



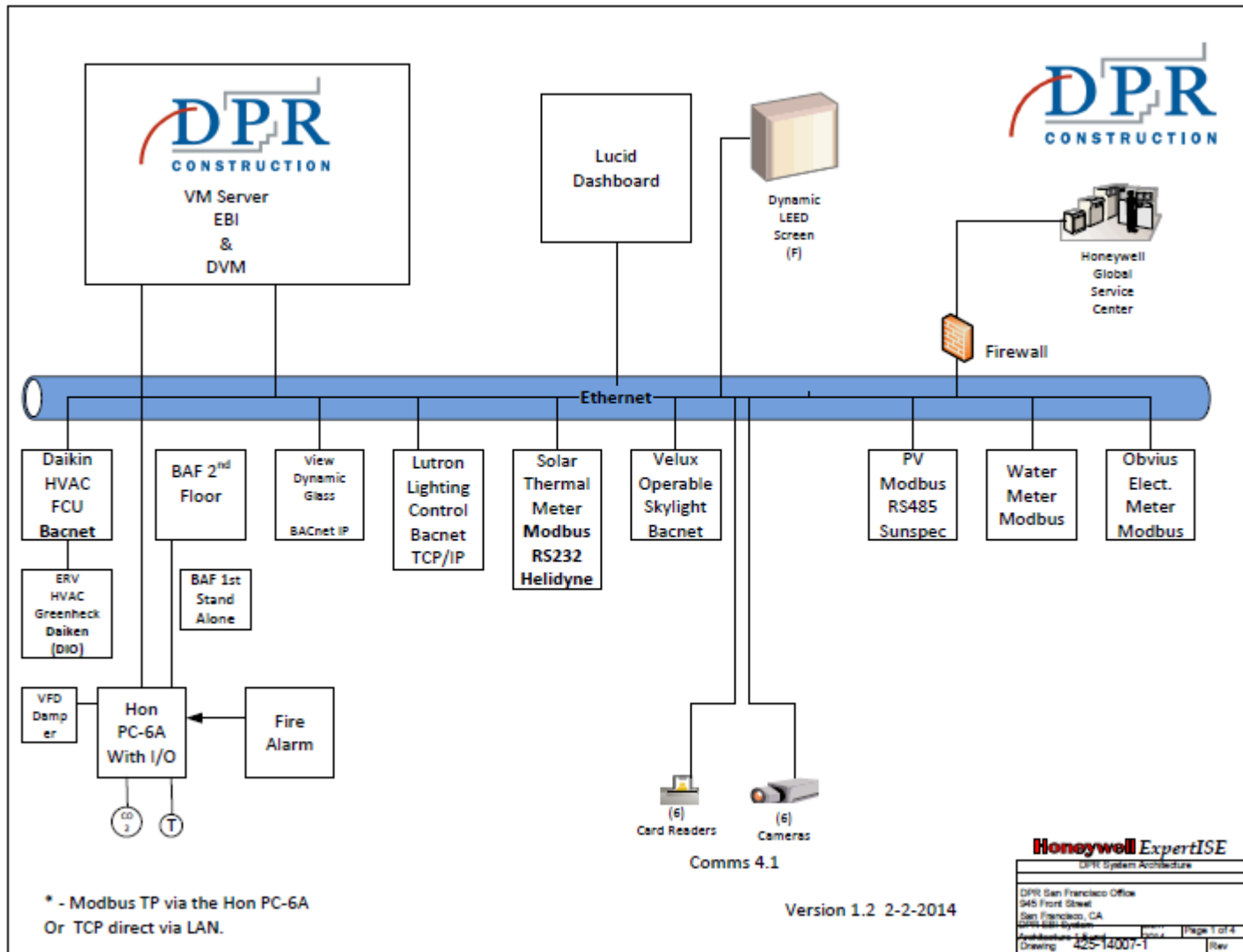
**DPR CONSTRUCTION
GETTING TO NET ZERO**

Honeywell

Demonstration Project Goals

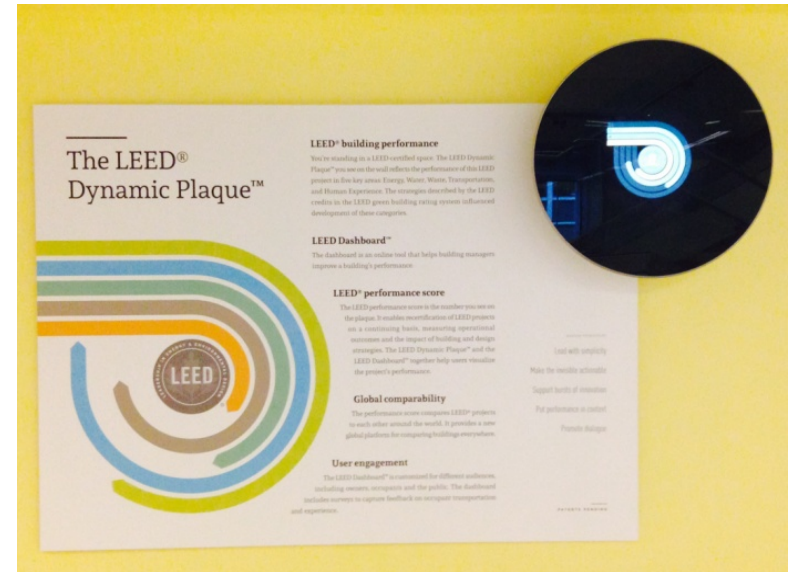
- Net Zero Facility
- Platinum LEED
- Proof of Concept on BIM Graphics

DPR Net Zero Architecture



LEED Dynamic Plaque

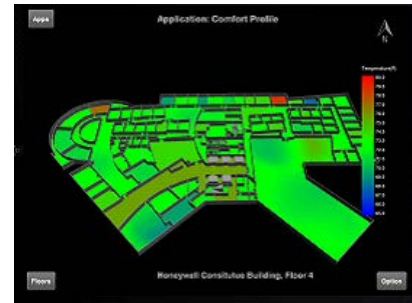
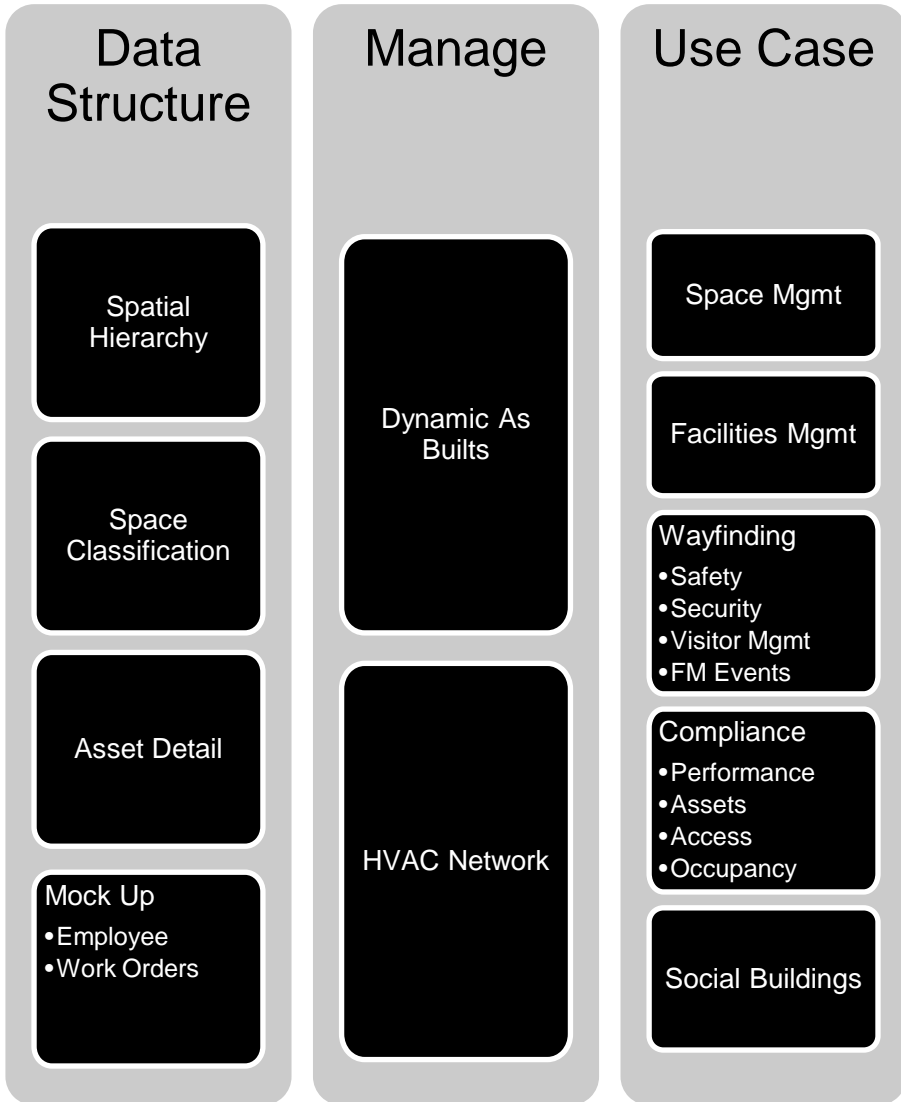
- Annual LEED Recertification System
- Benchmark Facility
 - Against original LEED Certification
 - Against Local and Global peers
- Performance Monitoring 5 Streams
 - Energy
 - HVAC
 - Lighting
 - Plug Loads
 - Water
 - Potable water consumption
 - Waste
 - Generated
 - Diverted
 - Transportation
 - To/From Means
 - Human Experience
 - CO2
 - VOC Levels
 - Occupant Experience



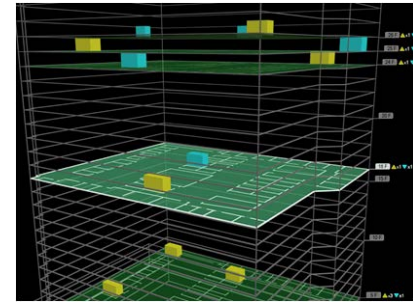
LEED Dynamic Plaque in USGBC HQ Lobby, Washington DC, December 2013

<http://www.leedon.io/>

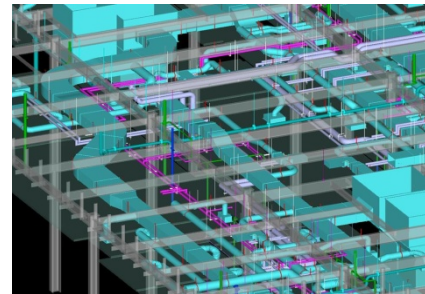
BIM Utilization



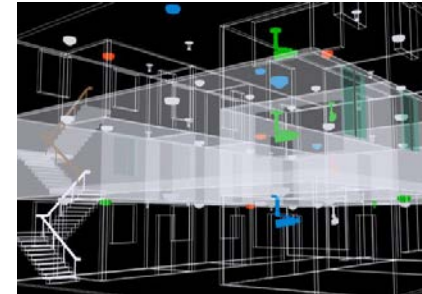
Occupant Satisfaction



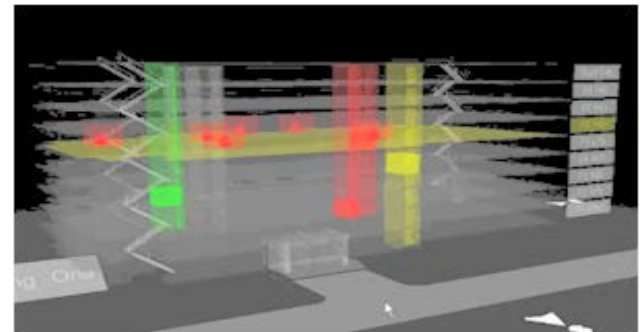
Energy Consumption



HVAC Network State



Events or Alarms



3D First Vision for First Responder System



We suffer from Information Overload



Attune Services

1. Space Temperatures vs Setpoint

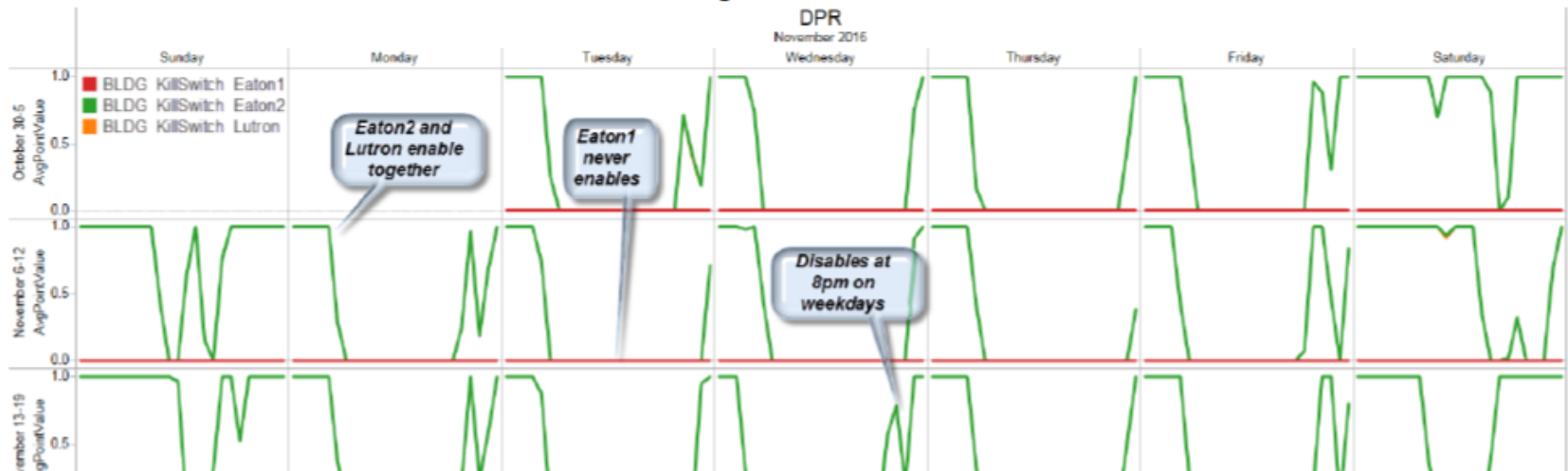
Average hourly temperature deviation from setpoint in November

	0	1	2	3	4	5	6	7	8	9	10	11
Equipm..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..
FC_1-1	-1.766	-2.129	-2.277	-2.329	-2.433	-2.519	-2.644	-2.704	-2.699	-2.203	-1.500	-1.190
FC_1-2	0.415	0.299	0.250	0.244	0.229	0.190	0.155	-0.014	-0.157	0.115	0.091	-0.110
FC_1-3	0.511	0.497	0.477	0.466	0.442	0.428	0.475	0.298	-0.150	0.242	0.228	0.137
FC_1-4	0.453	0.332	0.284	0.262	0.234	0.221	0.198	-0.297	-0.631	-0.665	-0.614	-0.414
FC_1-5	0.808	0.909	0.930	0.929	0.937	0.944	0.981	0.137	-0.686	-0.652	-0.613	-0.485
FC_1-7	0.101	0.172	0.155	0.116	0.174	0.140	0.171	0.252	0.236	0.261	0.300	0.509
FC_1-8	-0.129	-0.351	-0.450	-0.463	-0.460	-0.503	-0.553	-0.607	-0.598	-0.448	-0.296	-0.197
FC_2-1	-1.212	-1.577	-1.737	-1.789	-1.852	-1.902	-1.947	-1.994	-2.017	-1.866	-1.603	-1.412
FC_2-2	-1.133	-1.506	-1.665	-1.712	-1.758	-1.795	-1.835	-1.851	-1.885	-1.831	-1.554	-1.395
FC_2-3	-1.382	-1.663	-1.800	-1.820	-1.934	-2.029	-2.069	-2.116	-2.158	-2.132	-1.973	-1.911
FC_2-4	0.140	0.030	-0.020	-0.029	-0.064	-0.096	-0.130	-0.333	-0.511	-0.245	-0.327	-0.214
FC_2-5	0.326	0.105	0.010	-0.007	-0.060	-0.128	-0.196	-0.374	-0.647	-0.588	-0.472	-0.313
FC_2-6	0.211	0.170	0.151	0.131	0.103	0.086	0.044	0.023	0.021	0.020	0.109	0.215
FC_2-7	0.355	0.252	0.184	0.135	0.082	0.041	-0.022	-0.337	-0.647	-0.600	-0.412	-0.129
	-4 -2 0 2	-4 -2 0 2	-4 -2 0 2	-4 -2 0 2	-4 -2 0 2	-4 -2 0 2	-4 -2 0 2	-4 -2 0 2	-4 -2 0 2	-4 -2 0 2	-4 -2 0 2	-4 -2 0 2
	Actual - SP	Actual - SP	Actual - SP	Actual - SP	Actual - SP	Actual - SP	Actual - SP	Actual - SP	Actual - SP	Actual - SP	Actual - SP	Actual - SP
	12	13	14	15	16	17	18	19	20	21	22	23
Equipm..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..	November 2..
FC_1-1	-1.016	-0.873	-0.774	-0.763	-0.754	-0.807	-0.867	-0.909	-1.083	-1.309	-1.480	-1.564
FC_1-2	-0.084	-0.008	0.147	0.009	-0.196	-0.139	0.051	0.170	0.245	0.300	0.382	0.417
FC_1-3	-0.040	-0.094	-0.033	-0.121	0.244	0.262	0.459	0.668	0.668	0.707	0.570	0.499

Attune Services

2. Kill Switch Review (Previous finding updated for November)

Calendar view showing when kill switch's are enabled



Recommended Actions

- ✓ Determine why kill switch eaton 1 never enables.
- ✓ Determine why killswitch disables weekdays at 8pm. If this is the cleaning crew could they arrive earlier?

Desired Results

- ✓ Energy savings from enabling eaton 1.
- ✓ Energy savings by eliminating the disabling of the killswitch during weekdays at 8pm