



R&D Case Studies

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NECA
PHILADELPHIA
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CONVENTION EDUCATION


This session is eligible for 2 Continuing Education Hours.

For these hours to appear on your certificate, you must:


- Have your badge scanned at the door
- Attend 90% of this presentation
- Fill out the online evaluation for this session


Our Panelists




Todd Grossweiler
Executive Vice President
Allison-Smith Company




Mark Lotspeich
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Sean Lazarian
CFO
ESSCO



Adam Davis
VDC Project Manager
Miller Electric



R&D Case Studies



Todd Grossweiler
Executive Vice President
Allison-Smith Company





R&D Case Studies

Todd Grossweiler

CONVENTION EDUCATION

IS IT TIME FOR A CHANGE?

- Are we solving a problem(s)/making improvements with the change?
 - Don't try to keep up with the Joneses. What works for someone else may not work for you.
- Does the change involve new people, new processes, new technology, or some combination of the three?
 - New People – could be a new employee and/or position to help improve existing processes.
 - New Processes – could be a new (or new to you) way of doing something.
 - New Technology – could be new tools or software.
- Is there a clear ROI?
 - Compare hard & soft costs to potential returns on investment.
- Does the change qualify as R&D and is it eligible for tax credits?
 - **I AM NOT YOUR TAX ADVISOR.**
- What parties within your company will be affected by the change?
- How will the change be implemented?
 - Proper planning, preparation, & communication will greatly increase the chances of success?
- Do you have a champion(s)?
 - Innovation requires change and successful change requires a champion.
- Don't be afraid to pull the plug?

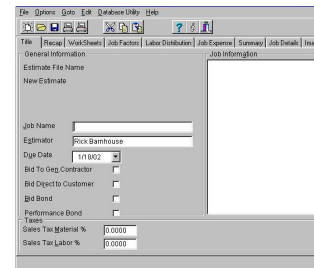


Change Requires a Champion



Change Requires a Champion

- Implementation of New Estimating Software
 - Time to retire old software

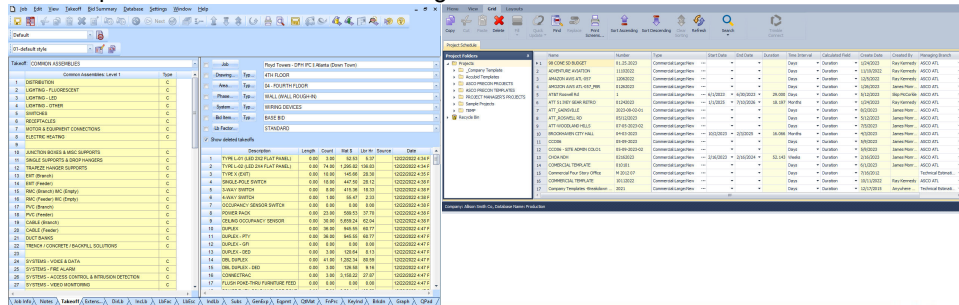


Item #	D.C.	Description	UPC	Cost 1	Cost 2	Cost 3	U1	Labor 1	Labor 2	Labor 3	U1	Phase	Next	N
1820	EH	EH-SP T-STAT WALL MTD	1820	\$11.04	\$12.14	\$22.08	E	50.00	60.00	70.00	C	18	0	
1822	EH	EH-OPST T-STAT	1822	\$15.00	\$16.50	\$30.00	E	60.00	72.00	84.00	C	18	0	
1824	EH	EH-60 IN CEILING FAN-WH	1824	\$135.71	\$149.28	\$271.42	E	2.50	3.00	3.50	E	18	1828	
1826	EH	EH-56 IN CEILING FAN-BR	1826	\$215.14	\$236.65	\$430.28	E	2.50	3.00	3.50	E	18	1828	
1828	EH	EH-FAN SPEED CONTROL-12	1828	\$31.59	\$34.75	\$63.18	E	0.75	0.90	1.05	E	18	0	
1842	EM	EM-1/2 EMT-CONDUIT	1842	\$12.51	\$13.76	\$25.02	C	3.75	4.50	5.25	C	1	1864	
1844	EM	EM-3/4 EMT-CONDUIT	1844	\$30.95	\$32.94	\$41.70	C	4.50	5.40	6.30	C	1	1864	
1846	EM	EM-1 EMT-CONDUIT	1846	\$34.15	\$37.57	\$68.30	C	5.75	6.90	8.05	C	1	1866	
1848	EM	EM-1 1/4 EMT-CONDUIT	1848	\$47.86	\$52.05	\$95.72	C	7.00	8.40	9.80	C	2	1868	
1850	EM	EM-1 1/2 EMT-CONDUIT	1850	\$56.77	\$62.45	\$113.54	C	7.50	9.00	10.50	C	2	1870	
1852	EM	EM-2 EMT-CONDUIT	1852	\$71.63	\$78.79	\$143.25	C	9.00	10.80	12.60	C	2	1872	
1854	EM	EM-2 1/2 EMT-CONDUIT	1854	\$150.04	\$165.04	\$300.08	C	11.00	13.20	15.40	C	2	1874	



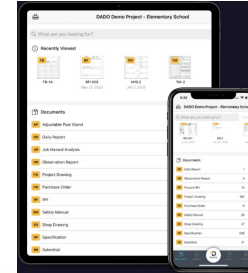
Change Requires a Champion

- Implementation of New Estimating Software



Change Requires a Champion

- Microsoft 365, Microsoft Teams, & DADO
 - Find better ways to more consistently communicate with the field.



Change Requires a Champion

- Quickbase
 - Attempt to consolidate project data from project acquisition through close out.



Change Requires a Champion

- CNC Machine
 - Added for specific project with benefits to future projects.



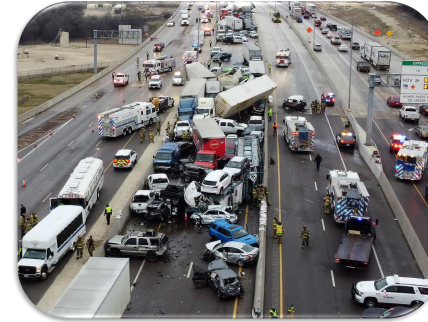
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Research & Efficiency
Manager
Dynalectric Oregon



COLLATERAL DAMAGE



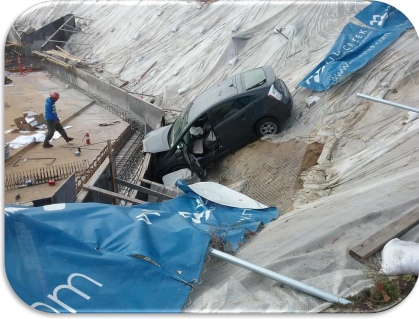
COLLATERAL DAMAGE



HIRING AFTER FIRING



HIRING AFTER FIRING

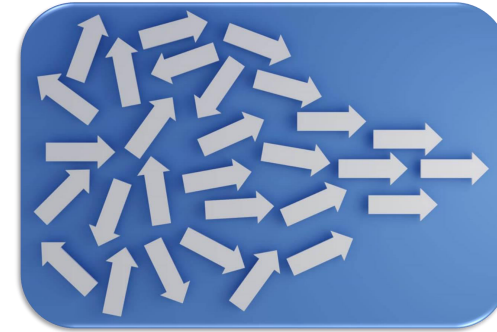


DO NOT CUT CORNERS

- Clearly define needs
- Identify candidates
- Interview
- Evaluate and assess
- Test drive and then decide



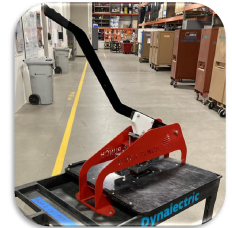
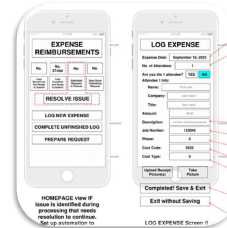
GETTING BUY-IN



HOME-MADE GIFTS



HOME-MADE GIFTS R&D



R&D Case Studies



Sean Lazarian
CFO
ESSCO



Managed Expectations

Sean Lazarian

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General Expectations

- What will constitute a success?
- What percentage of your R&D projects need to be successful?
 - Are you willing to spend < insert amount here >?



Project Specific Expectations

- How much are you willing to spend on this project?
 - Who will be the champion?
- How much of their time can they devote to this?
- Rate Valuable and Interesting on a scale of 1-10
 - Who will pull the plug when necessary?



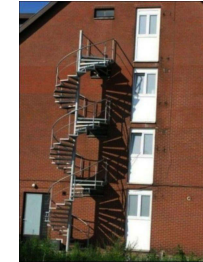
The Evaluation

- Define your current system in detail and evaluate new technology / process in light of your current system.



R&D Stories

- Accounting System: Expectations vs reality



R&D Stories

- Lutron FCJ



R&D Stories

- Lutron Powpak cover



R&D Case Studies



Adam Davis
VDC Project Manager
Miller Electric



Generative Design Case Study & VDC Data & KPIs

Adam S. Davis

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Generative Design Case Study

- What is Generative Design
- What Effect Does it have on the Current State Process
 - Current Results
 - Key Considerations

Augmenta



Generative Design Case Study

What is Generative Design?

- Rules Based Population of Electrical Conduit
- Follows NEC Code
- User Defined Inputs
 - % Fill
 - Go/No Go Zones
 - Spare %
 - Spacing

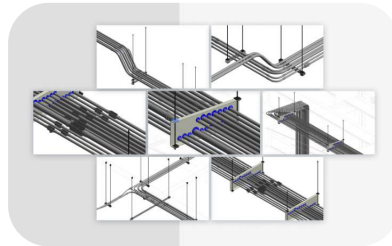




Generative Design Case Study

Effect on Current State Process

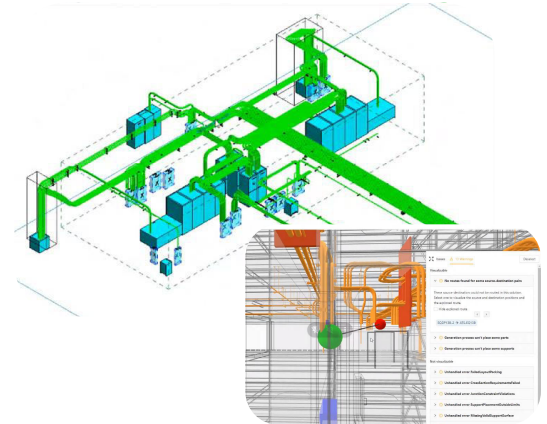
- Feeder Schedules
- Wire Schedules
- Background Models (Linked Models)
- Approach to Coordination
- Timing & Opportunity



Generative Design Case Study

Current Results

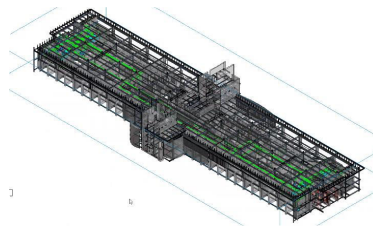
- Model Setup
- Model Population
 - Routings
 - Hangers
 - Data
- Model Coordination
 - Less is More



Generative Design Case Study

Key Considerations

- Early Development
- Style of Projects
- Labor/Material Options



Full Case Study Results at MEP Innovation in Orlando 2024



VDC Data & KPIs

- Data Setup & Governance
 - Using CRM Data & VDC
- VDC Projections - Proof of Concept
 - KPIs





VDC Data & KPIs

Data Setup/Governance

- VDC & Fab Cost Codes

Level	Project Coordinator	PLD	Detailer	Modeler	In Wall
UG/Site	3000	3100	3200	3300	
Level 1	3001	3101	3201	3301	3401
Level 2	3002	3102	3202	3302	3402
Level 3	3003	3103	3203	3303	3403
Level 4	3004	3104	3204	3304	3404

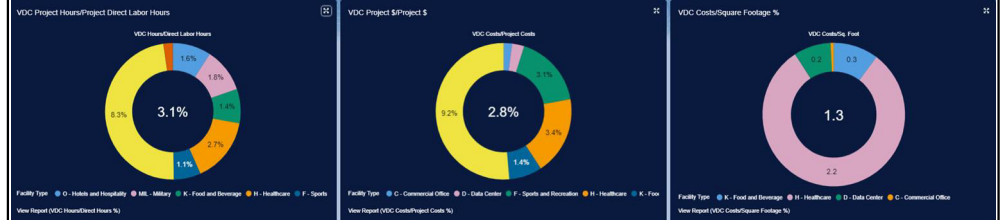
- Budget Breakdown by Code

Cost Code	Cost Description	Budget Cost	Hours
3009	VDC PC Level 9	8500	137
3010	VDC PC Level 10	10000	161
3011	VDC PC Level 11	10000	161
3012	VDC PC Level 12	10000	161
3013	VDC PC Level 13	10000	161
3109	VDC PLD Level 9	7500	121
3110	VDC PLD Level 10	22500	363
3111	VDC PLD Level 11	18500	298
3112	VDC PLD Level 12	18500	298
3113	VDC PLD Level 13	18500	298
3209	VDC Detailer Level 9	5000	81
3210	VDC Detailer Level 10	12500	202
3211	VDC Detailer Level 11	17500	282
3212	VDC Detailer Level 12	17500	282
3213	VDC Detailer Level 13	17500	282



VDC Data & KPIs

Using Existing CRM Data

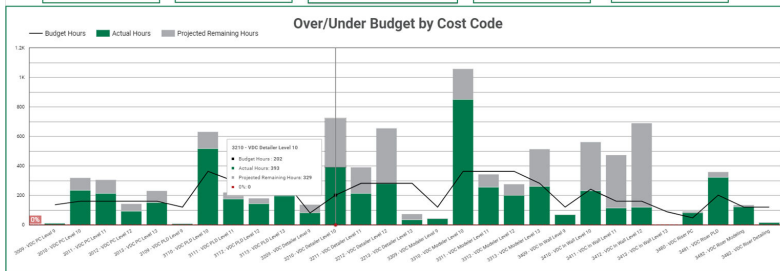


VDC Projections

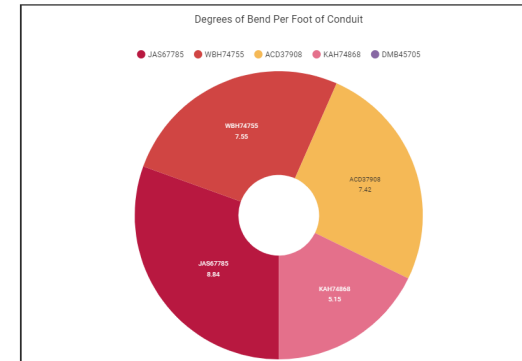
Project Coordinator Dashboard

Date: 9/8/2023

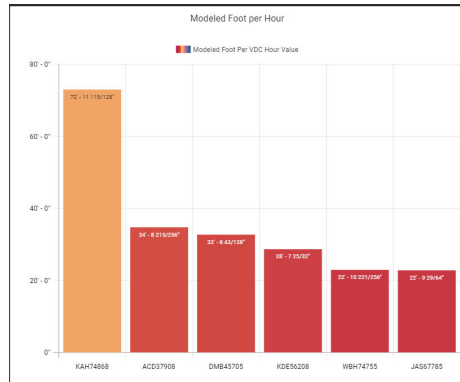
Projected Budgeted Hours: 8,933
 Projected Remaining Hours: 3,478
 Actual Hours: 5,455
 Budget Hours: 6,046



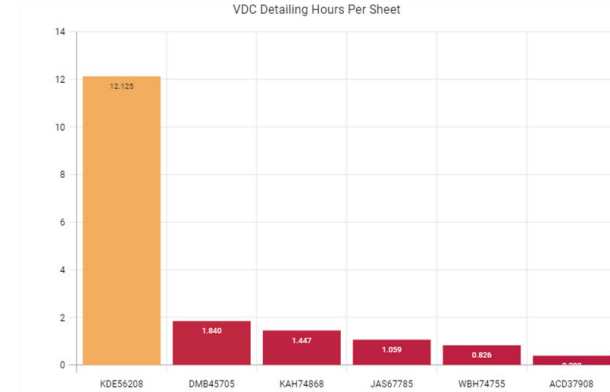
VDC KPIs



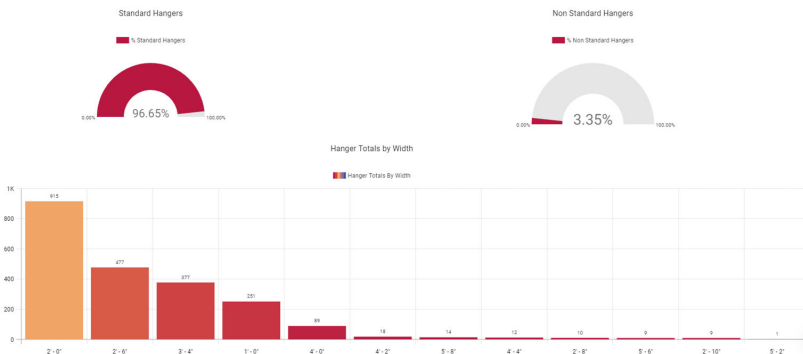
VDC KPIs



VDC KPIs



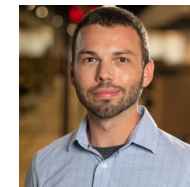
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Complete the Online Evaluation

