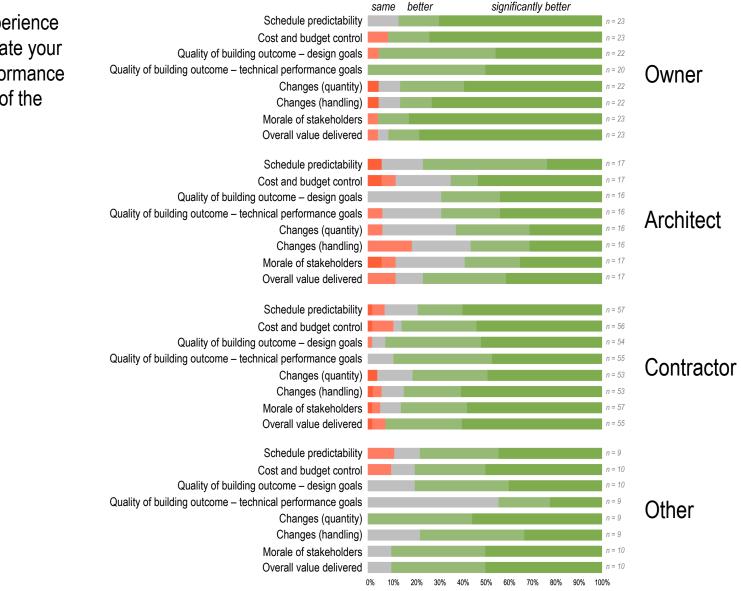
Identify the likelihood for each of the following statements:







Performance | Stakeholder



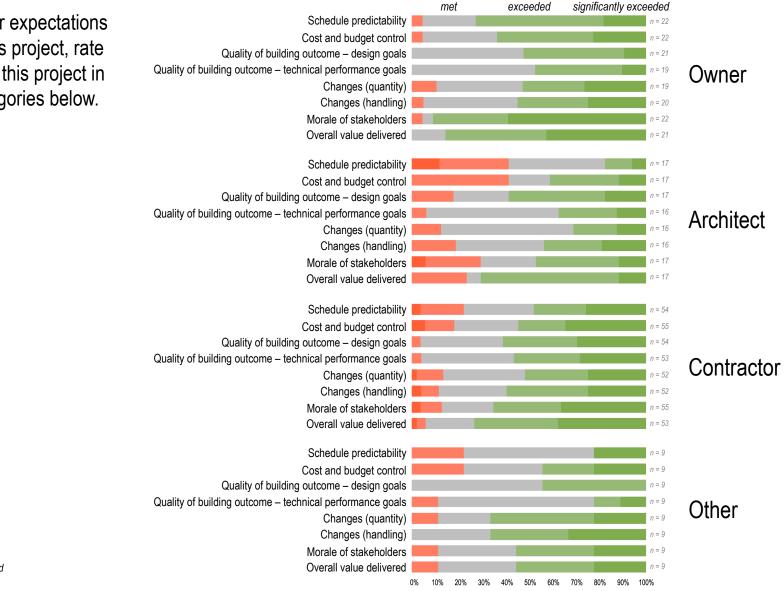
Compared to your experience on non-IPD projects, rate your impression of the performance of this project in each of the categories below.



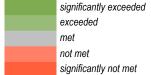


UNIVERSITY OF MINNESOTA Driven to Discover®

Expectations | Stakeholder



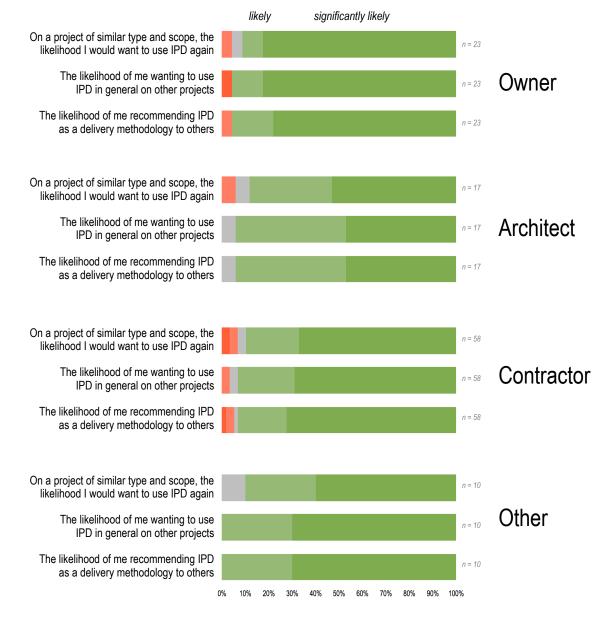
Considering your expectations at the start of this project, rate the outcomes of this project in each of the categories below.



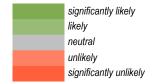


UNIVERSITY OF MINNESOTA Driven to Discover™

Likelihood | Stakeholder



Identify the likelihood for each of the following statements:



UNIVERSITY OF MINNESOTA Driven to Discover[™]

Survey Open Through September 2016!

The data in this report was collected between July 9th and September 15th 2015. We recognize that many stakeholders on past or current projects did not have the chance to participate and as such their experiences are not represented in this data set.

To increase the robustness of the report, the survey will remain open until September 15th 2016, followed by a revised report.

If you are have worked on or are currently working on an IPD project, please take the survey here:

http://survey.az1.qualtrics.com/jfe/form/SV_5uPcumvO8xJu9CZ



Acknowledgements

This work was funded by the Integrated Project Delivery Alliance.

The Integrated Project Delivery Alliance (IPDA) is a group of organizations that seek to advance integrated project delivery (IPD) as a delivery method in Canada. The mission of the IPDA is to promote best practices that enhance IPD. www.ipda.ca

Special thanks to the following individuals and organizations for promoting participation in the survey:

Associated General Contractors (AGC) Construction Owner's Association of America (COAA) Dan Fauchier | ReAlignment Group David Umstot | Umstot Project and Facilities Solutions, LLC Howard Ashcraft | Hanson Bridgett Randy Deutsch AIA Rex Miller P2SL

Project Team

Renee Cheng AIA | University of Minnesota | <u>rcheng@umn.edu</u> Markku Allison AIA | Scan Consulting | <u>markkuallison@scanconsulting.us</u> Carrie Sturts Dossick PE PhD + Chris Monson RA PhD Candidate



This concludes The American Institute of Architects Continuing Education Systems Course

Lean Construction Institute



info@leanconstruction.org

