



STRANG

Perkins&Will



Donald Grinberg, FAIA

**SCHEMATIC DESIGN PACKAGE
ALLIANT ENERGY CENTER EXHIBITION HALL EXPANSION**

COMPILED BY STRANG
JULY 24, 2020

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Cost Estimate



Item Description	QTY	UOM	Total Unit Price	Grand Total
EXISTING CONDITIONS	231,254	GSF	\$1.95	\$450,436
SITWORK/BUILDING EARTHWORK	231,254	GSF	\$17.68	\$4,088,066
FOUNDATION / SOG	231,254	GSF	\$16.00	\$3,699,738
BUILDING STRUCTURE	231,254	GSF	\$44.87	\$10,375,747
EXTERIOR ENCLOSURE	231,254	GSF	\$27.28	\$6,307,531
ROOF	231,254	GSF	\$11.82	\$2,734,517
INTERIOR CONSTRUCTION	231,254	GSF	\$53.44	\$12,357,143
EQUIPMENT FURNITURE	231,254	GSF	\$6.21	\$1,435,795
SPECIAL CONSTRUCTION	231,254	GSF	\$0.92	\$212,175
FIRE PROTECTION	231,254	GSF	\$4.04	\$935,237
PLUMBING	231,254	GSF	\$9.00	\$2,081,286
HVAC	231,254	GSF	\$34.10	\$7,885,196
ELECTRICAL	231,254	GSF	\$35.19	\$8,136,705
ALLOWANCE	231,254	GSF	\$28.11	\$6,500,000
DEVELOPMENT & OWNER COST	231,254	GSF	\$12.97	\$3,000,000
Grand Total	231,254	GSF	\$303.56	\$70,199,572

Rate	Item Description	Cost/GSF	Total
- %	Tax	-	-
- %	Estimate Mark Up	-	-
- lsum	LS Adjustment	-	-
-	Subtotal	303.56/GSF	70,199,572
6.00 %	General Conditions	20.09/GSF	4,646,418
-	Subtotal	323.65/GSF	74,845,989
0.25 %	Building Permit	0.84/GSF	193,601
-	Subtotal	324.49/GSF	75,039,590
- %	KA Performance/Payment Bond	-	-
-	Subtotal	324.49/GSF	75,039,590
- %	KA Builders Risk	-	-
-	Subtotal	324.49/GSF	75,039,590
0.79 %	KA General Liability	2.07/GSF	479,527
-	Subtotal	326.56/GSF	75,519,117
1.10 %	Subcontractor Default Insurance	2.89/GSF	667,695
-	Subtotal	329.45/GSF	76,186,812
- %	Construction Testing	-	-
-	Subtotal	329.45/GSF	76,186,812
- %	Special Inspection	-	-
-	Subtotal	329.45/GSF	76,186,812
- %	Owner Testing	-	-
-	Subtotal	329.45/GSF	76,186,812



Alliant Energy Center Exhibition Hall Expansion

Client: City of Madison
 Architect: Strang
 Location: Madison, WI

Date: 06/07/2020
 Project Start: TBD
 Document Date: 06/03/2020
 Schematic Design

Rate		Item Description	Cost/GSF	Total
4.00	%	KA Construction Contingency	10.50/GSF	2,427,983
-		Subtotal	339.95/GSF	78,614,795
4.00	%	Project Design Progression Contingency	10.50/GSF	2,427,983
-		Subtotal	350.45/GSF	81,042,778
6.00	%	Project Escalation	15.75/GSF	3,641,974
-		Subtotal	366.20/GSF	84,684,752
-	%	Design Fee	-	-
-		Subtotal	366.20/GSF	84,684,752
0.25	%	KA Preconstruction Fee	0.81/GSF	187,962
2.75	%	KA Construction Fee	8.94/GSF	2,067,581
-		Subtotal	375.95/GSF	86,940,294
231,254.00	GSF	Total Estimate (Gross)	375.95/GSF	86,940,294

Item Description	QTY	UOM	Total Unit Price	Grand Total
01 South Exhibition Center Addition	154,703	GSF	279.63	\$43,260,147
EXISTING CONDITIONS	154,703	GSF	0.76	\$117,882
SITework/BUILDING EARTHWORK	154,703	GSF	22.50	\$3,481,570
FOUNDATION / SOG	154,703	GSF	16.69	\$2,581,532
BUILDING STRUCTURE	154,703	GSF	43.67	\$6,755,527
EXTERIOR ENCLOSURE	154,703	GSF	30.30	\$4,688,134
ROOF	154,703	GSF	12.70	\$1,965,079
INTERIOR CONSTRUCTION	154,703	GSF	60.75	\$9,397,445
EQUIPMENT FURNITURE	154,703	GSF	9.28	\$1,435,795
SPECIAL CONSTRUCTION	154,703	GSF	0.81	\$125,000
FIRE PROTECTION	154,703	GSF	4.17	\$645,350
PLUMBING	154,703	GSF	9.00	\$1,392,327
HVAC	154,703	GSF	34.00	\$5,259,902
ELECTRICAL	154,703	GSF	35.00	\$5,414,605
02 Cold Storage Shed	3,748	GSF	47.56	\$178,265
SITework/BUILDING EARTHWORK	3,748	GSF	3.98	\$14,924
FOUNDATION / SOG	3,748	GSF	7.39	\$27,713
EXTERIOR ENCLOSURE	3,748	GSF	5.95	\$22,300
INTERIOR CONSTRUCTION	3,748	GSF	2.33	\$8,718
SPECIAL CONSTRUCTION	3,748	GSF	23.26	\$87,175
ELECTRICAL	3,748	GSF	4.65	\$17,435
03 Hotel Connector	1,410	GSF	344.01	\$485,052
EXISTING CONDITIONS	1,410	GSF	21.51	\$30,328
SITework/BUILDING EARTHWORK	1,410	GSF	5.18	\$7,308
FOUNDATION / SOG	1,410	GSF	26.39	\$37,215
BUILDING STRUCTURE	1,410	GSF	38.15	\$53,792
EXTERIOR ENCLOSURE	1,410	GSF	169.58	\$239,110
ROOF	1,410	GSF	14.54	\$20,506
INTERIOR CONSTRUCTION	1,410	GSF	32.65	\$46,034
FIRE PROTECTION	1,410	GSF	2.00	\$2,820
HVAC	1,410	GSF	16.00	\$22,560
ELECTRICAL	1,410	GSF	18.00	\$25,380
04 Hall F Expansion First Floor	55,676	GSF	225.42	\$12,550,653
EXISTING CONDITIONS	55,676	GSF	5.43	\$302,226



Item Description	QTY	UOM	Total Unit Price	Grand Total
SITWORK/BUILDING EARTHWORK	55,676	GSF	10.49	\$584,264
FOUNDATION / SOG	55,676	GSF	16.96	\$944,178
BUILDING STRUCTURE	55,676	GSF	45.72	\$2,545,641
EXTERIOR ENCLOSURE	55,676	GSF	16.18	\$900,887
ROOF	55,676	GSF	13.45	\$748,932
INTERIOR CONSTRUCTION	55,676	GSF	35.44	\$1,973,013
FIRE PROTECTION	55,676	GSF	3.75	\$208,785
PLUMBING	55,676	GSF	9.00	\$501,084
HVAC	55,676	GSF	34.00	\$1,892,984
ELECTRICAL	55,676	GSF	35.00	\$1,948,660
05 Hall F Mezzanine Second Floor	20,875	GSF	202.42	\$4,225,455
FOUNDATION / SOG	20,875	GSF	5.23	\$109,100
BUILDING STRUCTURE	20,875	GSF	48.90	\$1,020,788
EXTERIOR ENCLOSURE	20,875	GSF	21.90	\$457,101
INTERIOR CONSTRUCTION	20,875	GSF	44.64	\$931,935
FIRE PROTECTION	20,875	GSF	3.75	\$78,281
PLUMBING	20,875	GSF	9.00	\$187,875
HVAC	20,875	GSF	34.00	\$709,750
ELECTRICAL	20,875	GSF	35.00	\$730,625
FF&E	-	-	-	\$3,000,000
DEVELOPMENT & OWNER COST	-	-	-	\$3,000,000
SOFT COSTS	-	-	-	\$6,500,000
ALLOWANCE	-	-	-	\$6,500,000
Grand Total	231,254	GSF	303.56	\$70,199,572
Rate	Item Description		Cost/GSF	Total
-	% Tax		-	-
-	% Estimate Mark Up		-	-
-	lsum LS Adjustment		-	-
-	Subtotal		303.56/GSF	70,199,572
6.00	% General Conditions		20.09/GSF	4,646,418
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-	%	KA Performance/Payment Bond	-	-
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-	%	KA Builders Risk	-	-
-		Subtotal	324.49/GSF	75,039,590
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-		Subtotal	326.56/GSF	75,519,117
1.10	%	Subcontractor Default Insurance	2.89/GSF	667,695
-		Subtotal	329.45/GSF	76,186,812
-	%	Construction Testing	-	-
-		Subtotal	329.45/GSF	76,186,812
-	%	Special Inspection	-	-
-		Subtotal	329.45/GSF	76,186,812
-	%	Owner Testing	-	-
-		Subtotal	329.45/GSF	76,186,812
4.00	%	KA Construction Contingency	10.50/GSF	2,427,983
-		Subtotal	339.95/GSF	78,614,795
4.00	%	Project Design Progression Contingency	10.50/GSF	2,427,983
-		Subtotal	350.45/GSF	81,042,778
6.00	%	Project Escalation	15.75/GSF	3,641,974
-		Subtotal	366.20/GSF	84,684,752
-	%	Design Fee	-	-
-		Subtotal	366.20/GSF	84,684,752
0.25	%	KA Preconstruction Fee	0.81/GSF	187,962
2.75	%	KA Construction Fee	8.94/GSF	2,067,581
-		Subtotal	375.95/GSF	86,940,294
231,254.00	GSF	Total Estimate (Gross)	375.95/GSF	86,940,294

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
1	01 South Exhibition Center Addition				
2	01 EC - EXISTING CONDITIONS				
3	02 A - Demolition				
4	DEMO - Huber Center (assume demo by others)	40,236.00	SF	-	-
5	DEMO - Exhibition Hall Selective Demo	145,764.00	SF	\$0.50	\$72,882
6	Demolition Total	154,703.00	GSF	\$0.47	\$72,882
8	32 D1 - Site Security				
9	Perimeter Fencing and Barricades	4,500.00	LF	\$10.00	\$45,000
10	Site Security Total	154,703.00	GSF	\$0.29	\$45,000
12	EXISTING CONDITIONS Total	154,703.00	GSF	\$0.76	\$117,882
13	02 SW - SITEWORK/BUILDING EARTHWORK				
14	31 A - Site Clearing & Earthwork				
15	Footing/Foundation Excavation	28,649.00	CY	\$28.00	\$802,172
16	MASS EXCAVATION (east side leveling)	7,899.56	CY	\$28.00	\$221,188
17	MASS EXCAVATION (ramped drop off at south side)	9,126.00	CY	\$28.00	\$255,528
18	Site Mass Grading	231,254.00	SF	\$1.00	\$231,254
19	Building over excavation (removed per 05/11 convo)	176,850.00	SF	-	-
20	Site Clearing & Earthwork Total	154,703.00	GSF	\$9.76	\$1,510,142
22	32 A - Asphalt Paving				
23	Asphalt Paving - Relocated Parking NORH SIDE	1.00	SF	\$500,000.00	\$500,000
24	Asphalt Paving Total	154,703.00	GSF	\$3.23	\$500,000
26	32 B - Concrete Paving				
27	Site Concrete Paving - Drive thru paving	16,402.00	SF	\$12.00	\$196,824
28	Site Concrete Paving - 8" HD paving (drop off)	3,910.00	SF	\$12.00	\$46,920
29	Concrete Curb & Gutter	5,423.00	LF	\$18.00	\$97,614
30	Concrete Sidewalk	12,736.00	SF	\$6.00	\$76,416
31	Site Concrete Paving - Terrace 5"	35,823.00	SF	\$10.00	\$358,230
32	Site Concrete Paving - Elevated Planters	1,438.00	SF	\$25.00	\$35,950
33	Concrete Paving Total	154,703.00	GSF	\$5.25	\$811,954
35	32 F - Landscape & Irrigation				
36	Landscaping Package - Plantings/Grass	111,114.00	SF	\$3.00	\$333,342
37	Landscaping Package - Rain Garden (between drive-thrus)	10,930.00	SF	\$6.07	\$66,371
38	Landscape & Irrigation Total	154,703.00	GSF	\$2.58	\$399,713
40	32 G - Site Improvement Package				
41	Site Furnishings	154,703.00	SF	\$0.10	\$15,775
42	Site Improvement Package Total	154,703.00	GSF	\$0.10	\$15,775

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
44	33 A - Site Utilities Package				
45	Site Utility Package - Water	154,703.00	SF	\$0.79	\$121,993
46	Site Utility Package - Sanitary	154,703.00	SF	\$0.47	\$73,196
47	Site Utility Package - Storm	154,703.00	SF	\$0.32	\$48,797
48	Site Utilities Package Total	154,703.00	GSF	\$1.58	\$243,987
50	SITWORK/BUILDING EARTHWORK Total	154,703.00	GSF	\$22.50	\$3,481,570
51	03 FS - FOUNDATION / SOG				
52	03 A - Concrete				
53	Wall Footings 2' x 12" 897LF	66.00	CY	\$450.00	\$29,700
54	Wall Footings 3' x 18" 1899LF	316.00	CY	\$450.00	\$142,200
55	Column Footings - 16' x 16' x 48" 28EA	1,062.00	CY	\$650.00	\$690,300
56	Foundation Walls - 12" x 48" 1678LF	249.00	CY	\$575.00	\$143,175
57	Foundation Walls - 16" x 96" - Loading Dock 187LF	37.00	CY	\$575.00	\$21,275
58	Piers - 16" x 16" x 48" 31EA	9.00	CY	\$2,500.00	\$22,500
59	Piers - 48" x 48" x 48" 28EA	66.00	CY	\$3,500.00	\$231,000
60	Column Footings - 4' x 4' x 12" 31EA	18.00	CY	\$650.00	\$11,700
61	SOG 7"	154,703.00	SF	\$7.50	\$1,160,273
62	SOG 10" - Loading Dock	9,211.00	SF	\$12.00	\$110,532
63	Concrete Total	154,703.00	GSF	\$16.56	\$2,562,655
65	07 A - Waterproofing				
66	Waterproofing Foundations (removed per 05/11 convo)	8,390.00	SF	-	-
67	Waterproofing Foundations (removed per 05/11 convo)	272.00	SF	-	-
68	Waterproofing Total	154,703.00	GSF	-	-
70	07 B - Insulation				
71	Thermal Insulation - Rigid Foundation Walls	8,390.00	SF	\$2.25	\$18,878
72	Insulation Total	154,703.00	GSF	\$0.12	\$18,878
74	FOUNDATION / SOG Total	154,703.00	GSF	\$16.69	\$2,581,532
75	04 BS - BUILDING STRUCTURE				
76	03 A - Concrete				
77	Concrete Slab on Deck - 4-1/2" Mech Mezzanine	10,019.00	SF	\$9.00	\$90,171
78	Concrete Total	154,703.00	GSF	\$0.58	\$90,171
80	03 B - Structural Precast				
81	Precast Structural Concrete	10,019.00	SF	\$11.00	\$110,209
82	Structural Precast Total	154,703.00	GSF	\$0.71	\$110,209
84	04 A - Masonry				
85	CMU Partitions 12" - 30'	15,852.00	SF	\$24.00	\$380,448
86	Masonry Total	154,703.00	GSF	\$2.46	\$380,448

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
88	05 A - Structural Steel Material				
89	Steel Package - Material	154,703.00	SF	\$28.15	\$4,354,889
90	Metal Roof Deck - Material - 1-1/2"	154,703.00	SF	\$3.00	\$464,109
91	Structural Steel Material Total	154,703.00	GSF	\$31.15	\$4,818,998
93	05 B - Structure Steel Erection				
94	Steel Package - Erection	154,703.00	SF	\$7.00	\$1,082,921
95	Structure Steel Erection Total	154,703.00	GSF	\$7.00	\$1,082,921
97	07 J - Applied Fireproofing				
98	Applied Fireproofing	154,703.00	SF	\$1.50	\$232,055
99	Applied Fireproofing Total	154,703.00	GSF	\$1.50	\$232,055
101	07 L - Expansion Control				
102	Expansion Control - walls	905.00	LF	\$45.00	\$40,725
103	Expansion Control Total	154,703.00	GSF	\$0.26	\$40,725
105	BUILDING STRUCTURE Total	154,703.00	GSF	\$43.67	\$6,755,527
106	05 EE - EXTERIOR ENCLOSURE				
107	04 B - Exterior Stone				
108	Stone Claddings SC-1 - 30' North & South Entry only	8,920.00	SF	\$47.00	\$419,240
109	Stucco (change back to stone per 05/11 convo)	30,068.00	SF	\$47.00	\$1,413,196
110	Exterior Stone Total	154,703.00	GSF	\$11.84	\$1,832,436
112	05 C - Cold Formed Metal Framing				
113	CFMF 8" @ 30' exterior walls	15,852.00	SF	\$17.00	\$269,484
114	CFMF 8" @ 15' above CW	7,076.00	SF	\$17.00	\$120,292
115	CFMF 8" @ 20' exterior walls	11,294.00	SF	\$8.00	\$90,352
116	CFMF 8" @ stucco backup framing	49,777.00	SF	\$4.00	\$199,108
117	Cold Formed Metal Framing Total	154,703.00	GSF	\$4.39	\$679,236
119	07 A - Waterproofing				
120	Fluid-Applied Waterproofing - Stucco	49,777.00	SF	\$4.00	\$199,108
121	Fluid-Applied Waterproofing - metal panels at Entry	2,493.00	SF	\$4.00	\$9,972
122	Waterproofing Total	154,703.00	GSF	\$1.35	\$209,080
124	07 A1 - Traffic Coatings				
125	Traffic Coatings - Loading Dock	9,211.00	SF	\$4.00	\$36,844
126	Traffic Coatings Total	154,703.00	GSF	\$0.24	\$36,844
128	07 B - Insulation				
129	Thermal Insulation - Rigid behind Stucco	49,777.00	SF	\$2.25	\$111,998
130	Thermal Insulation - Rigid behind metal panels at Entry	2,493.00	SF	\$2.25	\$5,609
131	Insulation Total	154,703.00	GSF	\$0.76	\$117,608

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
133	07 F - Metal Panel/Roof				
134	Wall Panels - MWP-1 @ Entry	1,543.00	SF	\$70.00	\$108,010
135	Metal Panel/Roof Total	154,703.00	GSF	\$0.70	\$108,010
137	08 A - Door/Frame/Hardware Package				
138	Metal Door Frames	9.00	EA	\$800.00	\$7,200
139	Metal Doors	18.00	EA	\$350.00	\$6,300
140	Door Hardware	18.00	EA	\$500.00	\$9,000
141	Door/Frame/Hardware Package Total	154,703.00	GSF	\$0.15	\$22,500
143	08 E - Traffic Doors/Overhead/Folding/Coiling				
144	Overhead Doors	1.00	EA	\$20,000.00	\$20,000
145	Traffic Doors/Overhead/Folding/Coiling Total	154,703.00	GSF	\$0.13	\$20,000
147	08 F - Entrances/Storefront/Curtainwall				
148	Exterior Aluminum Door	24.00	EA	\$3,000.00	\$72,000
149	Curtain Wall Package - CW1 @ 20'	15,104.00	SF	\$105.00	\$1,585,920
150	Entrances/Storefront/Curtainwall Total	154,703.00	GSF	\$10.72	\$1,657,920
152	08 G - Automatic Entrances				
153	Automatic Door Operators	3.00	EA	\$1,500.00	\$4,500
154	Automatic Entrances Total	154,703.00	GSF	\$0.03	\$4,500
156	EXTERIOR ENCLOSURE Total	154,703.00	GSF	\$30.30	\$4,688,134
157	06 R - ROOF				
158	07 H - Roofing				
159	Roofing Package	146,739.00	SF	\$13.00	\$1,907,607
160	Flashing and Sheet Metal	5,009.00	LF	\$8.00	\$40,072
161	Roofing Total	154,703.00	GSF	\$12.59	\$1,947,679
163	07 L - Expansion Control				
164	Expansion Control - roof line	435.00	LF	\$40.00	\$17,400
165	Expansion Control Total	154,703.00	GSF	\$0.11	\$17,400
167	ROOF Total	154,703.00	GSF	\$12.70	\$1,965,079
168	07 IC - INTERIOR CONSTRUCTION				
169	03 H - Toppings & Underlayment				
170	Sealed/Hardened Concrete - SC1 (exhibit hall, storage x2, mech mezz)	48,737.00	SF	\$3.00	\$146,211
171	Sealed/Stained Concrete - SC2 pre-function	37,622.00	SF	\$6.00	\$225,732
172	Sealed/Stained Concrete - SC2 pre-function ve13.1	-37,622.00	SF	\$6.00	(\$225,732)
173	Toppings & Underlayment Total	154,703.00	GSF	\$0.95	\$146,211
175	04 A - Masonry				

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
176	CMU Partitions 8" - 15'	5,894.00	SF	\$20.00	\$117,880
177	CMU Partitions 8" - 20'	16,317.00	SF	\$20.00	\$326,340
178	Masonry Total	154,703.00	GSF	\$2.87	\$444,220
180	06 A - Carpentry Package				
181	Rough Carpentry Package	154,703.00	SF	\$2.50	\$386,758
182	Carpentry Package Total	154,703.00	GSF	\$2.50	\$386,758
184	06 B - Wood Framing				
185	Rough Carpentry Package - Loose Lumber	154,703.00	SF	\$0.50	\$77,352
186	Wood Framing Total	154,703.00	GSF	\$0.50	\$77,352
188	06 C - Finish Carpentry				
189	Finish Carpentry	154,703.00	SF	\$6.00	\$928,218
190	Finish Carpentry Total	154,703.00	GSF	\$6.00	\$928,218
192	06 D - Architectural Millwork				
193	Architectural Wood Casework	154,703.00	SF	\$1.75	\$270,730
194	Architectural Millwork Total	154,703.00	GSF	\$1.75	\$270,730
196	07 K - Joint Sealant				
197	Joint Sealants	154,703.00	SF	\$0.25	\$38,676
198	Joint Sealant Total	154,703.00	GSF	\$0.25	\$38,676
200	08 A - Door/Frame/Hardware Package				
201	Metal Doors and Frames	51.00	EA	\$800.00	\$40,800
202	Wood Doors	102.00	EA	\$650.00	\$66,300
203	Door Hardware	102.00	EA	\$500.00	\$51,000
204	Door/Frame/Hardware Package Total	154,703.00	GSF	\$1.02	\$158,100
206	08 E - Traffic Doors/Overhead/Folding/Coiling				
207	Overhead Doors - Large 26' x 30'	2.00	EA	\$87,000.00	\$174,000
208	Overhead Doors	3.00	EA	\$15,000.00	\$45,000
209	Traffic Doors/Overhead/Folding/Coiling Total	154,703.00	GSF	\$1.42	\$219,000
211	08 F - Entrances/Storefront/Curtainwall				
212	Interior Aluminum Doors	16.00	DL	\$3,000.00	\$48,000
213	Entrances/Storefront/Curtainwall Total	154,703.00	GSF	\$0.31	\$48,000
215	08 G - Automatic Entrances				
216	Automatic Door Operators	3.00	EA	\$1,500.00	\$4,500
217	Automatic Entrances Total	154,703.00	GSF	\$0.03	\$4,500
219	09 A - Drywall				

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
220	Gyp Wall Partitions	154,703.00	SF	\$10.00	\$1,547,030
221	Drywall Total	154,703.00	GSF	\$10.00	\$1,547,030
223	09 B - Tile				
224	Porcelain Tile - bathrooms	3,805.00	SF	\$18.00	\$68,490
225	Porcelain Wall Tile - bathrooms	2,360.00	SF	\$18.00	\$42,480
226	Quarry Tile - Kitchens	14,563.00	SF	\$20.00	\$291,260
227	Quarry Base - Kitchens	515.00	LF	\$15.00	\$7,725
228	Tile Total	154,703.00	GSF	\$2.65	\$409,955
230	09 C - Ceiling & Acoustical Treatment				
231	ACT-02 plain 2x2	10,263.00	SF	\$3.50	\$35,921
232	Wood Radius Ballroom Ceiling	33,555.00	SF	\$32.00	\$1,073,760
233	Ceiling & Acoustical Treatment Total	154,703.00	GSF	\$7.17	\$1,109,681
235	09 D - Flooring				
236	Walk-off Mats - vestibules	1,250.00	SF	\$24.00	\$30,000
237	VCT	7,782.00	SF	\$6.00	\$46,692
238	Carpeting - Hospitality Grade (Ballroom/Meeting Rooms)	3,616.00	SY	\$85.00	\$307,360
239	Carpeting - Hospitality Grade (all pre-function spaces) VE 13.1	6,371.00	SY	\$85.00	\$541,535
240	Flooring Total	154,703.00	GSF	\$5.98	\$925,587
242	09 K - Painting & Wall Covering				
243	Wall Coverings - ALLOWANCE \$20	20,000.00	SF	-	-
244	Painting & Wall Coverings	154,703.00	SF	\$3.00	\$464,109
245	Painting & Wall Covering Total	154,703.00	GSF	\$3.00	\$464,109
247	10 B - Signage				
248	Specialty Signage/Way Finding (incl \$50K normal signage)	1.00	LS	\$500,000.00	\$500,000
249	Signage Total	154,703.00	GSF	\$3.23	\$500,000
251	10 D - Specialty Partitions				
252	HDPE Toilet Partitions	53.00	Stal	\$1,000.00	\$53,000
253	Urinal Screen	22.00	EA	\$350.00	\$7,700
254	Specialty Partitions Total	154,703.00	GSF	\$0.39	\$60,700
256	10 E - Accordion & Folding Partitions				
257	Operable Partitions	39,084.00	SF	\$40.77	\$1,593,394
258	Accordion & Folding Partitions Total	154,703.00	GSF	\$10.30	\$1,593,394
260	10 G - Toilet/Bath/Laundry Accessories				
261	Toilet Paper Dispenser	53.00	EA	\$75.00	\$3,975
262	Soap Dispenser	29.00	EA	\$50.00	\$1,450

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
263	Paper Towel Dispenser	20.00	EA	\$100.00	\$2,000
264	Sanitary Napkin Dispenser	12.00	EA	\$350.00	\$4,200
265	Sanitary Napkin Disposal	41.00	EA	\$75.00	\$3,075
266	Toilet Seat Cover Dispenser	53.00	EA	\$125.00	\$6,625
267	Robe Hook	53.00	EA	\$25.00	\$1,325
268	Grab Bar 24"	6.00	EA	\$100.00	\$600
269	Grab Bar 36"	6.00	EA	\$125.00	\$750
270	Grab Bar 48"	6.00	EA	\$125.00	\$750
271	Mirror-24x36	29.00	EA	\$175.00	\$5,075
272	Mop/Broom Rack	4.00	EA	\$50.00	\$200
273	Shelf	4.00	EA	\$50.00	\$200
274	Baby Change Station	6.00	EA	\$500.00	\$3,000
275	Toilet/Bath/Laundry Accessories Total	154,703.00	GSF	\$0.21	\$33,225
277	10 I - Safety & Fire Protection				
278	Fire Protection Specialties	14.00	EA	\$500.00	\$7,000
279	Safety & Fire Protection Total	154,703.00	GSF	\$0.05	\$7,000
281	10 J - Locker				
282	Lockers	50.00	EA	\$500.00	\$25,000
283	Locker Total	154,703.00	GSF	\$0.16	\$25,000
285	INTERIOR CONSTRUCTION Total	154,703.00	GSF	\$60.75	\$9,397,445
286	08 EF - EQUIPMENT FURNITURE				
287	11 B - Loading Dock				
288	Loading Dock Equipment	4.00	EA	\$35,000.00	\$140,000
289	Loading Dock Total	154,703.00	GSF	\$0.90	\$140,000
291	11 F - Food Service				
292	Food Service Equipment - Main Kitchen	1.00	EA	\$1,295,795.00	\$1,295,795
293	Food Service Total	154,703.00	GSF	\$8.38	\$1,295,795
295	EQUIPMENT FURNITURE Total	154,703.00	GSF	\$9.28	\$1,435,795
296	09 SC - SPECIAL CONSTRUCTION				
297	11 N - Maintenance Equipment/Window Washing				
298	Maintenance Equipment/Window Washing - ROOF ANCHORS	1.00	EA	\$125,000.00	\$125,000
299	Maintenance Equipment/Window Washing Total	154,703.00	GSF	\$0.81	\$125,000
301	SPECIAL CONSTRUCTION Total	154,703.00	GSF	\$0.81	\$125,000
302	11 FP - FIRE PROTECTION				
303	21 A - Fire Protection				
304	Fire Protection Package (no fire pump needed)	154,703.00	GSF	\$3.75	\$580,136

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
305	Fire Protection Package - Exhibit Hall double layer	32,607.00	GSF	\$2.00	\$65,214
306	Fire Protection Total	154,703.00	GSF	\$4.17	\$645,350
308	FIRE PROTECTION Total	154,703.00	GSF	\$4.17	\$645,350
309	12 P - PLUMBING				
310	22 A - Plumbing				
311	Plumbing Package - Fixtures	154,703.00	GSF	\$9.00	\$1,392,327
312	Plumbing Total	154,703.00	GSF	\$9.00	\$1,392,327
314	PLUMBING Total	154,703.00	GSF	\$9.00	\$1,392,327
315	13 M - HVAC				
316	23 A - HVAC				
317	HVAC Package - Distribution	154,703.00	GSF	\$34.00	\$5,259,902
318	HVAC Total	154,703.00	GSF	\$34.00	\$5,259,902
320	HVAC Total	154,703.00	GSF	\$34.00	\$5,259,902
321	15 E - ELECTRICAL				
322	26 A - Electrical				
323	Electrical Package	154,703.00	GSF	\$35.00	\$5,414,605
324	Electrical Total	154,703.00	GSF	\$35.00	\$5,414,605
326	ELECTRICAL Total	154,703.00	GSF	\$35.00	\$5,414,605
327	01 South Exhibition Center Addition Total	154,703.00	GSF	\$279.63	\$43,260,147
329	02 Cold Storage Shed				
330	02 SW - SITEWORK/BUILDING EARTHWORK				
331	31 A - Site Clearing & Earthwork				
332	Footing/Foundation Excavation	533.00	CY	\$28.00	\$14,924
333	Site Clearing & Earthwork Total	3,748.00	GSF	\$3.98	\$14,924
335	SITEWORK/BUILDING EARTHWORK Total	3,748.00	GSF	\$3.98	\$14,924
336	03 FS - FOUNDATION / SOG				
337	03 A - Concrete				
338	SOG 5"	3,748.00	SF	\$6.00	\$22,488
339	Drilled 16" Sonotube Foundations	11.00	CY	\$475.00	\$5,225
340	Concrete Total	3,748.00	GSF	\$7.39	\$27,713
342	FOUNDATION / SOG Total	3,748.00	GSF	\$7.39	\$27,713
343	05 EE - EXTERIOR ENCLOSURE				
344	08 A - Door/Frame/Hardware Package				
345	Metal Doors and Frames	2.00	EA	\$800.00	\$1,600
346	Door Hardware	2.00	EA	\$350.00	\$700
347	Door/Frame/Hardware Package Total	3,748.00	GSF	\$0.61	\$2,300

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
349	08 E - Traffic Doors/Overhead/Folding/Coiling				
350	Overhead Doors - Large	2.00	EA	\$10,000.00	\$20,000
351	Traffic Doors/Overhead/Folding/Coiling Total	3,748.00	GSF	\$5.34	\$20,000
353	EXTERIOR ENCLOSURE Total	3,748.00	GSF	\$5.95	\$22,300
354	07 IC - INTERIOR CONSTRUCTION				
355	06 A - Carpentry Package				
356	Carpentry Package	3,487.00	SF	\$2.50	\$8,718
357	Carpentry Package Total	3,748.00	GSF	\$2.33	\$8,718
359	INTERIOR CONSTRUCTION Total	3,748.00	GSF	\$2.33	\$8,718
360	09 SC - SPECIAL CONSTRUCTION				
361	13 E1 - Structures/Frames/Fabric				
362	Fabricated Engineered Structures	3,487.00	SF	\$25.00	\$87,175
363	Structures/Frames/Fabric Total	3,748.00	GSF	\$23.26	\$87,175
365	SPECIAL CONSTRUCTION Total	3,748.00	GSF	\$23.26	\$87,175
366	15 E - ELECTRICAL				
367	26 A - Electrical				
368	Electrical Package	3,487.00	GSF	\$5.00	\$17,435
369	Electrical Total	3,748.00	GSF	\$4.65	\$17,435
371	ELECTRICAL Total	3,748.00	GSF	\$4.65	\$17,435
372	02 Cold Storage Shed Total	3,748.00	GSF	\$47.56	\$178,265
374	03 Hotel Connector				
375	01 EC - EXISTING CONDITIONS				
376	02 A - Demolition				
377	DEMO - Hotel Connector	3,791.00	SF	\$8.00	\$30,328
378	Demolition Total	1,410.00	GSF	\$21.51	\$30,328
380	EXISTING CONDITIONS Total	1,410.00	GSF	\$21.51	\$30,328
381	02 SW - SITEWORK/BUILDING EARTHWORK				
382	31 A - Site Clearing & Earthwork				
383	Footing/Foundation Excavation	261.00	CY	\$28.00	\$7,308
384	Site Clearing & Earthwork Total	1,410.00	GSF	\$5.18	\$7,308
386	SITWORK/BUILDING EARTHWORK Total	1,410.00	GSF	\$5.18	\$7,308
387	03 FS - FOUNDATION / SOG				
388	03 A - Concrete				
389	SOG 5"	1,410.00	SF	\$6.00	\$8,460
390	Foundation Walls - 8" x 48" 272LF	27.00	CY	\$650.00	\$17,550
391	Wall Footings 2' x 12" 272LF	20.00	CY	\$450.00	\$9,000

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
392	Concrete Total	1,410.00	GSF	\$24.83	\$35,010
394	07 B - Insulation				
395	Thermal Insulation - Rigid Foundation Walls	980.00	SF	\$2.25	\$2,205
396	Insulation Total	1,410.00	GSF	\$1.56	\$2,205
398	FOUNDATION / SOG Total	1,410.00	GSF	\$26.39	\$37,215
399	04 BS - BUILDING STRUCTURE				
400	05 A - Structural Steel Material				
401	Steel Package - Material	1,410.00	SF	\$28.15	\$39,692
402	Metal Roof Deck - Material - 1-1/2"	1,410.00	SF	\$3.00	\$4,230
403	Structural Steel Material Total	1,410.00	GSF	\$31.15	\$43,922
405	05 B - Structure Steel Erection				
406	Steel Package - Erection	1,410.00	SF	\$7.00	\$9,870
407	Structure Steel Erection Total	1,410.00	GSF	\$7.00	\$9,870
409	BUILDING STRUCTURE Total	1,410.00	GSF	\$38.15	\$53,792
410	05 EE - EXTERIOR ENCLOSURE				
411	05 C - Cold Formed Metal Framing				
412	CFMF 6" @ exterior walls	1,736.00	SF	\$10.00	\$17,360
413	Cold Formed Metal Framing Total	1,410.00	GSF	\$12.31	\$17,360
415	07 A - Waterproofing				
416	Fluid-Applied Waterproofing - metal panels 1' roof band	272.00	SF	\$4.00	\$1,088
417	Fluid-Applied Waterproofing - metal panels	1,736.00	SF	\$4.00	\$6,944
418	Waterproofing Total	1,410.00	GSF	\$5.70	\$8,032
420	07 B - Insulation				
421	Thermal Insulation - Rigid behind metal panels 1' roof band	272.00	SF	\$2.25	\$612
422	Thermal Insulation - Rigid behind metal panels	1,736.00	SF	\$2.25	\$3,906
423	Insulation Total	1,410.00	GSF	\$3.20	\$4,518
425	07 F - Metal Panel/Roof				
426	Wall Panels - MWP-1 @ 1' roof band	272.00	SF	\$45.00	\$12,240
427	Wall Panels - MWP-1 @ 2'	1,736.00	SF	\$45.00	\$78,120
428	Metal Panel/Roof Total	1,410.00	GSF	\$64.09	\$90,360
430	08 F - Entrances/Storefront/Curtainwall				
431	Exterior Aluminum Door	4.00	EA	\$1,500.00	\$6,000
432	Curtain Wall Package - SF-1 @ 12'	1,736.00	SF	\$65.00	\$112,840
433	Entrances/Storefront/Curtainwall Total	1,410.00	GSF	\$84.28	\$118,840

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
435	EXTERIOR ENCLOSURE Total	1,410.00	GSF	\$169.58	\$239,110
436	06 R - ROOF				
437	07 H - Roofing				
438	Roofing Package	1,410.00	SF	\$13.00	\$18,330
439	Flashing and Sheet Metal	272.00	LF	\$8.00	\$2,176
440	Roofing Total	1,410.00	GSF	\$14.54	\$20,506
442	ROOF Total	1,410.00	GSF	\$14.54	\$20,506
443	07 IC - INTERIOR CONSTRUCTION				
444	03 H - Toppings & Underlayment				
445	Sealed/Stained Concrete - SC2 pre-function	1,410.00	SF	\$6.00	\$8,460
446	Toppings & Underlayment Total	1,410.00	GSF	\$6.00	\$8,460
448	06 A - Carpentry Package				
449	Carpentry Package	1,410.00	SF	\$2.50	\$3,525
450	Carpentry Package Total	1,410.00	GSF	\$2.50	\$3,525
452	06 B - Wood Framing				
453	Carpentry Package - loose Lumber	1,410.00	SF	\$0.20	\$282
454	Rough Carpentry Package - Loose Lumber	1,410.00	SF	\$0.50	\$705
455	Wood Framing Total	1,410.00	GSF	\$0.70	\$987
457	07 K - Joint Sealant				
458	Joint Sealants	1,410.00	SF	\$0.25	\$353
459	Joint Sealant Total	1,410.00	GSF	\$0.25	\$353
461	08 F - Entrances/Storefront/Curtainwall				
462	Interior Aluminum Doors	4.00	EA	\$3,000.00	\$12,000
463	Entrances/Storefront/Curtainwall Total	1,410.00	GSF	\$8.51	\$12,000
465	09 A - Drywall				
466	Gyp Partitions	1,593.00	SF	\$10.00	\$15,930
467	Drywall Total	1,410.00	GSF	\$11.30	\$15,930
469	09 K - Painting & Wall Covering				
470	Painting & Wall Coverings	1,593.00	SF	\$3.00	\$4,779
471	Painting & Wall Covering Total	1,410.00	GSF	\$3.39	\$4,779
473	INTERIOR CONSTRUCTION Total	1,410.00	GSF	\$32.65	\$46,034
474	11 FP - FIRE PROTECTION				
475	21 A - Fire Protection				
476	Fire Protection Package	1,410.00	GSF	\$2.00	\$2,820
477	Fire Protection Total	1,410.00	GSF	\$2.00	\$2,820

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
479	FIRE PROTECTION Total	1,410.00	GSF	\$2.00	\$2,820
480	13 M - HVAC				
481	23 A - HVAC				
482	HVAC Package - Distribution	1,410.00	GSF	\$16.00	\$22,560
483	HVAC Total	1,410.00	GSF	\$16.00	\$22,560
485	HVAC Total	1,410.00	GSF	\$16.00	\$22,560
486	15 E - ELECTRICAL				
487	26 A - Electrical				
488	Electrical Package	1,410.00	GSF	\$18.00	\$25,380
489	Electrical Total	1,410.00	GSF	\$18.00	\$25,380
491	ELECTRICAL Total	1,410.00	GSF	\$18.00	\$25,380
492	03 Hotel Connector Total	1,410.00	GSF	\$344.01	\$485,052
494	04 Hall F Expansion First Floor				
495	01 EC - EXISTING CONDITIONS				
496	02 A - Demolition				
497	DEMO - Existing Exhibition Hall F	50,371.00	SF	\$6.00	\$302,226
498	Demolition Total	55,676.00	GSF	\$5.43	\$302,226
500	EXISTING CONDITIONS Total	55,676.00	GSF	\$5.43	\$302,226
501	02 SW - SITEWORK/BUILDING EARTHWORK				
502	31 A - Site Clearing & Earthwork				
503	Footing/Foundation Excavation	10,310.00	CY	\$28.00	\$288,680
504	Site Clearing & Earthwork Total	55,676.00	GSF	\$5.18	\$288,680
506	32 F - Landscape & Irrigation				
507	Landscaping Package - Plantings/Grass	17,634.00	SF	\$3.00	\$52,902
508	Landscape & Irrigation Total	55,676.00	GSF	\$0.95	\$52,902
510	32 G - Site Improvement Package				
511	Site Furnishings	55,676.00	SF	\$0.10	\$5,677
512	Site Improvement Package Total	55,676.00	GSF	\$0.10	\$5,677
514	33 A - Site Utilities Package				
515	Site Utility Package - Water	55,676.00	SF	\$0.79	\$43,904
516	Site Utility Package - Sanitary	54,657.00	SF	\$0.47	\$25,860
517	Site Utility Package - Storm	54,657.00	SF	\$0.32	\$17,240
518	Site Utilities Package Total	55,676.00	GSF	\$1.56	\$87,005
520	33 A1 - Site Electrical/Communications Site Improvements				

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
521	Electrical/Communicatoinis Site Improvements - FIBER	1.00	LS	\$150,000.00	\$150,000
522	Site Electrical/Communications Site Improvements Total	55,676.00	GSF	\$2.69	\$150,000
524	SITWORK/BUILDING EARTHWORK Total	55,676.00	GSF	\$10.49	\$584,264
525	03 FS - FOUNDATION / SOG				
526	03 A - Concrete				
527	SOG 7"	55,676.00	SF	\$7.50	\$417,570
528	Wall Footings 2' x 12" 186LF	14.00	CY	\$450.00	\$6,300
529	Column Footings - 16' x 16' x 48" 12EA	455.00	CY	\$650.00	\$295,750
530	Foundation Walls - 12" x 48" 490LF	73.00	CY	\$575.00	\$41,975
531	Piers - 48" x 48" x 48" 12EA	28.00	CY	\$3,500.00	\$98,000
532	Column Footings - 4' x 4' x 12" 33EA	20.00	CY	\$650.00	\$13,000
533	Piers - 16" x 16" x 48" 33EA	9.00	CY	\$2,500.00	\$22,500
534	Elevator Pit Slab 12" (12' x 12' x 1')	120.00	SF	\$9.75	\$1,170
535	Elevator Pit walls 8" x 48" - 44LF	4.00	CY	\$575.00	\$2,300
536	Wall Footings 3' x 18" 1470LF	82.00	CY	\$450.00	\$36,900
537	Concrete Total	55,676.00	GSF	\$16.80	\$935,465
539	07 A - Waterproofing				
540	Waterproofing Foundations	2,450.00	SF	-	-
541	Waterproofing Foundations (elevator pit walls)	160.00	SF	\$20.00	\$3,200
542	Waterproofing Total	55,676.00	GSF	\$0.06	\$3,200
544	07 B - Insulation				
545	Thermal Insulation - Rigid Foundation Walls	2,450.00	SF	\$2.25	\$5,513
546	Insulation Total	55,676.00	GSF	\$0.10	\$5,513
548	FOUNDATION / SOG Total	55,676.00	GSF	\$16.96	\$944,178
549	04 BS - BUILDING STRUCTURE				
550	04 A - Masonry				
551	CMU Partitions 12" - 20'	5,801.00	SF	\$24.00	\$139,224
552	CMU Partitions 12" - 40' (fire separator)	7,386.00	SF	\$24.00	\$177,264
553	Masonry Total	55,676.00	GSF	\$5.68	\$316,488
555	05 A - Structural Steel Material				
556	Steel Package - Material	55,676.00	SF	\$28.15	\$1,567,279
557	Metal Roof Deck - Material - 1-1/2"	55,676.00	SF	\$3.00	\$167,028
558	Structural Steel Material Total	55,676.00	GSF	\$31.15	\$1,734,307
560	05 B - Structure Steel Erection				
561	Steel Package - Erection	55,676.00	SF	\$7.00	\$389,732
562	Structure Steel Erection Total	55,676.00	GSF	\$7.00	\$389,732

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
564	07 J - Applied Fireproofing				
565	Applied Fireproofing	55,676.00	SF	\$1.50	\$83,514
566	Applied Fireproofing Total	55,676.00	GSF	\$1.50	\$83,514
568	07 L - Expansion Control				
569	Expansion Control - walls	480.00	LF	\$45.00	\$21,600
570	Expansion Control Total	55,676.00	GSF	\$0.39	\$21,600
572	BUILDING STRUCTURE Total	55,676.00	GSF	\$45.72	\$2,545,641
573	05 EE - EXTERIOR ENCLOSURE				
574	04 B - Exterior Stone				
575	Stucco (change back to stone per 05/11 convo)	6,435.00	SF	\$47.00	\$302,445
576	Exterior Stone Total	55,676.00	GSF	\$5.43	\$302,445
578	05 C - Cold Formed Metal Framing				
579	CFMF 8" @ exterior walls	1,479.00	SF	\$17.00	\$25,143
580	CFMF 8" @ 10' roof drop at exhibit	5,575.00	SF	\$17.00	\$94,775
581	Cold Formed Metal Framing Total	55,676.00	GSF	\$2.15	\$119,918
583	07 A - Waterproofing				
584	Fluid-Applied Waterproofing - Stucco	6,435.00	SF	\$4.00	\$25,740
585	Fluid-Applied Waterproofing - metal panels roof drop	640.00	SF	\$4.00	\$2,560
586	Waterproofing Total	55,676.00	GSF	\$0.51	\$28,300
588	07 B - Insulation				
589	Thermal Insulation - Rigid behind Stucco	6,435.00	SF	\$2.25	\$14,479
590	Thermal Insulation - Rigid behind metal panels roof drop	640.00	SF	\$2.25	\$1,440
591	Insulation Total	55,676.00	GSF	\$0.29	\$15,919
593	07 F - Metal Panel/Roof				
594	Wall Panels - MWP-1 @ 10' Roof drop at exhibit	640.00	SF	\$70.00	\$44,800
595	Metal Panel/Roof Total	55,676.00	GSF	\$0.80	\$44,800
597	08 A - Door/Frame/Hardware Package				
598	Metal Door Frames	8.00	EA	\$800.00	\$6,400
599	Metal Doors	16.00	EA	\$800.00	\$12,800
600	Door Hardware	8.00	EA	\$350.00	\$2,800
601	Door/Frame/Hardware Package Total	55,676.00	GSF	\$0.40	\$22,000
603	08 E - Traffic Doors/Overhead/Folding/Coiling				
604	Overhead Doors	1.00	EA	\$20,000.00	\$20,000
605	Traffic Doors/Overhead/Folding/Coiling Total	55,676.00	GSF	\$0.36	\$20,000
607	08 F - Entrances/Storefront/Curtainwall				

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
608	Exterior Aluminum Door	4.00	DL	\$3,000.00	\$12,000
609	Curtain Wall Package - CW1 @ 20'	3,181.00	SF	\$105.00	\$334,005
610	Entrances/Storefront/Curtainwall Total	55,676.00	GSF	\$6.21	\$346,005
612	08 G - Automatic Entrances				
613	Automatic Door Operators	1.00	EA	\$1,500.00	\$1,500
614	Automatic Entrances Total	55,676.00	GSF	\$0.03	\$1,500
616	EXTERIOR ENCLOSURE Total	55,676.00	GSF	\$16.18	\$900,887
617	06 R - ROOF				
618	07 H - Roofing				
619	Roofing Package	55,676.00	SF	\$13.00	\$723,788
620	Flashing and Sheet Metal	1,343.00	LF	\$8.00	\$10,744
621	Roofing Total	55,676.00	GSF	\$13.19	\$734,532
623	07 L - Expansion Control				
624	Expansion Control - roof line	360.00	LF	\$40.00	\$14,400
625	Expansion Control Total	55,676.00	GSF	\$0.26	\$14,400
627	ROOF Total	55,676.00	GSF	\$13.45	\$748,932
628	07 IC - INTERIOR CONSTRUCTION				
629	03 H - Toppings & Underlayment				
630	Sealed/Hardened Concrete - SC1 exhibit hall	28,205.00	SF	\$3.00	\$84,615
631	Sealed/Stained Concrete - SC2 pre-function	11,799.00	SF	\$6.00	\$70,794
632	Sealed/Stained Concrete - SC2 pre-function VE13.1	-11,799.00	SF	\$6.00	(\$70,794)
633	Toppings & Underlayment Total	55,676.00	GSF	\$1.52	\$84,615
635	04 A - Masonry				
636	CMU Partitions 8" - 15'	2,224.00	SF	\$20.00	\$44,480
637	Masonry Total	55,676.00	GSF	\$0.80	\$44,480
639	06 A - Carpentry Package				
640	Carpentry Package	55,676.00	SF	\$2.50	\$139,190
641	Carpentry Package Total	55,676.00	GSF	\$2.50	\$139,190
643	06 B - Wood Framing				
644	Carpentry Package - loose Lumber	55,676.00	SF	\$0.20	\$11,135
645	Wood Framing Total	55,676.00	GSF	\$0.20	\$11,135
647	06 C - Finish Carpentry				
648	Finish Carpentry	55,676.00	SF	\$6.00	\$334,056
649	Finish Carpentry Total	55,676.00	GSF	\$6.00	\$334,056
651	06 D - Architectural Millwork				

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
652	Architectural Wood Casework	55,676.00	SF	\$1.75	\$97,433
653	Architectural Millwork Total	55,676.00	GSF	\$1.75	\$97,433
655	07 K - Joint Sealant				
656	Joint Sealants	55,676.00	SF	\$0.25	\$13,919
657	Joint Sealant Total	55,676.00	GSF	\$0.25	\$13,919
659	08 A - Door/Frame/Hardware Package				
660	Metal Doors and Frames	31.00	EA	\$800.00	\$24,800
661	Wood Doors	62.00	EA	\$1,000.00	\$62,000
662	Door Hardware	62.00	EA	\$350.00	\$21,700
663	Door/Frame/Hardware Package Total	55,676.00	GSF	\$1.95	\$108,500
665	08 F - Entrances/Storefront/Curtainwall				
666	Interior Aluminum Doors	4.00	EA	\$1,500.00	\$6,000
667	Entrances/Storefront/Curtainwall Total	55,676.00	GSF	\$0.11	\$6,000
669	08 G - Automatic Entrances				
670	Automatic Door Operators	1.00	EA	\$1,500.00	\$1,500
671	Automatic Entrances Total	55,676.00	GSF	\$0.03	\$1,500
673	09 A - Drywall				
674	Gyp Wall Partitions	55,676.00	SF	\$10.00	\$556,760
675	Drywall Total	55,676.00	GSF	\$10.00	\$556,760
677	09 C - Ceiling & Acoustical Treatment				
678	ACT-02 plain 2x2	6,789.00	SF	\$3.50	\$23,762
679	Wood Radius Ballroom Ceiling	2,774.00	SF	\$32.00	\$88,768
680	Wood Radius Ballroom Ceiling	-2,774.00	SF	\$32.00	(\$88,768)
681	Ceiling & Acoustical Treatment Total	55,676.00	GSF	\$0.43	\$23,762
683	09 D - Flooring				
684	Walk-off Mats	525.00	SF	\$24.00	\$12,600
685	VCT	5,672.00	SF	\$6.00	\$34,032
686	Carpeting - Hospitality Grade (Ballroom/Meeting Rooms)	1,094.00	SY	\$85.00	\$92,990
687	Flooring Total	55,676.00	GSF	\$2.51	\$139,622
689	09 K - Painting & Wall Covering				
690	Painting & Wall Coverings	55,676.00	SF	\$3.00	\$167,028
691	Painting & Wall Covering Total	55,676.00	GSF	\$3.00	\$167,028
693	10 D - Specialty Partitions				
694	HDPE Toilet Partitions	17.00	Stal	\$1,000.00	\$17,000
695	Urinal Screen	2.00	EA	\$350.00	\$700

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
696	Specialty Partitions Total	55,676.00	GSF	\$0.32	\$17,700
698	10 E - Accordian & Folding Partitions				
699	Operable Partitions	5,255.00	SF	\$40.77	\$214,238
700	Accordian & Folding Partitions Total	55,676.00	GSF	\$3.85	\$214,238
702	10 G - Toilet/Bath/Laundry Accessories				
703	Toilet Paper Dispenser	17.00	EA	\$75.00	\$1,275
704	Soap Dispenser	7.00	EA	\$50.00	\$350
705	Paper Towel Dispenser	7.00	EA	\$100.00	\$700
706	Sanitary Napkin Dispenser	2.00	EA	\$350.00	\$700
707	Sanitary Napkin Disposal	15.00	EA	\$75.00	\$1,125
708	Toilet Seat Cover Dispenser	17.00	EA	\$125.00	\$2,125
709	Robe Hook	17.00	EA	\$25.00	\$425
710	Grab Bar 24"	3.00	EA	\$100.00	\$300
711	Grab Bar 36"	3.00	EA	\$125.00	\$375
712	Grab Bar 48"	3.00	EA	\$125.00	\$375
713	Mirror-24x36	7.00	EA	\$175.00	\$1,225
714	Mop/Broom Rack	1.00	EA	\$50.00	\$50
715	Shelf	1.00	EA	\$50.00	\$50
716	Baby Change Station	3.00	EA	\$500.00	\$1,500
717	Toilet/Bath/Laundry Accessories Total	55,676.00	GSF	\$0.19	\$10,575
719	10 I - Safety & Fire Protection				
720	Fire Protection Specialties	5.00	EA	\$500.00	\$2,500
721	Safety & Fire Protection Total	55,676.00	GSF	\$0.04	\$2,500
723	INTERIOR CONSTRUCTION Total	55,676.00	GSF	\$35.44	\$1,973,013
724	11 FP - FIRE PROTECTION				
725	21 A - Fire Protection				
726	Fire Protection Package	55,676.00	GSF	\$3.75	\$208,785
727	Fire Protection Total	55,676.00	GSF	\$3.75	\$208,785
729	FIRE PROTECTION Total	55,676.00	GSF	\$3.75	\$208,785
730	12 P - PLUMBING				
731	22 A - Plumbing				
732	Plumbing Package - Fixtures	55,676.00	GSF	\$9.00	\$501,084
733	Plumbing Total	55,676.00	GSF	\$9.00	\$501,084
735	PLUMBING Total	55,676.00	GSF	\$9.00	\$501,084
736	13 M - HVAC				
737	23 A - HVAC				
738	HVAC Package - Distribution	55,676.00	GSF	\$34.00	\$1,892,984
739	HVAC Total	55,676.00	GSF	\$34.00	\$1,892,984

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
741	HVAC Total	55,676.00	GSF	\$34.00	\$1,892,984
742	15 E - ELECTRICAL				
743	26 A - Electrical				
744	Electrical Package	55,676.00	GSF	\$35.00	\$1,948,660
745	Electrical Total	55,676.00	GSF	\$35.00	\$1,948,660
747	ELECTRICAL Total	55,676.00	GSF	\$35.00	\$1,948,660
748	04 Hall F Expansion First Floor Total	55,676.00	GSF	\$225.42	\$12,550,653
750	05 Hall F Mezzanine Second Floor				
751	03 FS - FOUNDATION / SOG				
752	03 A - Concrete				
753	Column Footings - 16' x 16' x 48"	114.00	CY	\$650.00	\$74,100
754	Piers - 48" x 48" x 48"	10.00	CY	\$3,500.00	\$35,000
755	Concrete Total	20,875.00	GSF	\$5.23	\$109,100
757	FOUNDATION / SOG Total	20,875.00	GSF	\$5.23	\$109,100
758	04 BS - BUILDING STRUCTURE				
759	03 A - Concrete				
760	Concrete Slab on Deck - 4-1/2" Meeting Mezzanine	20,875.00	SF	\$9.00	\$187,875
761	Concrete Total	20,875.00	GSF	\$9.00	\$187,875
763	05 A - Structural Steel Material				
764	Steel Package - Material meeting mezzanine	20,875.00	SF	\$28.15	\$587,631
765	Metal Floor Deck - Material - 1-1/2" meeting mezzanine	20,875.00	SF	\$3.00	\$62,625
766	Structural Steel Material Total	20,875.00	GSF	\$31.15	\$650,256
768	05 B - Structure Steel Erection				
769	Steel Package - Erection meeting mezzanine	20,875.00	SF	\$7.25	\$151,344
770	Structure Steel Erection Total	20,875.00	GSF	\$7.25	\$151,344
772	07 J - Applied Fireproofing				
773	Applied Fireproofing - meeting mezzanine	20,875.00	SF	\$1.50	\$31,313
774	Applied Fireproofing Total	20,875.00	GSF	\$1.50	\$31,313
776	BUILDING STRUCTURE Total	20,875.00	GSF	\$48.90	\$1,020,788
777	05 EE - EXTERIOR ENCLOSURE				
778	05 C - Cold Formed Metal Framing				
779	CFMF 12" @ 20' - meeting mezzanine	8,470.00	SF	\$17.00	\$143,990
780	CFMF 8" @ stucco backup framing	6,434.00	SF	\$4.00	\$25,736
781	Cold Formed Metal Framing Total	20,875.00	GSF	\$8.13	\$169,726
783	07 A - Waterproofing				

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
784	Fluid-Applied Waterproofing - metal panels	760.00	SF	\$4.00	\$3,040
785	Waterproofing Total	20,875.00	GSF	\$0.15	\$3,040
787	07 B - Insulation				
788	Thermal Insulation - Rigid behind metal panels roof drop	760.00	SF	\$2.25	\$1,710
789	Insulation Total	20,875.00	GSF	\$0.08	\$1,710
791	07 F - Metal Panel/Roof				
792	Wall Panels - MWP-1	760.00	SF	\$70.00	\$53,200
793	Metal Panel/Roof Total	20,875.00	GSF	\$2.55	\$53,200
795	08 F - Entrances/Storefront/Curtainwall				
796	Curtain Wall Package - CW1 @ 20'	2,185.00	SF	\$105.00	\$229,425
797	Entrances/Storefront/Curtainwall Total	20,875.00	GSF	\$10.99	\$229,425
799	EXTERIOR ENCLOSURE Total	20,875.00	GSF	\$21.90	\$457,101
800	07 IC - INTERIOR CONSTRUCTION				
801	03 H - Toppings & Underlayment				
802	Sealed/Stained Concrete - SC2 pre-function	7,914.00	SF	\$6.00	\$47,484
803	Sealed/Stained Concrete - SC2 pre-function VE13.1	-7,914.00	SF	\$6.00	(\$47,484)
804	Toppings & Underlayment Total	20,875.00	GSF	-	-
806	06 A - Carpentry Package				
807	Carpentry Package - meeting mezzanine	20,875.00	SF	\$2.50	\$52,188
808	Carpentry Package Total	20,875.00	GSF	\$2.50	\$52,188
810	06 B - Wood Framing				
811	Carpentry Package - Loose Lumber	20,875.00	SF	\$0.20	\$4,175
812	Wood Framing Total	20,875.00	GSF	\$0.20	\$4,175
814	06 C - Finish Carpentry				
815	Finish Carpentry - meeting mezzanine	20,875.00	SF	\$6.00	\$125,250
816	Finish Carpentry Total	20,875.00	GSF	\$6.00	\$125,250
818	06 D - Architectural Millwork				
819	Architectural Wood Casework - meeting mezzanine	20,875.00	SF	\$1.75	\$36,531
820	Architectural Millwork Total	20,875.00	GSF	\$1.75	\$36,531
822	07 K - Joint Sealant				
823	Joint Sealants	20,875.00	SF	\$0.25	\$5,219
824	Joint Sealant Total	20,875.00	GSF	\$0.25	\$5,219
826	08 A - Door/Frame/Hardware Package				
827	Metal Doors and Frames meeting mezzanine	13.00	EA	\$800.00	\$10,400

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
828	Wood Doors - meeting mezzanine	26.00	EA	\$1,000.00	\$26,000
829	Door Hardware - meeting mezzanine	26.00	EA	\$350.00	\$9,100
830	Door/Frame/Hardware Package Total	20,875.00	GSF	\$2.18	\$45,500
832	09 A - Drywall				
833	Gyp Wall Partitions - meeting mezzanine	20,875.00	SF	\$10.00	\$208,750
834	Drywall Total	20,875.00	GSF	\$10.00	\$208,750
836	09 C - Ceiling & Acoustical Treatment				
837	ACT-02 plain 2x2	6,789.00	SF	\$3.50	\$23,762
838	Wood Radius Ballroom Ceiling	2,774.00	SF	\$32.00	\$88,768
839	Ceiling & Acoustical Treatment Total	20,875.00	GSF	\$5.39	\$112,530
841	09 D - Flooring				
842	Carpeting - Hospitality Grade (Ballroom/Meeting Rooms)	1,094.00	SY	\$85.00	\$92,990
843	Flooring Total	20,875.00	GSF	\$4.45	\$92,990
845	09 K - Painting & Wall Covering				
846	Painting & Wall Coverings - meeting mezzanine	20,875.00	SF	\$3.00	\$62,625
847	Painting & Wall Covering Total	20,875.00	GSF	\$3.00	\$62,625
849	10 D - Specialty Partitions				
850	HDPE Toilet Partitions	18.00	Stal	\$1,000.00	\$18,000
851	Urinal Screen	3.00	EA	\$350.00	\$1,050
852	Specialty Partitions Total	20,875.00	GSF	\$0.91	\$19,050
854	10 E - Accordion & Folding Partitions				
855	Operable Partitions	3,810.00	SF	\$40.77	\$155,328
856	Accordion & Folding Partitions Total	20,875.00	GSF	\$7.44	\$155,328
858	10 G - Toilet/Bath/Laundry Accessories				
859	Toilet Paper Dispenser	18.00	EA	\$75.00	\$1,350
860	Soap Dispenser	7.00	EA	\$50.00	\$350
861	Paper Towel Dispenser	7.00	EA	\$100.00	\$700
862	Sanitary Napkin Dispenser	2.00	EA	\$350.00	\$700
863	Sanitary Napkin Disposal	15.00	EA	\$75.00	\$1,125
864	Toilet Seat Cover Dispenser	18.00	EA	\$125.00	\$2,250
865	Robe Hook	18.00	EA	\$25.00	\$450
866	Grab Bar 24"	3.00	EA	\$100.00	\$300
867	Grab Bar 36"	3.00	EA	\$125.00	\$375
868	Grab Bar 48"	3.00	EA	\$125.00	\$375
869	Mirror-24x36	7.00	EA	\$175.00	\$1,225
870	Mop/Broom Rack	1.00	EA	\$50.00	\$50
871	Shelf	1.00	EA	\$50.00	\$50
872	Baby Change Station	2.00	EA	\$500.00	\$1,000

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
873	Toilet/Bath/Laundry Accessories Total	20,875.00	GSF	\$0.49	\$10,300
875	10 I - Safety & Fire Protection				
876	Fire Protection Specialties	3.00	EA	\$500.00	\$1,500
877	Safety & Fire Protection Total	20,875.00	GSF	\$0.07	\$1,500
879	INTERIOR CONSTRUCTION Total	20,875.00	GSF	\$44.64	\$931,935
880	11 FP - FIRE PROTECTION				
881	21 A - Fire Protection				
882	Fire Protection Package	20,875.00	GSF	\$3.75	\$78,281
883	Fire Protection Total	20,875.00	GSF	\$3.75	\$78,281
885	FIRE PROTECTION Total	20,875.00	GSF	\$3.75	\$78,281
886	12 P - PLUMBING				
887	22 A - Plumbing				
888	Plumbing Package - Fixtures	20,875.00	GSF	\$9.00	\$187,875
889	Plumbing Total	20,875.00	GSF	\$9.00	\$187,875
891	PLUMBING Total	20,875.00	GSF	\$9.00	\$187,875
892	13 M - HVAC				
893	23 A - HVAC				
894	HVAC Package - Distribution	20,875.00	GSF	\$34.00	\$709,750
895	HVAC Total	20,875.00	GSF	\$34.00	\$709,750
897	HVAC Total	20,875.00	GSF	\$34.00	\$709,750
898	15 E - ELECTRICAL				
899	26 A - Electrical				
900	Electrical Package	20,875.00	GSF	\$35.00	\$730,625
901	Electrical Total	20,875.00	GSF	\$35.00	\$730,625
903	ELECTRICAL Total	20,875.00	GSF	\$35.00	\$730,625
904	05 Hall F Mezzanine Second Floor Total	20,875.00	GSF	\$202.42	\$4,225,455
906	FF&E				
907	32 DC - DEVELOPMENT & OWNER COST				
908	96 DC - Development & Owner Cost				
909	FF & E	1.00	LS	\$3,000,000.00	\$3,000,000
910	Development & Owner Cost Total	-	-	-	\$3,000,000
912	DEVELOPMENT & OWNER COST Total	-	-	-	\$3,000,000
913	FF&E Total	-	-	-	\$3,000,000

Row #	Item Description	QTY	UOM	Total Unit Price	Grand Total
915	SOFT COSTS				
916	28 ALLOW - ALLOWANCE				
917	92 ALLOW - Allowance				
918	SOFT COST ALLOWANCE	1.00	LS	\$6,500,000.00	\$6,500,000
919	Allowance Total	-		-	\$6,500,000
921	ALLOWANCE Total	-		-	\$6,500,000
922	SOFT COSTS Total	-		-	\$6,500,000
924	Grand Total	231,254.00	GSF	\$303.56	\$70,199,572

Rate	Item Description	Cost/GSF	Total
- %	Tax	-	-
- %	Estimate Mark Up	-	-
- lsum	LS Adjustment	-	-
-	Subtotal	303.56/GSF	70,199,572
6.00 %	General Conditions	20.09/GSF	4,646,418
-	Subtotal	323.65/GSF	74,845,989
0.25 %	Building Permit	0.84/GSF	193,601
-	Subtotal	324.49/GSF	75,039,590
- %	KA Performance/Payment Bond	-	-
-	Subtotal	324.49/GSF	75,039,590
- %	KA Builders Risk	-	-
-	Subtotal	324.49/GSF	75,039,590
0.79 %	KA General Liability	2.07/GSF	479,527
-	Subtotal	326.56/GSF	75,519,117
1.10 %	Subcontractor Default Insurance	2.89/GSF	667,695
-	Subtotal	329.45/GSF	76,186,812
- %	Construction Testing	-	-
-	Subtotal	329.45/GSF	76,186,812
- %	Special Inspection	-	-
-	Subtotal	329.45/GSF	76,186,812
- %	Owner Testing	-	-
-	Subtotal	329.45/GSF	76,186,812
4.00 %	KA Construction Contingency	10.50/GSF	2,427,983
-	Subtotal	339.95/GSF	78,614,795
4.00 %	Project Design Progression Contingency	10.50/GSF	2,427,983
-	Subtotal	350.45/GSF	81,042,778
6.00 %	Project Escalation	15.75/GSF	3,641,974
-	Subtotal	366.20/GSF	84,684,752
- %	Design Fee	-	-
-	Subtotal	366.20/GSF	84,684,752



Rate		Item Description	Cost/GSF	Total
0.25	%	KA Preconstruction Fee	0.81/GSF	187,962
2.75	%	KA Construction Fee	8.94/GSF	2,067,581
-		Subtotal	375.95/GSF	86,940,294
231,254.00	GSF	Total Estimate (Gross)	375.95/GSF	86,940,294

SECTION 2.0

Cost Estimate Alternates



Alliant Energy Center Exhibition Hall Expansion

Client: City of Madison
 Architect: Strang
 Location: Madison, WI

Date: 06/07/2020
 Project Start: TBD
 Document Date: 06/03/2020
 Schematic Design

Alternate Work Code	Scope	Item Description	QTY	UOM	Gross Unit Price	Gross Total Costs	Location
00	---	Base Estimate ---	213,000.00	GSF	\$408.17	\$86,940,294	
		01 South Exhibition Center Addition	154,703.00	GSF	\$356.76	\$55,191,140	01 South Exhibition Center Addition
		02 Cold Storage Shed	3,748.00	GSF	\$60.68	\$227,429	02 Cold Storage Shed
		03 Hotel Connector	1,410.00	GSF	\$438.88	\$618,828	03 Hotel Connector
		04 Hall F Expansion First Floor	55,676.00	GSF	\$287.59	\$16,012,078	04 Hall F Expansion First Floor
		05 Hall F Mezzanine Second Floor	20,875.00	GSF	\$258.24	\$5,390,820	05 Hall F Mezzanine Second Floor
		FF&E	-	-	-	\$3,000,000	FF&E
		SOFT COSTS	-	-	-	\$6,500,000	SOFT COSTS
ALT 01		Add Bistro	2,950.00	GSF	\$387.15	\$1,142,101	
ALT 04		Add outdoor terrace by SE meeting room block	15,759.00	GSF	\$11.97	\$188,652	
ALT 05		Add large entrance canopies in lieu of small canopies	10,430.00	GSF	\$106.16	\$1,107,286	
ALT 06		Add east landscaping and hardscape	76,960.00	GSF	\$12.88	\$991,438	
ALT 08		Add new Horizontal operable partition between Hall A & F	6,300.00	GSF	\$135.28	\$852,250	
ALT 09		Add decorative building lighting and site lighting package	154,703.00	GSF	\$4.12	\$637,898	
ALT 11		Add new flooring in existing Pre-Function Spaces	39,565.00	GSF	\$25.52	\$1,009,538	
ALT 12		Add elevator to Hall F	-	-	-	\$95,685	
VE 3		Change Stone Panels to EIFS	-	-	-	(\$1,001,500)	
VE 4		Omit Wood Ceilings in all areas except Ballroom	-	-	-	(\$659,111)	
VE 5		Pull out costs of Food Service	-	-	-	(\$1,653,171)	
Grand Total			231,254.00	GSF	\$387.67	\$89,651,360	

Rate	Item Description	Cost/GSF	Total
-	% Tax	-	-
-	% Estimate Mark Up	-	-
-	ISum LS Adjustment	-	-
-	Subtotal	312.75/GSF	72,324,570
6.00	% General Conditions	20.80/GSF	4,809,082
-	Subtotal	333.55/GSF	77,133,652
0.25	% Building Permit	0.87/GSF	200,378
-	Subtotal	334.41/GSF	77,334,030

Rate		Item Description	Cost/GSF	Total
-	%	KA Performance/Payment Bond	-	-
-		Subtotal	334.41/GSF	77,334,030
-	%	KA Builders Risk	-	-
-		Subtotal	334.41/GSF	77,334,030
0.79	%	KA General Liability	2.15/GSF	496,314
-		Subtotal	336.56/GSF	77,830,344
1.10	%	Subcontractor Default Insurance	2.99/GSF	691,070
-		Subtotal	339.55/GSF	78,521,414
-	%	Construction Testing	-	-
-		Subtotal	339.55/GSF	78,521,414
-	%	Special Inspection	-	-
-		Subtotal	339.55/GSF	78,521,414
-	%	Owner Testing	-	-
-		Subtotal	339.55/GSF	78,521,414
4.00	%	KA Construction Contingency	10.87/GSF	2,512,983
-		Subtotal	350.41/GSF	81,034,397
4.00	%	Project Design Progression Contingency	10.87/GSF	2,512,983
-		Subtotal	361.28/GSF	83,547,380
6.00	%	Project Escalation	16.30/GSF	3,769,474
-		Subtotal	377.58/GSF	87,316,854
-	%	Design Fee	-	-
-		Subtotal	377.58/GSF	87,316,854
0.25	%	KA Preconstruction Fee	0.84/GSF	194,542
2.75	%	KA Construction Fee	9.25/GSF	2,139,963
-		Subtotal	387.67/GSF	89,651,360
231,254.00	GSF	Total Estimate (Gross)	387.67/GSF	89,651,360

SECTION 3.0

Project Workplan

Dane County - Alliant Energy Center Exhibition Hall & Campus Redevelopment
 Preliminary Schematic Design Phase Work Plan - Dated: May 14, 2020



MEETINGS----->>

PRE-DESIGN **P**

- P.1 LISTEN
 - DATA GATHERING
 - VISIONING
- P.2 DISCOVER
 - BENCHMARKING
 - PROGRAMMING
- P.3 DESIGN
 - CONCEPT SKETCHES

SCHEMATIC DESIGN **1**

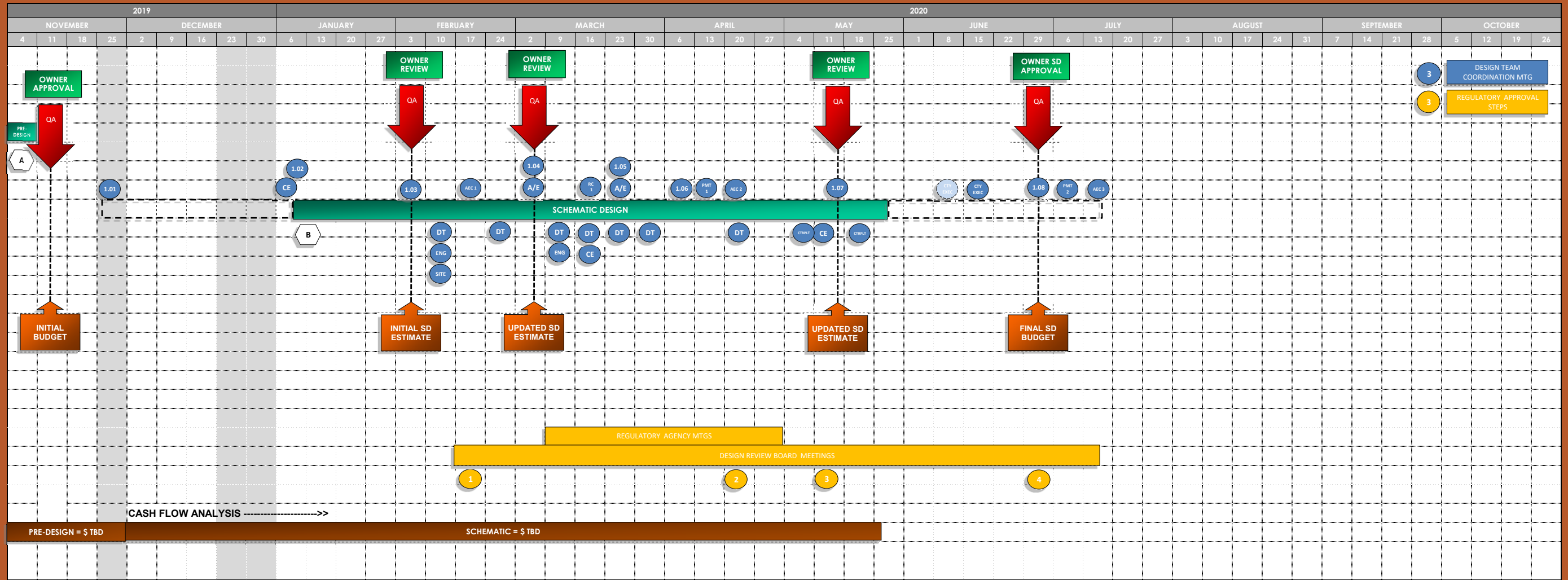
- 1.01 MEETING
 - PROGRAM CONFIRMATION
 - CONFIRM FLOOR PLAN
 - INTERIORS CONCEPTS
- 1.02 MEETINGS
 - CONFIRM INTERIOR DESIGN
 - CODE REVIEW
 - BUDGET DISCUSSION

COUNTY EXECUTIVE MEETING **1.03**

MEETING DATE
 - 2ND OR 3RD WEEK IN JUNE

STEERING COMMITTEE 1.08 **1.08**

PMT2 AND AEC 3 MEETINGS
 - DATES TO BE DETERMINED



DELIVERABLES----->>

PRE-DESIGN **A**

- PROGRAM STATEMENT
- CONCEPT SKETCHES
- WORK PLAN
- INITIAL BUDGET

SCHEMATIC DESIGN **B**

- CODE REVIEW
- FINAL BUDGET
- SCHEMATIC DWGS

3 DESIGN TEAM COORDINATION MTG

3 REGULATORY APPROVAL STEPS

SECTION 4.0

Schematic Design Drawings



EXPOSITION CENTER

SCHEMATIC DESIGN

TO BE ISSUED:
06/22/2020

PROJECT NUMBER 221929.

Architecture + Planning
Donald Grinberg, FAIA

Perkins&Will

STRANG

CONTRACTOR	LANDSCAPING	CIVIL	MEP	STRUCTURAL	PUBLIC ASSEMBLY FACILITY PLANNER AND DESIGNER	ARCHITECT	ARCHITECT-OF-RECORD, MEP ENGINEERING AND TECHNOLOGY	OWNER
	Perkins and Will Minneapolis IDS Center, 80 South Eighth Street Suite 300 Minneapolis, MN 55402 (612) 851-5000 (TEL)	Graef 1010 East Washington Avenue, Suite 202, Madison, Wisconsin 53703 (608) 245-1960 (TEL)	Strang, Inc. 811 East Washington Avenue, Suite 200, Madison, Wisconsin 53703 (608) 276 9200 (TEL)	Graef 1010 East Washington Avenue, Suite 202, Madison, Wisconsin 53703 (608) 242-1550 (TEL)	Don Grinberg Architecture + Planning + 43 Commonwealth Avenue, Boston, Massachusetts 02116 (617) 513-5259 (TEL)	Perkins and Will Denver 475 Lincoln St, Suite 100 Denver, CO 80203 (303) 308-0200 (TEL)	Strang, Inc. 811 East Washington Avenue, Suite 200, Madison, Wisconsin 53703 (608) 276 9200 (TEL)	County of Dane Department of Public Works, Highway & Transportation; 2302 Fish Hatchery Road; Madison, Wisconsin 53713

Sheet Index				
SHEET NUMBER	SHEET NAME	DESIGN DEVELOPMENT		
		100% SCHEMATIC DESIGN	90% CD	100% CD
01-GENERAL				
G00-00	COVER SHEET	*		
G00-03	INDEX OF DRAWINGS	*		
G00-21	PROJECT RENDERING	*		
G00-22	PROJECT RENDERING	*		
G00-23	PROJECT RENDERING	*		
G01-01	CODE COMPLIANCE PLAN - EXHIBIT LEVEL	*		
G01-02	CODE COMPLIANCE PLAN - MEZZANINE LEVEL	*		
04-ARCHITECTURAL				
A00-01	LEGENDS, ABBREVIATIONS, & GENERAL NOTES	*		
A04-00	SCOPE OF WORK - EXHIBIT LEVEL	*		
A04-01	SCOPE OF WORK - MEZZANINE LEVEL	*		
A10-00	OVERALL DEMOLITION FLOOR PLAN - EXHIBIT LEVEL	*		
A10-01	OVERALL DEMOLITION FLOOR PLAN - MEZZANINE LEVEL	*		
A10-10	OVERALL FLOOR PLAN - EXHIBIT LEVEL	*		
A10-20	OVERALL FLOOR PLAN - MEZZANINE LEVEL	*		
A12-10	REFLECTED CEILING PLAN - EXHIBIT LEVEL	*		
A12-20	REFLECTED CEILING PLAN - MEZZANINE LEVEL	*		
A20-01	OVERALL EXTERIOR ELEVATIONS	*		
A20-02	ENLARGED EXTERIOR ELEVATIONS	*		
A20-03	ENLARGED EXTERIOR ELEVATIONS	*		
A32-20	ROOF PLAN	*		
A43-05	INTERIOR ROOM FINISH SCHEDULE	*		
A47-00	OVERALL BUILDING SECTIONS	*		
ALT-1	EXHIBIT LEVEL - ALTERNATES	*		
16-FOOD SERVICE				
FS-01	FOOD SERVICE CONCEPTUAL SPACE BLOCKING - REFERENCE ONLY	*		

GENERAL NOTES

KEY

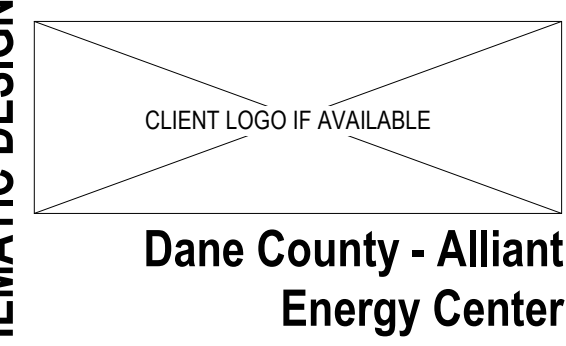
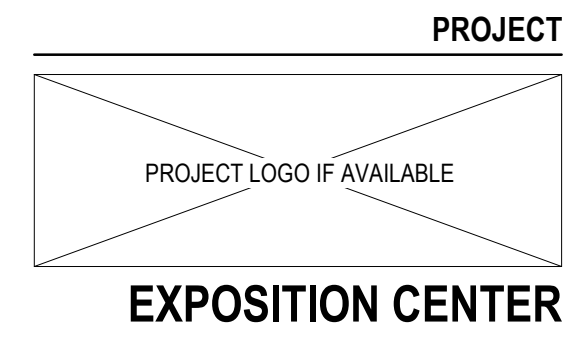
DISCIPLINE

- A - ARCHITECTURE
- C - CIVIL
- E - ELECTRICAL
- F - FIRE PROTECTION
- G - GENERAL
- K - KITCHEN
- L - LANDSCAPE
- M - MECHANICAL
- P - PLUMBING
- PL - POOL
- S - STRUCTURAL

NUMBER OF PLAN, DETAIL, ETC. ON SHEET

DRAWING SERIES

15/A11-01



KEYPLAN

ISSUE CHART

T	100% SCHEMATIC DESIGN	6.22.20
DATE	ISSUE	TITLE
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TITLE		

INDEX OF DRAWINGS

SHEET NUMBER

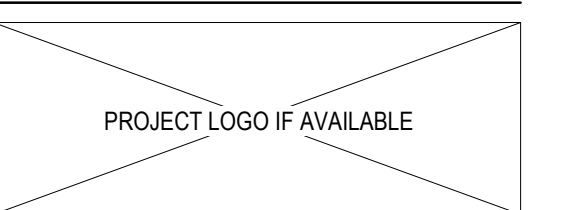
G00-03

SCHEMATIC DESIGN 06/22/2020



NORTHEAST ENTRY

PROJECT



EXPOSITION CENTER



Dane County - Alliant Energy Center

SCHEMATIC DESIGN 06/22/2020

KEYPLAN

ISSUE CHART

T	100% SCHEMATIC DESIGN	6.22.20
DATE	ISSUE	TITLE
Job Number	221929	TITLE

PROJECT RENDERING

SHEET NUMBER

G00-21



NEW EAST ENTRY

PROJECT
 PROJECT LOGO IF AVAILABLE
EXPOSITION CENTER

CLIENT LOGO IF AVAILABLE
Dane County - Alliant Energy Center

KEYPLAN

ISSUE CHART

T	100% SCHEMATIC DESIGN	6.22.20
DATE	ISSUE	TITLE
Job Number	221929	TITLE

PROJECT RENDERING

SHEET NUMBER

G00-22

SCHEMATIC DESIGN 06/22/2020



NEW SOUTH ENTRY

PROJECT
 PROJECT LOGO IF AVAILABLE
EXPOSITION CENTER

CLIENT LOGO IF AVAILABLE
Dane County - Alliant Energy Center

KEYPLAN

ISSUE CHART

T	100% SCHEMATIC DESIGN	6.22.20
DATE	ISSUE	TITLE
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TITLE		

PROJECT RENDERING

SHEET NUMBER

G00-23

SCHEMATIC DESIGN 06/22/2020

OCCUPANCY	SQ FTG	CODE	DOOR PROVIDED		STAIR PROVIDED		CC - Occupant Load & Min. Egress Width Calc's - Level 1 (Areas)										
			OCC LOAD FACTOR	AR_OccupantLoad FactorTagged_PW	OCC LOAD	AR_OccupantLoad Tagged_PW	DOOR FACTOR	Door Factor (A)	DOOR REQ	STAR FACTOR	Star Factor (A)	STAR REQ	Occupant Load Factor_IBC	Occupant Load Factor_NFPA	Level	is bldg sprinklered	CODE_Group_A

CODE COMPLIANCE PLAN GENERAL NOTES

- EXISTING WALLS SHOWN WITH NEW LIFE SAFETY RATINGS ARE TO BE UPGRADED TO THE NEW RATING. THE UPGRADE INCLUDES PROTECTING ALL OPENINGS IN THE PARTITION.
- THESE DRAWINGS WERE DEVELOPED FROM EXISTING DRAWINGS PROVIDED BY THE OWNER.
- REFER TO ELECTRICAL E23-JX AND E23-XX FOR LOCATION AND QUANTITY OF SMOKE DETECTORS. PERFORMANCE SPECIFICATION.
- DOORS IN CORRIDOR PARTITIONS SHALL BE INSTALLED TO RESIST THE PASSAGE OF SMOKE UNLESS NOTED OTHERWISE.
- REFER TO X/A02-XX FOR FIRE EXTINGUISHER CABINET DETAIL.
- VERIFY THAT ALL EXISTING DOORS IN RATED WALLS ARE LABELED WITH THE APPROPRIATE MARK THAT ARE IN THE SCOPE OF THE WORK.
- VERIFY THAT ALL EXISTING WALLS THAT ARE LABELED AS FIRE RATED OR SMOKE TIGHT MEET THE REQUIREMENTS OF THE LABELING.

CODE COMPLIANCE PLAN LEGEND

NON-RATED, NON-SMOKE RESISTANT PARTITION													
EXISTING 2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS													
2-HOUR FIRE BARRIER REQUIRED TO HAVE SMOKE DAMPERS													
EXISTING 2-HOUR FIRE WALL													
2-HOUR FIRE WALL													
EXISTING 1-HOUR FIRE BARRIER													
1-HOUR FIRE BARRIER													
EXISTING 1-HOUR FIRE PARTITION													
1-HOUR FIRE PARTITION													
EXISTING SMOKE BARRIER "FOR COMPARTMENTATION" 1-HOUR RATING UNLESS OTHERWISE SHOWN ON PLANS. SMOKE BARRIER "FOR COMPARTMENTATION" 1-HOUR FIRE RATING UNLESS OTHERWISE SHOWN ON PLANS													
EXISTING NON-FIRE-RATED SMOKE-RESISTANT PARTITION													
NON-FIRE-RATED SMOKE-RESISTANT PARTITION REQUIRED TO HAVE DOOR CLOSER													
EXISTING NON-FIRE-RATED SMOKE PARTITION													
NON-FIRE-RATED SMOKE PARTITION													
EXIT SIGNAGE													
FIRE EXTINGUISHER & CABINET (SCREENED IF EXISTING)													
FIRE EXTINGUISHER SURFACE MOUNTED (SCREENED IF EXISTING)													
EXIT WIDTH (DOORS OR STAIRS)													
FIRE RATING OF DOOR IN MINUTES													
EXTENT OF SUITE													
OUT OF SCOPE													
LONGEST ROUTE TO AN EXIT - KEY TO SCHEDULE													
MHO	MAGNETIC HOLD OPEN												
<table border="1"> <tr> <td>STAR</td> <td>EGRESS COMPONENT</td> </tr> <tr> <td>32"</td> <td>WIDTH - PROVIDED</td> </tr> <tr> <td>18"</td> <td>WIDTH - REQUIRED</td> </tr> <tr> <td>225 OCC</td> <td>OCCUPANCY LOAD - ALLOWABLE</td> </tr> <tr> <td>192 OCC</td> <td>OCCUPANCY LOAD - ACTUAL</td> </tr> <tr> <td></td> <td>(OCC ALLOWABLE# OF COMPONENTS PER FLOOR)</td> </tr> </table>	STAR	EGRESS COMPONENT	32"	WIDTH - PROVIDED	18"	WIDTH - REQUIRED	225 OCC	OCCUPANCY LOAD - ALLOWABLE	192 OCC	OCCUPANCY LOAD - ACTUAL		(OCC ALLOWABLE# OF COMPONENTS PER FLOOR)	
STAR	EGRESS COMPONENT												
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192 OCC	OCCUPANCY LOAD - ACTUAL												
	(OCC ALLOWABLE# OF COMPONENTS PER FLOOR)												

CROSS CHECK w/ ELEC. SYMBOLS - NOT TYPICALLY SHOWN IN ARCH PLANS.

REVIEW AND REPLACE TO MATCH TAGS FOR CHOSEN EGRESS METHOD.

T	100% SCHEMATIC DESIGN	6.22.20
DATE	ISSUE	TITLE
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OCCUPANT LOAD CALCULATION FOR LEVEL 01

EXIT NUMBER AND ARRANGEMENT FOR LEVEL 01

GREATEST TRAVEL DISTANCE TO AN EXIT: (FROM ANY POINT IN A ROOM)
0'-0" SHOWN - 0'-0" ALLOWED

GREATEST TRAVEL DISTANCE TO AN EXIT: (FROM AN EXIT ACCESS DOOR)
0'-0" SHOWN - 0'-0" ALLOWED

GREATEST COMMON PATH OF TRAVEL
0'-0" SHOWN - 0'-0" ALLOWED

MINIMUM NUMBER OF EXITS REQUIRED:
0 PROVIDED - 0 REQUIRED

MAXIMUM DEAD END LENGTH:
0'-0" SHOWN - 0'-0" MAXIMUM

CODE COMPLIANCE PLAN NOTES BY NUMBER

ONLY USE TAGGED "NOTES BY NUMBER" IF A REQUIRED NOTE CAN NOT BE PLACED CLEARLY ON THE PLANS

PROJECT
PROJECT LOGO IF AVAILABLE
EXPOSITION CENTER

CLIENT LOGO IF AVAILABLE
**Dane County - Alliant
Energy Center**

KEYPLAN

ISSUE CHART

NO.	ISSUE	DATE
Job Number		221929
	TITLE	

**CODE COMPLIANCE
PLAN - MEZZANINE
LEVEL**

SHEET NUMBER
G01-02

SCHEMATIC DESIGN 06/22/2020

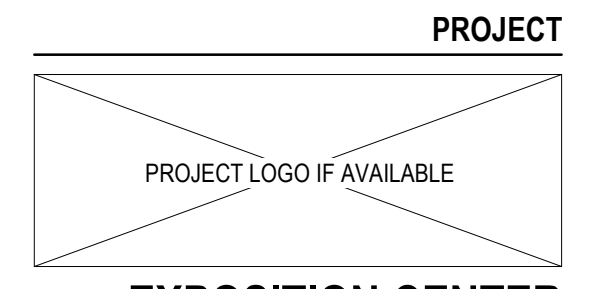
ABBREVIATIONS LEGEND	
NOTE 1: ABBREVIATIONS WHEN USED IN COMPOSITION MAY INCLUDE PERIODS FOR CLARIFICATION	
NOTE 2: ABBREVIATIONS MAY BE DIFFERENT WHEN A PART OF A LEGEND	
A/C AIR CONDITIONING(ED)	GA GAGE
ACC ACCESSIBLE	GALV GALVANIZED
ACST ACUSTIC(AL)	GEN GENERAL
AD AREA DRAIN	GFRC GLASS FIBER REINFORCED CONCRETE
ADA AMERICANS WITH DISABILITIES	GRFG GRASS FIBER REINFORCED GYPSUM BOARD
ADJ ADJUSTABLE/ADJACENT	GL GLASS
AFC ABOVE FINISHED COUNTER	GL BLK GLASS BLOCK
AFF ABOVE FINISHED FLOOR	GLU LAM GLUED LAMINATED WOOD
AFG ABOVE FINISHED GRADE	GR LN GRADE LINE
AGGR AGGREGATE	GRFL GROUND FLOOR
AHU AIR HANDLING UNIT	GSB GYPSUM SHEATHING BOARD
ALT ALTERNATE	GT GREASE TRAP
ALUM ALUMINUM	GYP BD GYPSUM BOARD
AND AND(OR)	GYP PLAS GYPSUM PLASTER
APC ACOUSTICAL PANEL CEILING	H HIGH
APPROX APPROXIMATE	HB HOSE BIBB
ARCH ARCHITECT(URAL), ARCHITECT	HC HOLLOW CORE
ASPH ASPHALT	HDW HARDWARE
ATC ACOUSTICAL TILE CEILING	HM HOLLOW METAL
AUTO AUTOMATIC	HORIZ HORIZONTAL
AWT ACOUSTICAL WALL TREATMENT	HPT HIGH POINT
BIB BACK TO BACK	HSPKG HOUSEKEEPING
BC BACK OF CURB	HVAC HEATING, VENTILATION, AIR CONDITIONING
BD BOARD	HW HOT WATER
BITUM BITUMINOUS	ID INSIDE DIAMETER
BULD BUILDING	ICD INCANDESCENT
BM BEAM/ BENCHMARK	INSUL INSULATION
BOT/BSTM BOTTOM OF BASEMENT	INT INTERIOR
BUR BURIED/ROOFING	INV INVERT
CAB CABINET	JAN CLO JANITOR'S CLOSET
CB CATCH BASIN	KIT KITCHEN
CCTV CLOSED CIRCUIT TELEVISION	L LONG LENGTH
CFCI CONTRACTOR FURNISHED, CONTRACTOR INSTALLED	LAM LAMINATE(D)
CFIOI CONTRACTOR FURNISHED, OWNER INSTALLED	LAU LAUNDRY
CFM CUBIC FEET PER MINUTE	LAV LAVATORY
CFMF COLD-FORMED METAL FRAMING	LB LBS (POUNDS)
CG CORNER GUARD	LF LF LINEAR FOOT, (FEET)
CI CAST IRON, CURB INLET	LH LEFT HAND
CIP CAST-IN-PLACE	LIB LIBRARY
CJ CONTROL JUNCTION	LKR LOCKER
CL CENTER LINE	LL LONG
CLG CEILING	LOC LOCATION
CLO CLOSET	LPT LOW POINT
CLR CLEAR	LT LIGHT
cm CENTIMETER	LVR LOUVER
CONC CONCRETE	LONG LONGITUDINAL
CONF CONFERENCE	LOC LOCATION
COORD COORDINATE	LPT LOW POINT
COOR CORR CORRIDOR	LFT LIGHT
CPT CERAMIC TILE	LVR LOUVER
CUJ CUBIC	m METER
CUW COLD WATER PIPING/ CHEMICAL WASTELINE	MACH MACHINE
D DEEP DEPTH	MAINT MAINTENANCE
DBL DOUBLE	MAX MAXIMUM
DEG DEGREE	MECH MECHANICAL
DEMO DEMOLITION	MEMB MEMBRANE
DEPT DEPARTMENT	MEP MECHANICAL, ELECTRICAL, PLUMBING
DF DRINKING FOUNTAIN	MEZZ MEZZANINE
DIA DIAMETER (EXTERIOR)	MFR MANUFACTURER
DIAG DIAGONAL	MH MAHOLE
DIFF DIFFUSER/ DIFFERENCE DIMENSION	MHO MAGNETIC HOLD OPEN
DISP DISPENSER	MIN MINIMUM
DIV DIVISION	MISC MISCELLANEOUS
DL DEAD LOAD	MKR BD MARKER BOARD
DR DOOR/ DRAIN	mm MILLIMETER
DS DOWNSPOUT	MO MASONRY OPENING
DW DISHWASHER	MTL METAL
DWG DRAWING	N NORTH
E EAST	NC NOT IN CONTRACT
EA EACH	NO NUMBER
EIFS EXTERIOR INSULATION AND FINISH SYSTEM	NOM NOMINAL
EJ EXPANSION JOINT	NTS NOT TO SCALE
EL ELEVATION	O/O OUT TO OUT
EAST ELASTOMERIC (ELECTRICAL)	OC ON CENTER
ELEV ELEVATOR	OD OUTSIDE DIAMETER
EMER EMERGENCY	OFICI OWNER FURNISHED, CONTRACTOR INSTALLED
EMER SHR EMERGENCY SHOWER	OFIOI OWNER FURNISHED, OWNER INSTALLED
ENGR ENGINEER	OFF OFFICE
ENTR ENTRANCE	OPH OPPOSITE HAND
EO ELECTRIC OUTLET	OPNG OPENING
EOS EDGE OF SLAB	OPP OPPOSITE
EP EQUAL	ORD OVERFLOW ROOF DRAIN
EQUIP EQUIPMENT	PA PUBLIC ADDRESS
ETC ET CETERA	PAR PARALLEL
EW EACH WAY	PCC PRE-CAST CONCRETE
EWC ELECTRIC WATER COOLER	PERF PERFORATED
EXH EXHAUST	PERP PERPENDICULAR
EXIST EXISTING	PLAM PLASTIC LAMINATE
EXP EXPANSION	PLAS PLASTER
EXT EXTERIOR, EXTERNAL	PLMB PLUMBING
F/F FACE TO FACE	PLYWD PLYWOOD
FOO FLOOR CLEANOUT	PNT PAINT
FD FLOOR DRAIN	POL POLISHED
FDC FIRE DEPARTMENT CONNECTION	PR PAIR
FE FIRE EXTINGUISHER	PREFAB PREFABRICATE(D)
FEC FIRE EXTINGUISHER CABINET	PROJ PROJECT
FF FINISH FACE	PROP PROPERTY
FH FIRE HYDRANT	PSF POUNDS PER SQUARE FOOT
FHC FIRE HOSE CABINET	PSI POUNDS PER SQUARE INCH
FIN FINISHED	PTD PAPER TOWEL DISPENSER
FF-EL FINISHED FLOOR ELEVATION	PTH PARTITION
FLR FLOOR	PVC POLYVINYL CHLORIDE
FLUOR FLUORESCENT	PVQ PAVING
FO FINISHED OPENING	QT QUARRY TILE
FOC FACE OF CURB	QTY QUANTITY
FOF FACE OF FINISH	R THERMAL RESISTANCE,
FOM FACE OF MASONRY	RAD RADIUS, RISER
FOS FACE OF SLAB/ FACE OF STUD	RB RUBBER BASE
FP FIRE PROTECTION/ FIREPROOF	RC REINFORCED CONCRETE
FRTW FIRE RETARDANT TREATED WOOD	RCP REFLECTED CEILING PLAN
FT FOOT (FEET) FIRE TREATED	RCPIN RECEPTION ROOF DRAIN
FTG FOOTING	REC RECESSED
FLRG FLOORING	REF REFERENCE, REFRIGERATOR
FURN FURNISH, FURNITURE	REIN REINFORCE, REINFORCING
FUT FUTURE	REQD REQUIRE, REQUIRED
FV FIELD VERIFY	RESIL RESILIENT
	REVISION REVISION
	RF RESILIENT FLOORING
	RH RIGHT HAND
	RM ROOM
	RO ROUGH OPENING
	ROW RIGHT OF WAY
	RTT RUBBER TILE FLOOR
	RVL REVEAL
	S SOUTH
	SAJ SANITARY
	SC SOLID CORE
	SCHED SCHEDULE
	SECT SECTION
	SF SQUARE FOOT(FEET)
	SGL SINGLE
	SHR SHOWER
	SHT SHEET
	SIM SIMILAR
	SJ SLIP JOINT/ SCORED JOINT
	SPEC SPECIFICATION
	SPKR SPEAKER
	SQ SQUARE
	SST STAINLESS STEEL
	STA STATION
	STD STANDARD
	STL STEEL
	STOR STORAGE
	STRUCT STRUCTURAL
	SUSP SUSPENDED
	SYMM SYMMETRICAL
	T TREAD
	TA TOILET ACCESSORY
	T&B TOP & BOTTOM
	T&G TONGUE & GROOVE
	TEL TELEPHONE
	TEMP TEMPORARY
	TER TERRAZZO
	THK THICK
	TI TENANT IMPROVEMENT
	TOILET TOILET
	TO TOP OF
	TOPO TOPOGRAPHY, TOPOGRAPHIC
	TRTD TREATED
	TS TUBE STEEL
	TYP TYPICAL
	U HEAT TRANSFER COEFFICIENT
	UH UNIT HEATER
	UL UNDERWRITERS' LABORATORIES
	UNEX UNEXCAVATED
	UNFIN UNFINISHED
	UNO UNLESS NOTED OTHERWISE
	UTL UTILITY
	VB VINYL BASE
	VCT VINYL COMPOSITION TILE
	VENT VENTILATION
	VERT VERTICAL
	VEST VESTIBULE
	VIF VERIFY IN FIELD
	VNR VENEER
	VOL VOLUME
	VWC VINYL WALL COVERING
	W WEST
	WI WITH
	WO WITHOUT
	WC WATER CLOSET
	WD WOOD
	WG WALL GUARD
	WH WATER HEATER
	WI WROUGHT IRON
	WSCT WANSICOT
	WT WEIGHT
	WWF WELDED WIRE FABRIC
	WWW WELDED WIRE MESH
	X BY
	YD YARD
	YR YEAR
	ZN ZINC

MATERIALS AT LARGE SCALES	
	UNDISTURBED SOIL
	COMPACTED FILL/SOIL
	GRAVEL, POROUS FILL
	SAND
	ASPHALT
	STRUCTURAL CONCRETE
	LIGHTWEIGHT CONCRETE
	TERRAZZO
	CUT STONE
	CAST STONE
	BRICK, COMMON FACE
	BRICK, GLAZED
	CONCRETE MASONRY UNIT
	STRUCTURAL CLAY TILE
	STEEL
	ALUMINUM/ORNAMENTAL METAL
	BLOCKING OR SHIM
	FINISH WOODWORK
	PLYWOOD
	PARTICLE BOARD
	GYPSUM WALLBOARD
	WATERPROOFING/ DAMPROOFING/AIR MOISTURE BARRIER
	RIGID INSULATION
	BATT INSULATION
	GLASS BLOCK
	ACOUSTICAL CEILING BOARD
	SPRAY-ON FIREPROOFING OR INSULATION

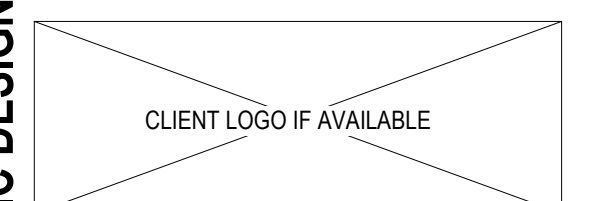
SYMBOLS LEGEND	
COLUMN GRID DESIGNATION	
	NEW GRID
	EXISTING GRID
NOTE TAGS	
	*NOTES BY NUMBER
	SPECIFICATIO N KEYNOTES
BUILDING SECTION TAG	
	SECTION DESIGNATION
	SHEET NUMBER
WALL / DETAIL SECTION TAGS	
	SECTION DESIGNATION
	SHEET NUMBER
	SHEET NUMBER
ENLARGED PLAN TAG	
	PLAN OR DETAIL DESIGNATION
	SHEET NUMBER
EXTERIOR ELEVATION TAG	
	ELEVATION DESIGNATION
	SHEET NUMBER
INTERIOR ELEVATION TAG	
	SINGLE INTERIOR ELEVATION TAG
	ELEVATION DESIGNATION
	SHEET NUMBER
DOOR IDENTIFICATION TAG	
	DOOR DESIGNATOR
	ROOM NUMBER (THAT DOOR SWINGS INTO)
EQUIPMENT DESIGNATION	
	EQUIPMENT TAG
	OWNER PROVIDED EQUIPMENT/ ITEM
	CONTRACTOR PROVIDED EQUIPMENT/ ITEM
	CONTRACTOR INSTALLED EQUIPMENT/ ITEM
	CONTRACTOR FURNISHED EQUIPMENT/ ITEM
TOILET ACCESSORY TAG	
	TA1
NORTH ARROW	
	PROJECT NORTH ARROW
	TRUE NORTH ARROW

GENERAL PROJECT NOTES	
1. REFER TO COMPLETE SET OF ISSUED CONTRACT DOCUMENTS FOR APPLICABLE NOTES, ABBREVIATIONS, AND SYMBOLS.	
2. DO NOT SCALE THE DRAWING. IF DIMENSIONS ARE IN QUESTION, OBTAIN CLARIFICATION FROM THE ARCHITECT BEFORE CONTINUING.	
3. DIMENSIONS SHOWN ON THE FLOOR PLANS FOR NEW CONSTRUCTION ARE TO CENTER LINE OF COLUMNS, TO FACE OF CONCRETE OR MASONRY WALLS, AND TO THE FACE OF _____ UNLESS OTHERWISE INDICATED. DIMENSIONS IN RENOVATED AREAS ARE FROM FINISH FACE OF EXISTING WALLS AND TO _____ OF NEW STUD WALLS, UNLESS OTHERWISE INDICATED.	
4. FIELD MEASURE AND CONFIRM DIMENSIONS FOR OWNER PROVIDED EQUIPMENT AND FURNISHINGS. COORDINATE WITH THE OWNER ON DELIVERY AND INSTALLATION OF O/F-CI EQUIPMENT. MINIMUM REQUIRED OPENINGS AND ACCESSIBLE ROUTES TO THE INSTALLATION AREA SHALL BE COORDINATED WITH THE SUPPLIER.	
5. FINISH FLOOR ELEVATIONS ARE TO TOP OF CONCRETE SLAB UNLESS OTHERWISE NOTED.	
6. COORDINATE EXACT SIZE AND PLACEMENT OF EQUIPMENT BASE AND HOUSEKEEPING PADS WITH EQUIPMENT TO BE PROVIDED.	
7. WHERE NEW GYPSUM BOARD PARTITIONS ARE A CONTINUATION OF AN EXISTING PARTITION OR COLUMN ENCASMENT, THE FACE OF THE NEW GYPSUM BOARD SHALL BE ALIGNED WITH THE FACE OF THE EXISTING SURFACE. WHERE A ONE HOUR PARTITION IS SHOWN AS A CONTINUATION OF A TWO-HOUR PARTITION OR COLUMN ENCASMENT, THE FACE OF THE GYPSUM BOARD SHALL BE OFFSET AS REQUIRED TO PROVIDE FACE ALIGNMENT OF GYPSUM BOARD ON BOTH SIDES.	
8. LEVEL FLOORS SO THAT THEY DO NOT EXCEED A 1/4" VARIANCE IN A 10'-0" RADII.	
9. PIPING LOCATED ABOVE GRADE AND INSIDE THE BUILDING SHALL BE CONCEALED IN FURRED SPACES WITH THE EXCEPTION OF PIPING IN STAIRWAYS, EQUIPMENT ROOMS AND POWERHOUSE. COORDINATE WITH OTHER TRADES TO PROVIDE FURRING FOR PIPING INSTALLED IN FINISHED AREAS.	
10. ALL EXTERIOR STEEL HANDRAILS, GUARDRAILS, AND BOLLARDS SHALL BE GALVANIZED AND PAINTED UNLESS OTHERWISE NOTED.	
11. PARTITION TYPES AND FIRE RESISTIVE RATINGS INDICATED ON A WALL ARE TO BE CONTINUOUS FOR THE LENGTH AND HEIGHT OF A PARTITION.	
12. APPROVE FLOOR OUTLET LOCATIONS WITH ARCHITECT AND BUILDING MANAGEMENT PRIOR TO CORE DRILLING.	
13. OPENINGS IN A RATED WALL, FLOOR, CEILING AND ROOF ASSEMBLIES SHALL BE SEALED WITH A FIRE RESISTANT JOINT SYSTEMS OR PROTECTED WITH A FIRE RATED CHASE.	
14. EXIT SIGNS AND SMOKE DETECTORS LOCATED IN CEILINGS SHALL BE POSITIONED AS REQUIRED BY THE AUTHORITY HAVING JURISDICTION.	
15. WHERE MATERIALS ARE APPLIED TO, OR ARE IN DIRECT CONTACT WITH WORK INSTALLED BY ANOTHER SUBCONTRACTOR, COMMENCEMENT OF WORK IMPLIES ACCEPTANCE OF THE SUBSTRATE AS SUITABLE FOR THE APPLICATION INTENDED.	
16. ISOLATE DISSIMILAR METALS TO PREVENT GALVANIC CORROSION.	
17. SEALANTS EXPOSED TO VIEW SHALL BE CUSTOM COLOR AS SELECTED BY THE ARCHITECT.	
18. COORDINATE LOCATION OF SEALANT AND COMPATIBILITY OF SEALANTS WITH ADJACENT WORK, INCLUDING MATERIALS AND OTHER CONTIGUOUS AREAS.	
19. CAULK AT JUNCTURE OF INTERIOR FACES OF DOOR FRAMES, VIEW WINDOW FRAMES, EXTERIOR WINDOW FRAMES, AND CABINET WORK WITH ADJACENT MATERIALS. MAINTAIN THE FIRE RATING OF CONSTRUCTION AROUND CABINETS, PANELS, AND BOXES RECESSED IN FIRE RATED WALL, FLOOR, AND CEILING ASSEMBLIES RE: DETAIL XXA1-01.	
20. ACCESSORIES SUCH AS GRAB BARS, TOWEL BARS, PAPER DISPENSERS AND SOAP DISHES INSTALLED WITHIN 2' OF A URINAL, WATER CLOSET, SINK OR LAVATORY SHALL BE MOISTURE SEALED.	
21. DO NOT HANG (SUPPORT) ANY ITEMS FROM METAL ROOF DECK. IT IS ACCEPTABLE TO ATTACH, I.E. CEILING SYSTEM WIRE HANGERS FROM JOISTS AND/ OR BEAMS. IF NO JOIST OR BEAM, PROVIDE A STEEL STRIP.	

SYMBOLS	
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	CHANNEL
	DEGREE
	DIAMETER
	DOUBLE ANGLE
	NUMBER POUNDS
	PROPERTY LINE
	PLUS OR MINUS
	SQUARE FEET
	ZEE
	COLUMN TUBE
	DIVIDED BY
	MAXIMUM
	MINIMUM
	RANGE



EXPOSITION CENTER



Dane County - Alliant Energy Center

KEYPLAN

ISSUE CHART

1	100% SCHEMATIC DESIGN	6.22.20
2	ISSUE	1.2.21

Job Number 221929

TITLE

LEGENDS, ABBREVIATIONS, & GENERAL NOTES

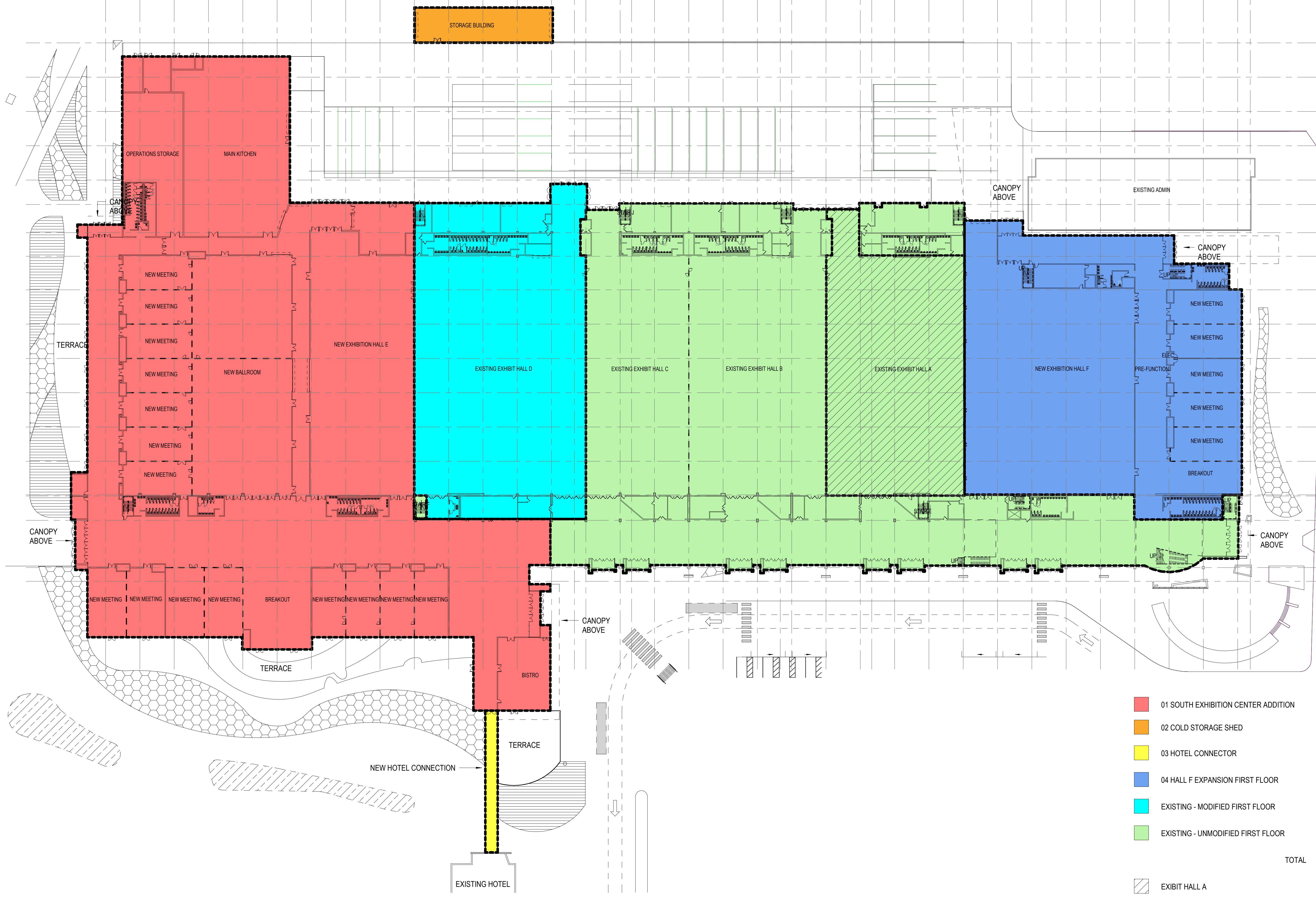
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A00-01

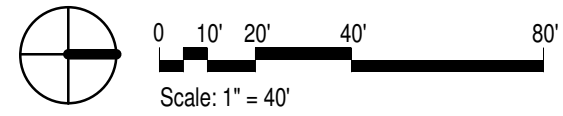
SCHEMATIC DESIGN 06/22/2020

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■	01 SOUTH EXHIBITION CENTER ADDITION	= 144,742 S.F.
■	02 COLD STORAGE SHED	= 3,731 S.F.
■	03 HOTEL CONNECTOR	= 1,343 S.F.
■	04 HALL F EXPANSION FIRST FLOOR	= 55,630 S.F.
■	EXISTING - MODIFIED FIRST FLOOR	= 41,667 S.F.
■	EXISTING - UNMODIFIED FIRST FLOOR	= 119,889 S.F.
	TOTAL	= 367,002 S.F.
■	EXHIBIT HALL A	= 26,417 S.F.



PROJECT
PROJECT LOGO IF AVAILABLE
EXPOSITION CENTER

CLIENT LOGO IF AVAILABLE
Dane County - Alliant Energy Center

KEYPLAN

ISSUE CHART

DATE	DESCRIPTION	BY
6.22.20	100% SCHEMATIC DESIGN	T. SATE
	ISSUE	

Job Number 221929 TITLE

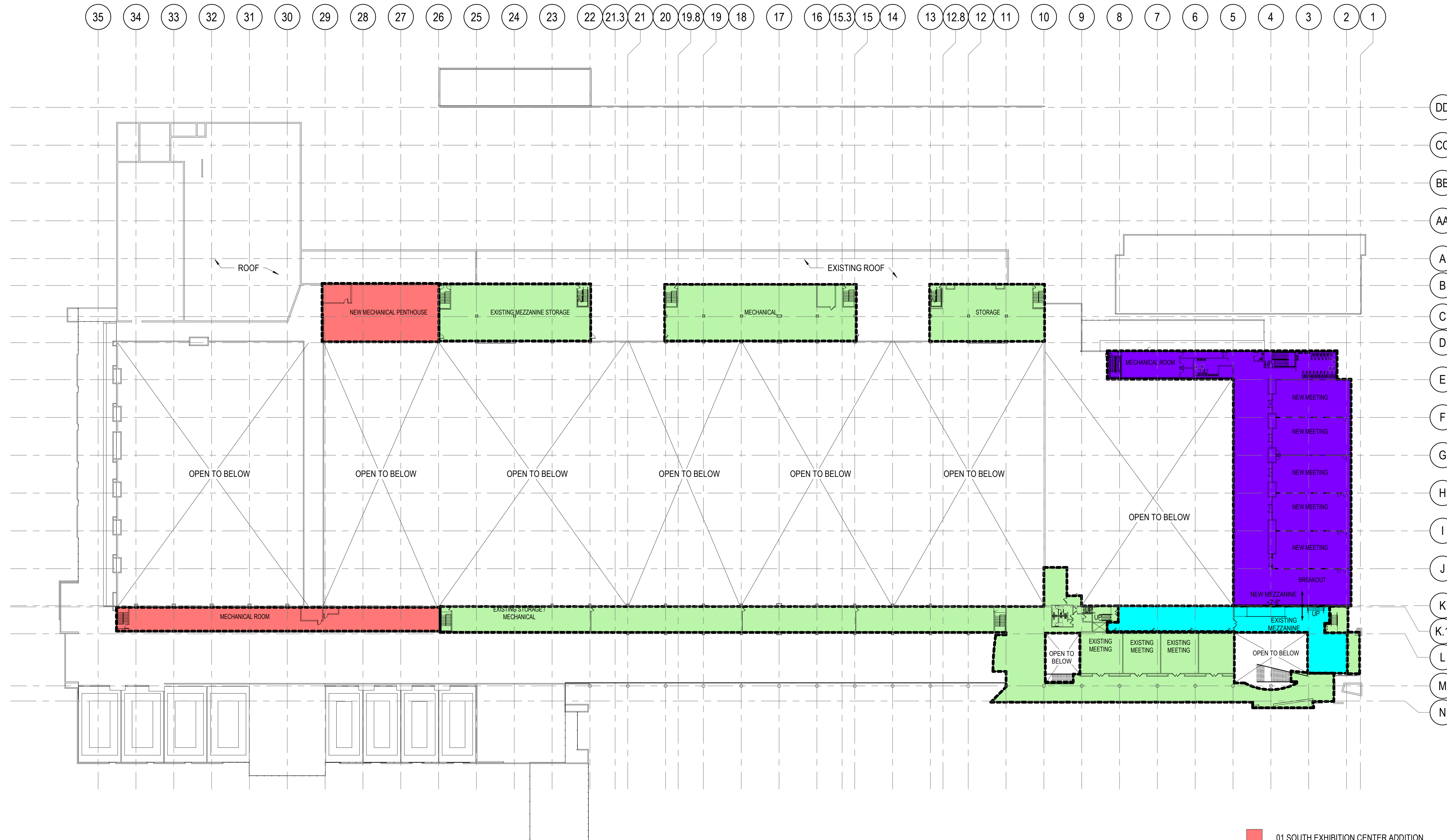
SCOPE OF WORK - EXHIBIT LEVEL

SHEET NUMBER

A04-00

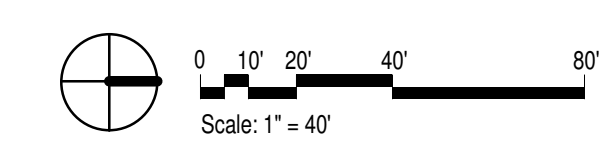
1 OVERALL FLOOR PLAN - EXHIBIT LEVEL - SCOPE OF WORK
1" = 40'-0"

SCHEMATIC DESIGN 06/22/2020



01 SOUTH EXHIBITION CENTER ADDITION	= 9,132 S.F.
05 HALL F EXPANSION MEZZANINE FLOOR	= 20,902 S.F.
EXISTING - MODIFIED MEZZANINE FLOOR	= 4,576 S.F.
EXISTING - UNMODIFIED MEZZANINE FLOOR	= 39,689 S.F.
TOTAL	= 74,299 S.F.

① OVERALL FLOOR PLAN - MEZZANINE LEVEL - SCOPE OF WORK
 1" = 40'-0"



PROJECT
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EXPOSITION CENTER

CLIENT LOGO IF AVAILABLE
Dane County - Alliant Energy Center

KEYPLAN

ISSUE CHART

T	100% SCHEMATIC DESIGN	6.22.20
DATE	DATE	TITLE
Job Number	221929	TITLE

SCOPE OF WORK - MEZZANINE LEVEL

SHEET NUMBER

A04-01

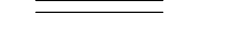



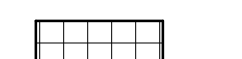

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SCHEMATIC DESIGN 06/22/2020

DEMOLITION GENERAL NOTES

- REFER TO SPECIFICATIONS FOR INTERIM LIFE SAFETY MEASURES.
- CONSTRUCT TEMPORARY PARTITIONS AS REQUIRED BY PHASING TO MINIMIZE THE SPREAD OF DUST AND NOISE.
- THESE DRAWINGS HAVE BEEN DEVELOPED FROM EXISTING DRAWINGS WHICH MAY NOT REFLECT ACTUAL FIELD CONDITIONS. VERIFY THESE DRAWINGS WITH EXISTING FIELD CONDITIONS AND NOTIFY THE ARCHITECT IMMEDIATELY OF INCONSISTENCIES BETWEEN THEM AND ACTUAL CONDITIONS BEFORE PROCEEDING WITH CONSTRUCTION.
- REPAIR ANY DAMAGED FIRE-RATED ASSEMBLIES TO THEIR ORIGINAL SPECIFICATION, UFG.
- REMOVE CONSTRUCTION AS INDICATED. TYPICAL WALL REMOVAL INCLUDES FINISHES AND MECHANICAL PLUMBING AND ELECTRICAL SYSTEMS CONTAINED THEREIN. REMOVE DOORS, CASEWORK, WINDOWS, FRAMES, AND OTHER FIXTURES AS REQUIRED. AFTER REMOVAL OF PIPE CHASES, PATCH HOLES IN FLOORS OR WALLS TO REMAIN TO MEET ORIGINAL FIRE PROTECTION AND STRUCTURAL REQUIREMENTS. PATCH ADJOINING WALLS, FLOORS AND DECK, AND PREPARE SURFACES TO RECEIVE NEW FINISHES PER FINISH SCHEDULE OR PER INTERIOR FINISH PLANS.
- WHERE NEW FINISHES ARE TO BE INSTALLED ON TO REMAIN SURFACES, REMOVE THE EXISTING FINISH AND PREPARE THE EXISTING SURFACE TO RECEIVE THE NEW FINISH.
- COORDINATE WITH THE OWNER ANY ITEMS TO BE STORED AND/OR RELOCATED.
- SEE CIVIL, MECHANICAL, PLUMBING, AND/OR ELECTRICAL DRAWINGS FOR DEMOLITION OF UTILITIES.
- FOR EXTENT AND LOCATION OF CHANNELING OF FLOOR SLABS, REFER TO MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS. IF PIPING OR CONDUIT WORK (OTHER THAN THE DESIRED CONNECTION) IS ENCOUNTERED WHILE CHANNELING, NOTIFY THE ARCHITECT BEFORE CONTINUING.
- VERIFY THAT CONSTRUCTION OF WALLS WITHIN THE AREA OF RENOVATION (SMOKE COMPARTMENT) MEETS THE FIRE PROTECTION RATINGS DESIGNATED ON THE LIFE SAFETY PLANS. MAKE ANY REPAIRS OR MODIFICATIONS NECESSARY TO BRING WALLS, DOORS, DUCTS, ETC. UP TO THE PROPER FIRE PROTECTION RATING. DOORS AND/OR FRAMES SHALL HAVE THE PROPER LABELING.
- VERIFY THAT EXIT EGRESS IS MAINTAINED FOR ALL OCCUPIED AREAS OF THE BUILDING THROUGHOUT CONSTRUCTION.
- DEMOLITION WORK SHALL BE EXECUTED IN CONFORMANCE WITH ALL CODES AND AS SET FORTH BY ALL GOVERNING AUTHORITIES.
- BRACE ALL STRUCTURES OR STRUCTURAL ELEMENTS AS NECESSARY DURING DEMOLITION.
- DO NOT CUT ANY STRUCTURAL WORK WITHOUT PRIOR APPROVAL FROM THE STRUCTURAL ENGINEER.
- THE BUILDING ENVELOPE SHALL BE MAINTAINED IN A WATER TIGHT CONDITION AT ALL TIMES.
- REPLACE OR REPAIR ANY TO REMAIN FINISHES WHICH ARE DAMAGED DURING DEMOLITION (I.E. - CEILING GRID, CEILING TILE, WALL COVERING, FLOOR COVERINGS, ETC.)
- WHEREVER POSSIBLE, RETAIN REMOVED BRICK, TO BE USED TO FILL EXTERIOR WALL OPENINGS.
- NOTIFY THE ARCHITECT IMMEDIATELY IF THE REMOVAL OF MECHANICAL, ELECTRICAL, PLUMBING SYSTEMS OR COMPONENTS WILL ADVERSELY AFFECT THE OPERATION OF MEP SYSTEMS OUTSIDE THE LIMIT OF DEMOLITION.
- SCHEDULE ALL DEMOLITION WITH THE OWNER.

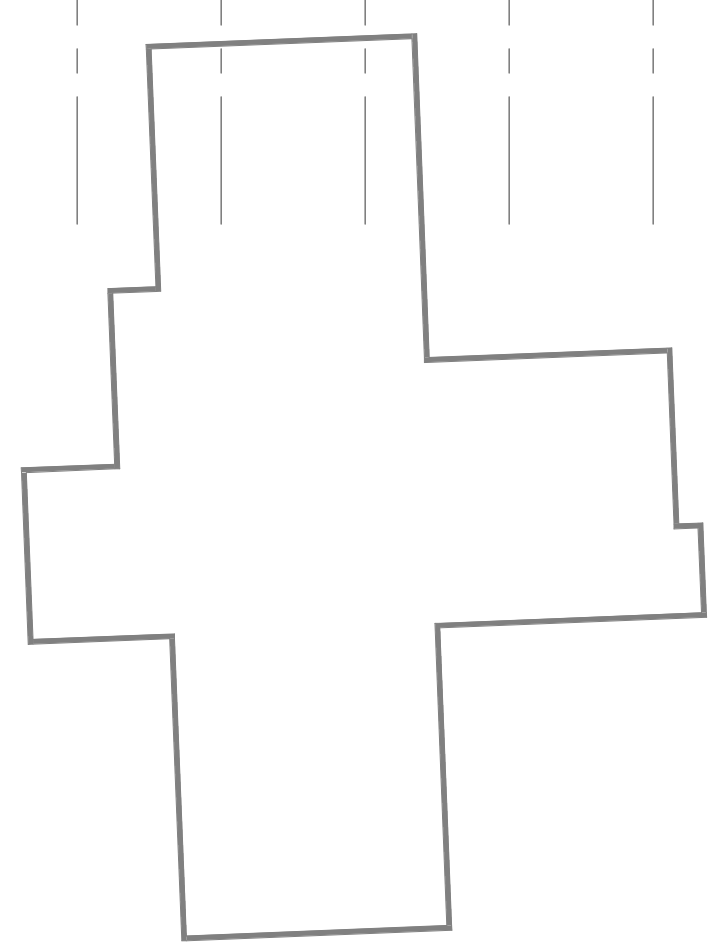
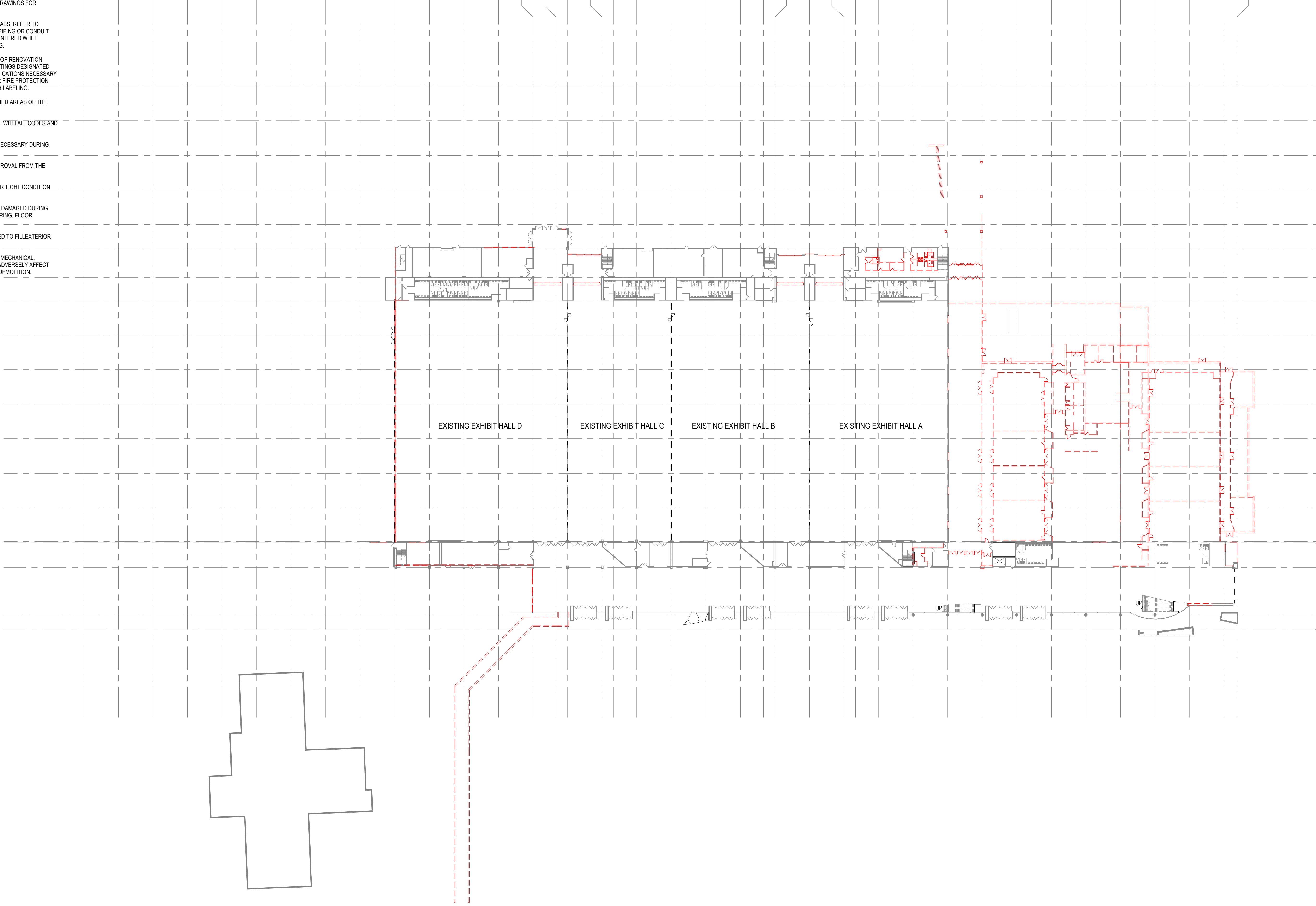
DEMOLITION LEGEND

-  CONSTRUCTION TO REMAIN
-  CONSTRUCTION TO BE REMOVED
-  FLOOR SLAB TO BE REMOVED WITHIN AREA INDICATED
-  FLOOR, WALL AND CEILING FINISHES ONLY, TO BE REMOVED WITHIN AREA INDICATED
-  FLOOR AND WALL FINISHES ONLY, TO BE REMOVED WITHIN AREA INDICATED
-  AREA OUT OF ARCHITECTURAL SCOPE BUT REFER TO MEP AND STRUCTURAL DEMOLITION DOCUMENTS FOR ADDITIONAL WORK IF REQUIRED

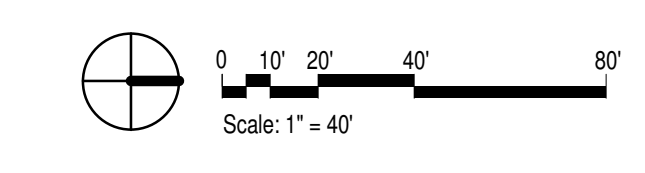
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1 OVERALL DEMOLITION FLOOR PLAN - EXHIBIT LEVEL
1" = 40'-0"



1	100% SCHEMATIC DESIGN	6.22.20
ISSUE		DATE
Job Number	221929	
TITLE		

OVERALL DEMOLITION FLOOR PLAN - EXHIBIT LEVEL

SHEET NUMBER

A10-00

SCHEMATIC DESIGN 06/22/2020

DEMOLITION GENERAL NOTES

- REFER TO SPECIFICATIONS FOR INTERIM LIFE SAFETY MEASURES.
- CONSTRUCT TEMPORARY PARTITIONS AS REQUIRED BY PHASING TO MINIMIZE THE SPREAD OF DUST AND NOISE.
- THESE DRAWINGS HAVE BEEN DEVELOPED FROM EXISTING DRAWINGS WHICH MAY NOT REFLECT ACTUAL FIELD CONDITIONS. VERIFY THESE DRAWINGS WITH EXISTING FIELD CONDITIONS AND NOTIFY THE ARCHITECT IMMEDIATELY OF INCONSISTENCIES BETWEEN THEM AND ACTUAL CONDITIONS BEFORE PROCEEDING WITH CONSTRUCTION.
- REPAIR ANY DAMAGED FIRE-RATED ASSEMBLIES TO THEIR ORIGINAL SPECIFICATION, UNO.
- REMOVE CONSTRUCTION AS INDICATED. TYPICAL WALL REMOVAL INCLUDES FINISHES AND MECHANICAL, PLUMBING AND ELECTRICAL SYSTEMS CONTAINED THEREIN. REMOVE DOORS, CASEWORK, WINDOWS, FRAMES, AND OTHER FIXTURES AS REQUIRED. AFTER REMOVAL OF PIPE CHASES, PATCH HOLES IN FLOORS OR WALLS TO REMAIN TO MEET ORIGINAL FIRE PROTECTION AND STRUCTURAL REQUIREMENTS. PATCH ADJOINING WALLS, FLOORS AND DECK, AND PREPARE SURFACES TO RECEIVE NEW FINISHES PER FINISH SCHEDULE OR PER INTERIOR FINISH PLANS.
- WHERE NEW FINISHES ARE TO BE INSTALLED ON TO REMAIN SURFACES, REMOVE THE EXISTING FINISH AND PREPARE THE EXISTING SURFACE TO RECEIVE THE NEW FINISH.
- COORDINATE WITH THE OWNER ANY ITEMS TO BE STORED AND/OR RELOCATED.
- SEE CIVIL, MECHANICAL, PLUMBING, AND/OR ELECTRICAL DRAWINGS FOR DEMOLITION OF UTILITIES.
- FOR EXTENT AND LOCATION OF CHANNELING OF FLOOR SLABS, REFER TO MECHANICAL, PLUMBING, AND ELECTRICAL DRAWINGS. IF PIPING OR CONDUIT WORK (OTHER THAN THE DESIRED CONNECTION) IS ENCOUNTERED WHILE CHANNELING, NOTIFY THE ARCHITECT BEFORE CONTINUING.
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- WHEREVER POSSIBLE, RETAIN REMOVED BRICK, TO BE USED TO FILLEXTERIOR WALL OPENINGS.
- NOTIFY THE ARCHITECT IMMEDIATELY IF THE REMOVAL OF MECHANICAL, ELECTRICAL, PLUMBING SYSTEMS OR COMPONENTS WILL ADVERSELY AFFECT THE OPERATION OF MEP SYSTEMS OUTSIDE THE LIMIT OF DEMOLITION.
- SCHEDULE ALL DEMOLITION WITH THE OWNER.

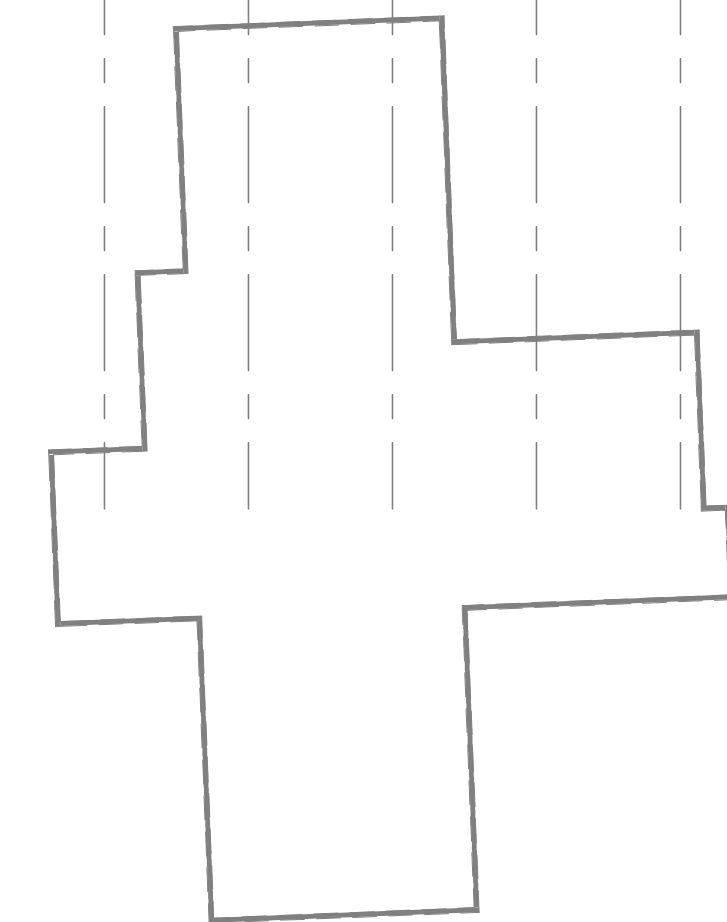
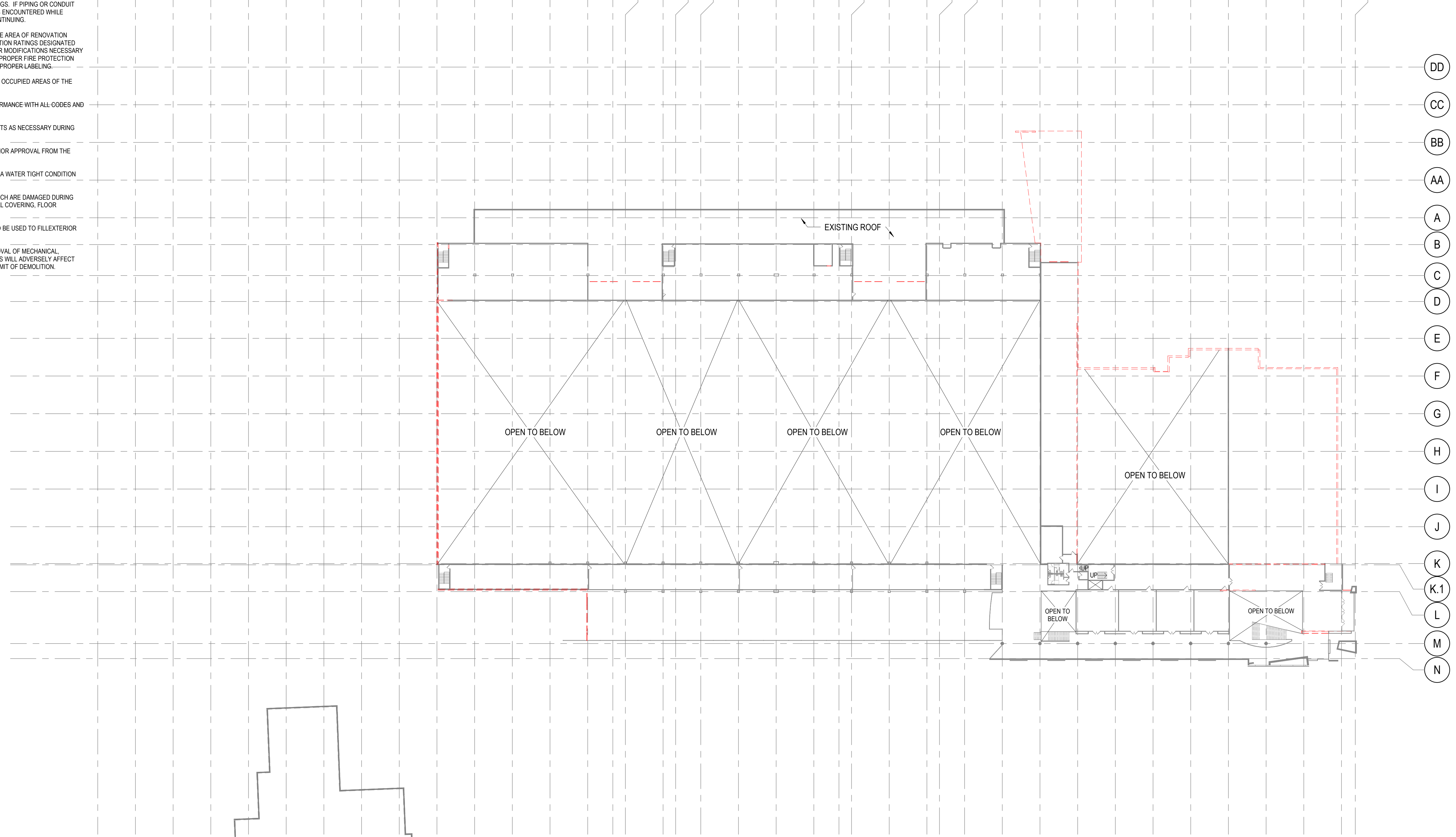
DEMOLITION LEGEND

- CONSTRUCTION TO REMAIN
- CONSTRUCTION TO BE REMOVED
- FLOOR SLAB TO BE REMOVED WITHIN AREA INDICATED
- FLOOR, WALL AND CEILING FINISHES ONLY, TO BE REMOVED WITHIN AREA INDICATED
- FLOOR AND WALL FINISHES ONLY, TO BE REMOVED WITHIN AREA INDICATED
- AREA OUT OF ARCHITECTURAL SCOPE BUT REFER TO MEP AND STRUCTURAL DEMOLITION DOCUMENTS FOR ADDITIONAL WORK IF REQUIRED

DEMOLITION NOTES BY NUMBER

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SCHEMATIC DESIGN 06/22/2020

1 OVERALL DEMOLITION FLOOR PLAN - MEZZANINE LEVEL
1" = 40'-0"

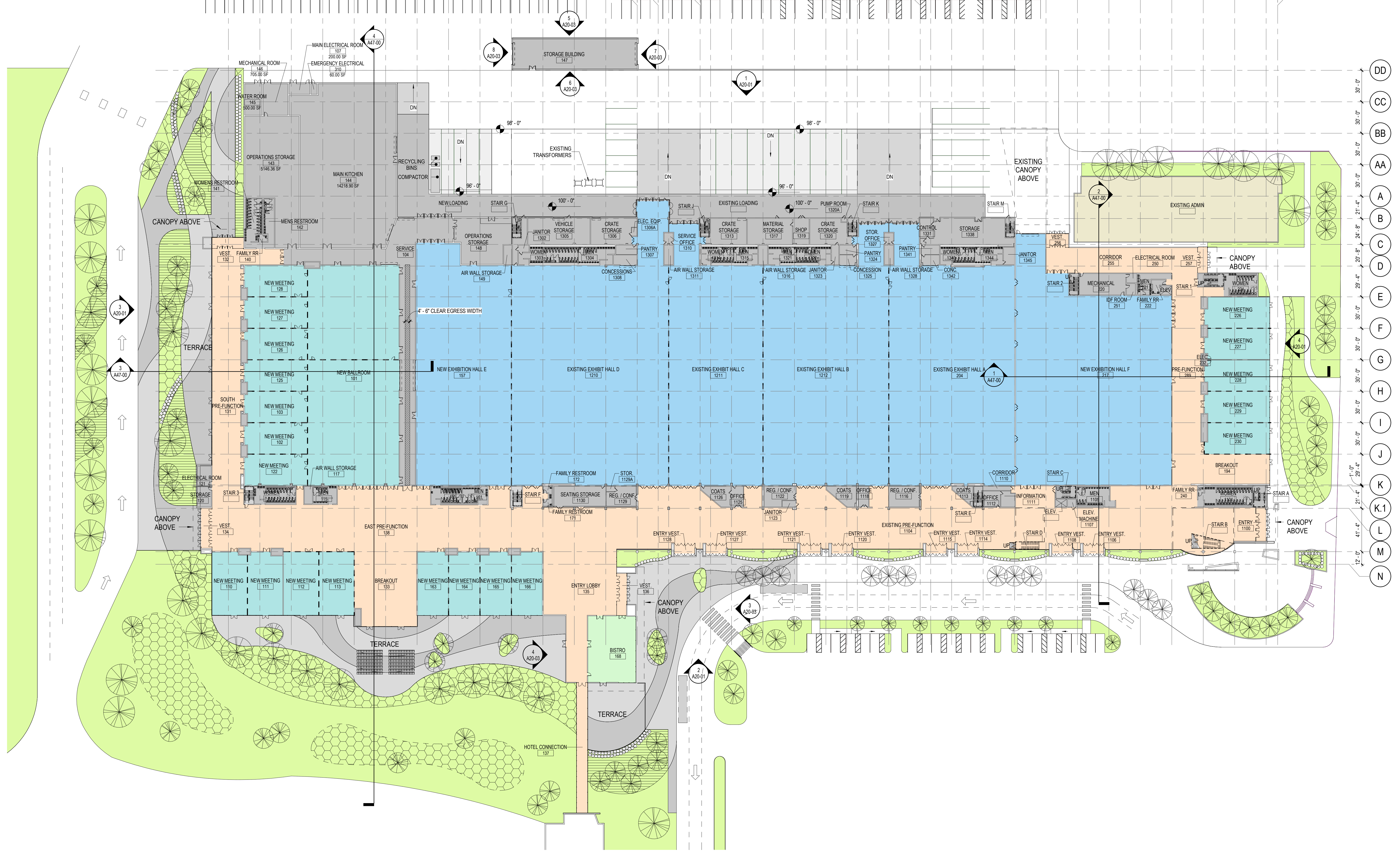
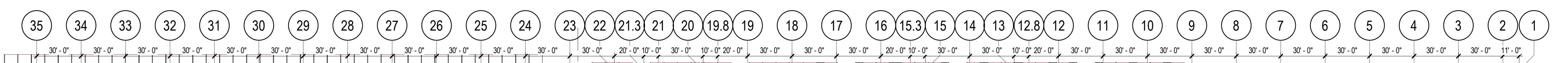
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FLOOR PLAN LEGEND

- BUILDING EXPANSION JOINT
- EXISTING PARTITION TO REMAIN
- NEW PARTITION
- NEW COLUMN
- ⬆ EXTERIOR ELEVATION TAG
- WALL SECTION TAG
- BUILDING SECTION TAG
- ◇ (ALPHA) EXTERIOR GLAZING SYSTEM TAG REF: A33-0X SERIES FOR SCHEDULE
- ◇ (NUMERICAL) INTERIOR GLAZING REFER: A63-0X SERIES FOR SCHEDULE
- ⊙(A) DOOR TAG REF: A62-0X SERIES FOR DOOR SCHEDULE.
- ⊙(A11) PARTITION TAG REF: A61-0X SERIES FOR CHARTS
- ⊙(FD) FLOOR DRAIN
- OWNER FURNISHED EQUIPMENT ITEM

FLOOR PLAN GENERAL NOTES

1. PARTITION TYPES ARE SCHEDULED IN THE A61 SERIES. RE: A01 SERIES' CODE COMPLIANCE PLANS' FOR GRAPHIC EXTENT OF FIRE RATED PARTITIONS. REFER TO PARTITION TYPE SCHEDULE FOR LOCATION OF SOUND ATTENUATION BLANKETS
2. REFER TO SHEET ???-?? FOR ADDITIONAL GENERAL NOTES.
3. REFER TO FLOOR PLAN SERIES ??? FOR LOCATION OF PARTITION TYPES. ALL PARTITIONS ARE TYPE '???' UNLESS NOTED OTHERWISE.



PROJECT

PROJECT LOGO IF AVAILABLE

EXPOSITION CENTER

CLIENT LOGO IF AVAILABLE

Dane County - Alliant Energy Center

KEYPLAN

ISSUE CHART

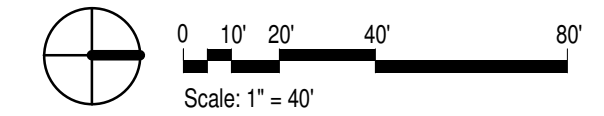
T	100% SCHEMATIC DESIGN	6.22.20
DATE	DATE	DATE
Job Number	221929	TITLE

OVERALL FLOOR PLAN - EXHIBIT LEVEL

SHEET NUMBER

A10-10

1 OVERALL FLOOR PLAN - EXHIBIT LEVEL
 1" = 40'-0"



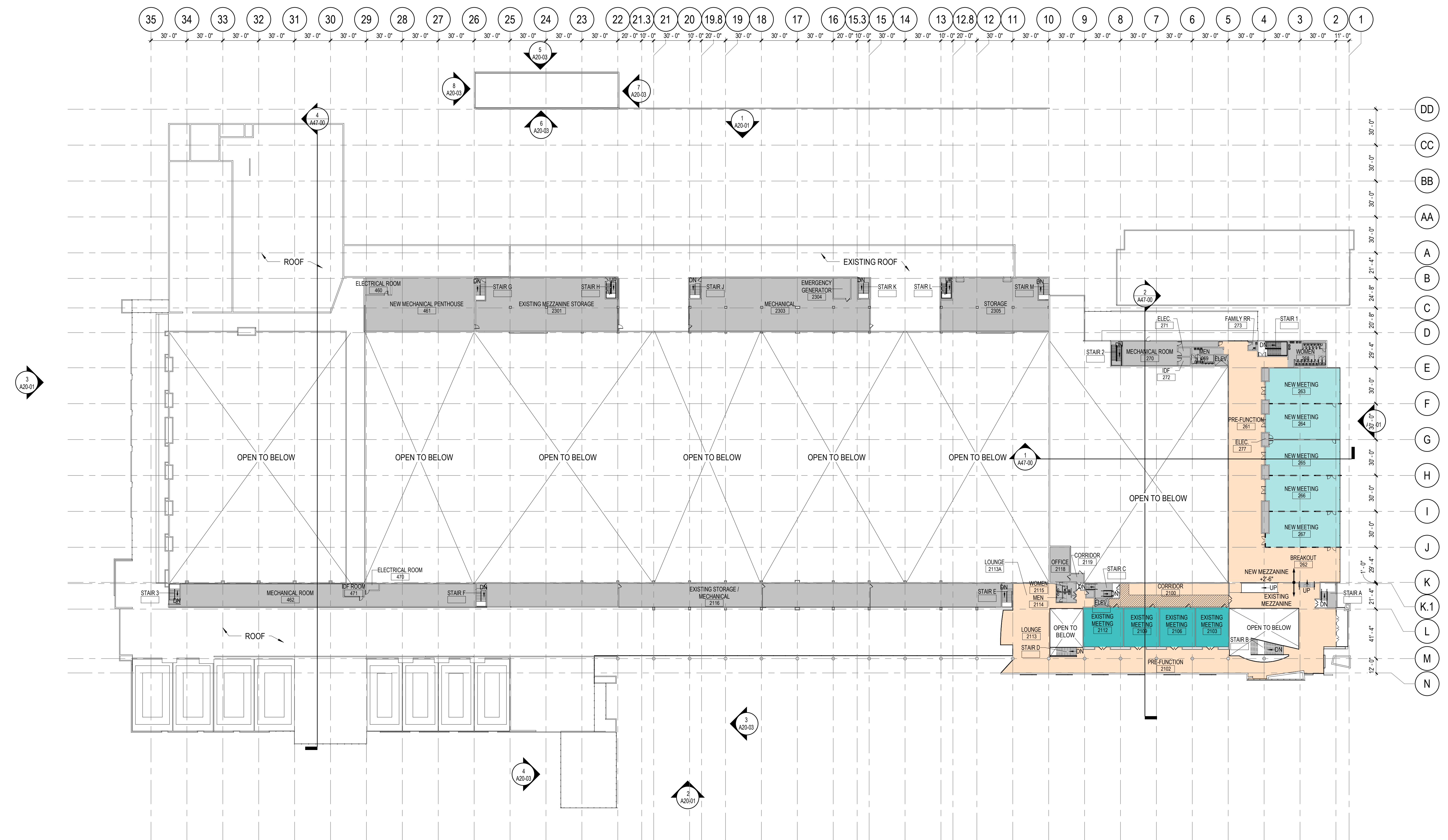
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FLOOR PLAN LEGEND

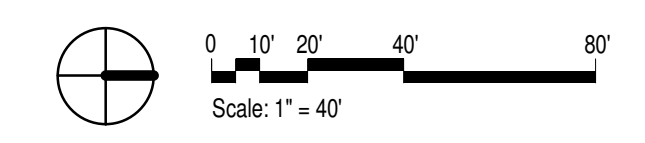
	BUILDING EXPANSION JOINT		EXTERIOR GLAZING SYSTEM TAG REF: A33-0X SERIES FOR SCHEDULE
	EXISTING PARTITION TO REMAIN		INTERIOR GLAZING REFER: A63-0X SERIES FOR SCHEDULE
	NEW PARTITION		DOOR TAG REF: A62-0X SERIES FOR DOOR SCHEDULE
	NEW COLUMN		PARTITION TAG REF: A61-0X SERIES FOR CHARTS
	EXTERIOR ELEVATION TAG		FLOOR DRAIN
	WALL SECTION TAG		OWNER FURNISHED EQUIPMENT ITEM
	BUILDING SECTION TAG		

FLOOR PLAN GENERAL NOTES

- PARTITION TYPES ARE SCHEDULED IN THE A61 SERIES. RE: A01 SERIES "CODE COMPLIANCE PLANS" FOR GRAPHIC EXTENT OF FIRE RATED PARTITIONS. REFER TO PARTITION TYPE SCHEDULE FOR LOCATION OF SOUND ATTENUATION BLANKETS
- REFER TO SHEET ???-?? FOR ADDITIONAL GENERAL NOTES.
- REFER TO FLOOR PLAN SERIES ??? FOR LOCATION OF PARTITION TYPES. ALL PARTITIONS ARE TYPE "???" UNLESS NOTED OTHERWISE.



2 OVERALL FLOOR PLAN - MEZZANINE LEVEL
1" = 40'-0"



PROJECT

PROJECT LOGO IF AVAILABLE

EXPOSITION CENTER

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Dane County - Alliant Energy Center

KEYPLAN

ISSUE CHART

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OVERALL FLOOR PLAN - MEZZANINE LEVEL

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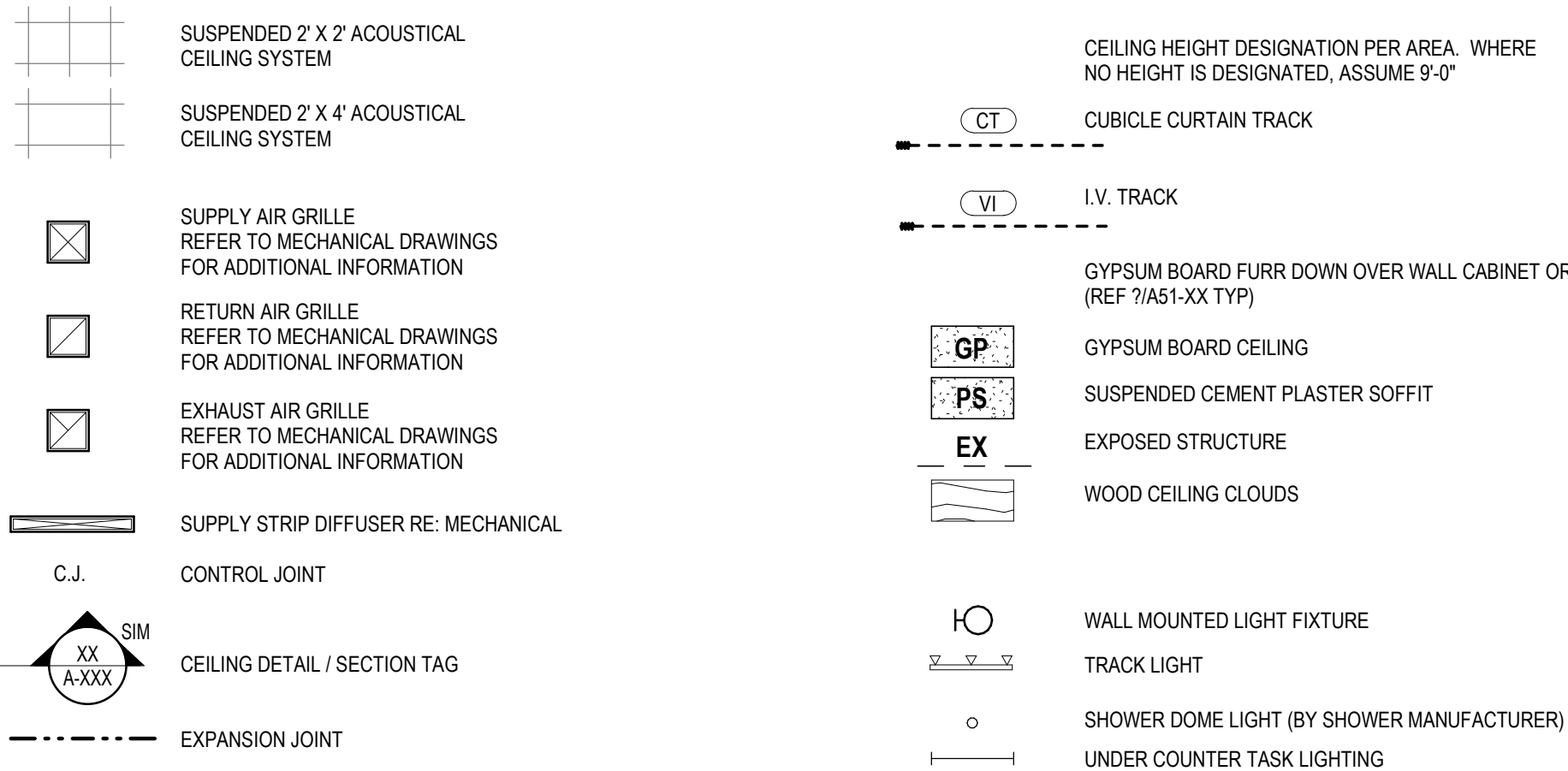
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SCHEMATIC DESIGN 06/22/2020

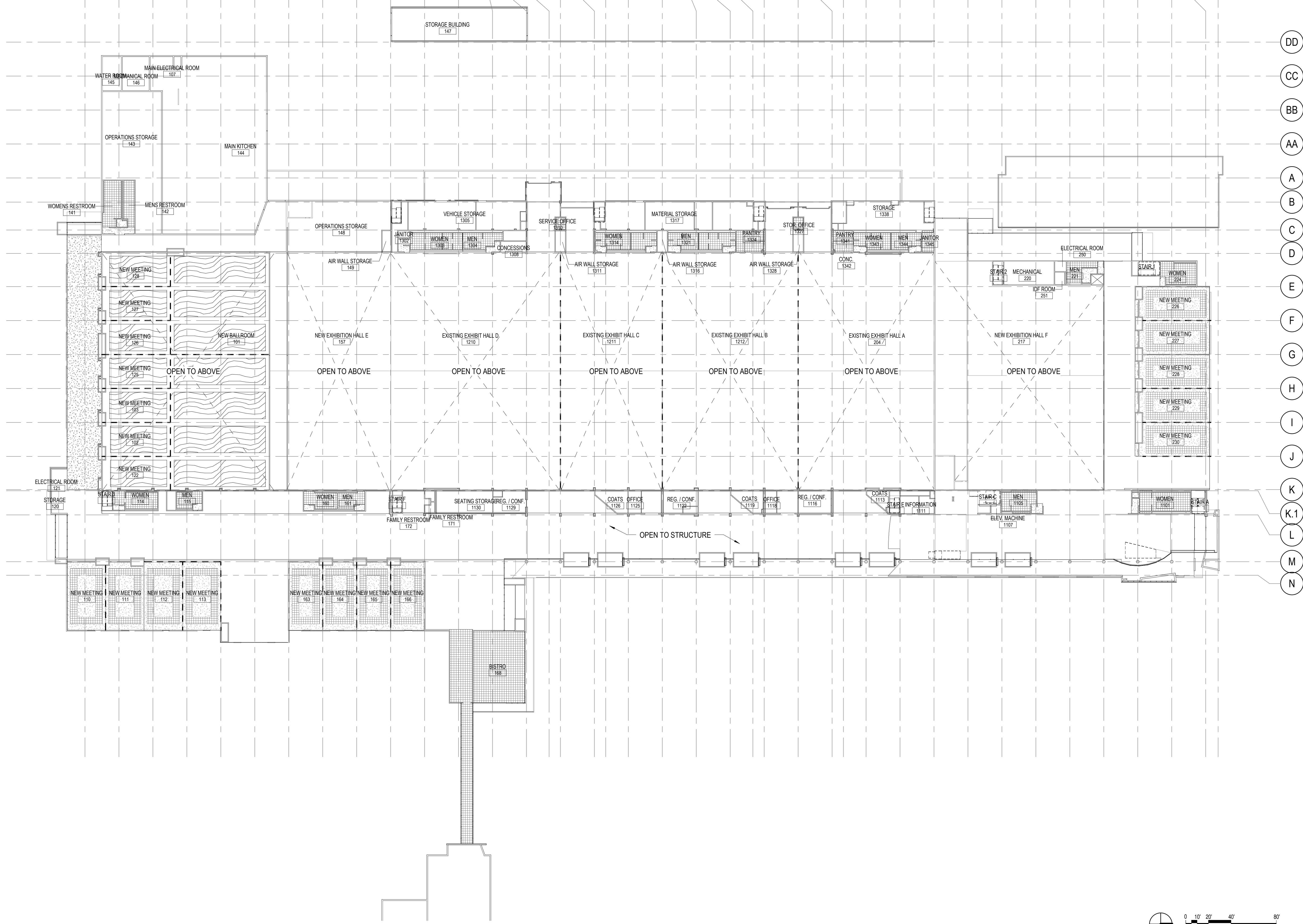
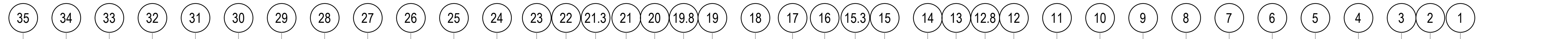
RCP NOTES BY NUMBER

RCP LEGEND

RCP GENERAL NOTES



- THE CONTRACTOR SHALL COMPARE THIS REFLECTED CEILING PLAN WITH ELECTRICAL LIGHTING PLANS, MECHANICAL SUPPLY, RETURN, AND EXHAUST PLANS AND REPORT ANY OMISSIONS OR INCONSISTENCIES TO THE ARCHITECT.
- SEE ELECTRICAL DRAWINGS FOR THE LOCATIONS OF CEILING MOUNTED SMOKE DETECTORS, SPEAKERS, EXIT SIGNAGE, FIRE ALARM DEVICES, WALL MOUNTED EXIT LIGHTS, ETC.
- 18" MINIMUM VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM OF EXTENDED SPRINKLER HEADS AND THE TOP OF ANY FILES, SHELVING, LOCKERS, ETC.
- THE CONTRACTOR SHALL VERIFY THAT ACCESS PANELS OF TYPE SPECIFIED ARE INSTALLED IN NON-ACCESSIBLE TYPE CEILINGS WHERE SERVICE OR ADJUSTMENT TO MECHANICAL, PLUMBING, OR ELECTRICAL ITEMS MAY BE REQUIRED. ACCESS PANELS SHALL BE THE FIRE RATED TYPE EQUAL TO THE RATING OF THE CEILING IN WHICH THEY OCCUR. CONTRACTOR TO VERIFY ACCESS PANEL LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION.
- ALL NEW AND EXISTING DRYWALL CEILINGS AND SOFFITS SHALL RECEIVE FLAT FINISH PAINT U.N.O.
- ALL WET ENVIRONMENT AREA CEILINGS SHALL RECEIVE HIGH PERFORMANCE PAINT, U.N.O.
- PAIN ALL INTERIOR EXPOSED STRUCTURE, METAL, COLUMNS, CONDUIT, DUCTWORK, PIPING, JOISTS ETC. U.N.O AT LOCATIONS EXPOSED TO PUBLIC VIEW.
- PAINT ACCESS PANELS AND OTHER MISCELLANEOUS CEILING MOUNTED ITEMS TO MATCH THE SURFACE UPON WHICH THEY OCCUR, U.N.O.
- REPLACE ANY DAMAGED, STAINED, OR DIRTY EXISTING CEILING TILES WITH NEW TO MATCH EXISTING U.N.O.
- FOR FURTHER DIMENSIONS SEE LARGE SCALE PLANS, SECTIONS, ELEVATIONS, AND DETAILS.
- COORDINATE GYPSUM BOARD FURR DOWN HEIGHTS WITH FULL HEIGHT CABINETS AND INTERIOR ELEVATIONS (A45 SERIES).
- SPRINKLER HEAD LOCATIONS ARE NOT SHOWN ON ARCHITECTURAL REFLECTED CEILING PLANS. REFER TO CODE COMPLIANCE DATA TO DETERMINE IF FULL SPRINKLER COVERAGE IS REQUIRED.
- SPRINKLER HEADS SHALL BE INSTALLED CENTERED IN BULKHEADS AND IN ACT TILES, WHERE APPLICABLE.
- 18" MINIMUM VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM OF EXTENDED SPRINKLER HEADS AND THE TOP OF ANY FILES, SHELVING, LOCKERS, ETC.
- THE CONTRACTOR SHALL VERIFY THAT ACCESS PANELS OF TYPE SPECIFIED ARE INSTALLED IN NON-ACCESSIBLE TYPE CEILINGS WHERE SERVICE OR ADJUSTMENT TO MECHANICAL, PLUMBING, OR ELECTRICAL ITEMS MAY BE REQUIRED. ACCESS PANELS SHALL BE THE FIRE RATED TYPE EQUAL TO THE RATING OF THE CEILING IN WHICH THEY OCCUR.
- LOCATE SUPPLY DRAIN AND VENT PIPES TO MAINTAIN SCHEDULED CEILING HEIGHTS. COORDINATE NECESSARY RELOCATIONS WITH MEP ENGINEERS.
- WHERE EXISTING LAY-IN CEILINGS ARE TO REMAIN, THE CONTRACTOR SHALL REPLACE ANY TILES THAT HAVE BEEN DAMAGED WITH MATERIALS THAT MATCH THE EXISTING FOR COLOR, TEXTURE, PATTERN, ETC. IF UNIFORMITY CANNOT BE ACHIEVED, THE ENTIRE CEILING SHOULD BE REPLACED. COORDINATE WITH OWNER AND ARCHITECT.
- ALL GYPSUM CEILINGS, SOFFITS, & FASCIA SHALL BE PAINTED, UNLESS NOTED OTHERWISE.
- ALL EXPOSED STRUCTURE, DUCTWORK, CONDUIT, PIPING, ETC. SHALL BE PAINTED, UNLESS NOTED OTHERWISE.
- ALL EXTERIOR WINDOWS SHALL RECEIVE WINDOW COVERINGS, UNLESS NOTED OTHERWISE.



PROJECT
PROJECT LOGO IF AVAILABLE
EXPOSITION CENTER

CLIENT LOGO IF AVAILABLE
Dane County - Alliant Energy Center

KEYPLAN

ISSUE CHART

T	100% SCHEMATIC DESIGN	6.22.20
DATE	DATE	DATE
Job Number	221929	TITLE

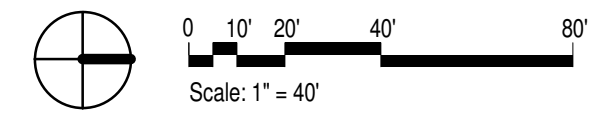
REFLECTED CEILING PLAN - EXHIBIT LEVEL

SHEET NUMBER

A12-10

6/19/2020 5:12:21 PM BIM 360://Dane Co. WI - AEC Exhibit Hall Expansion\ARCH\AEC Expo Center R19.rvt

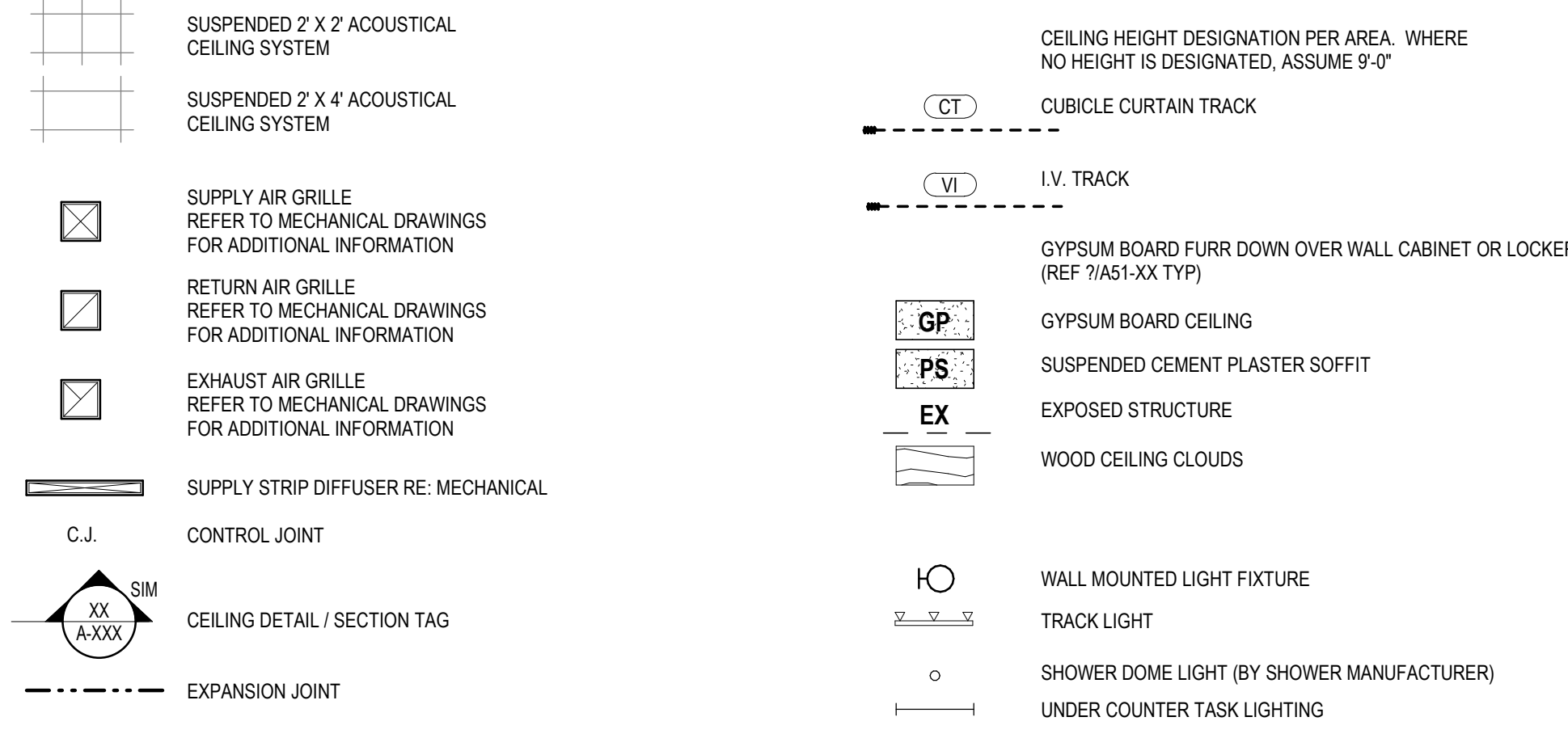
1 OVERALL RCP - EXHIBIT LEVEL
1" = 40'-0"



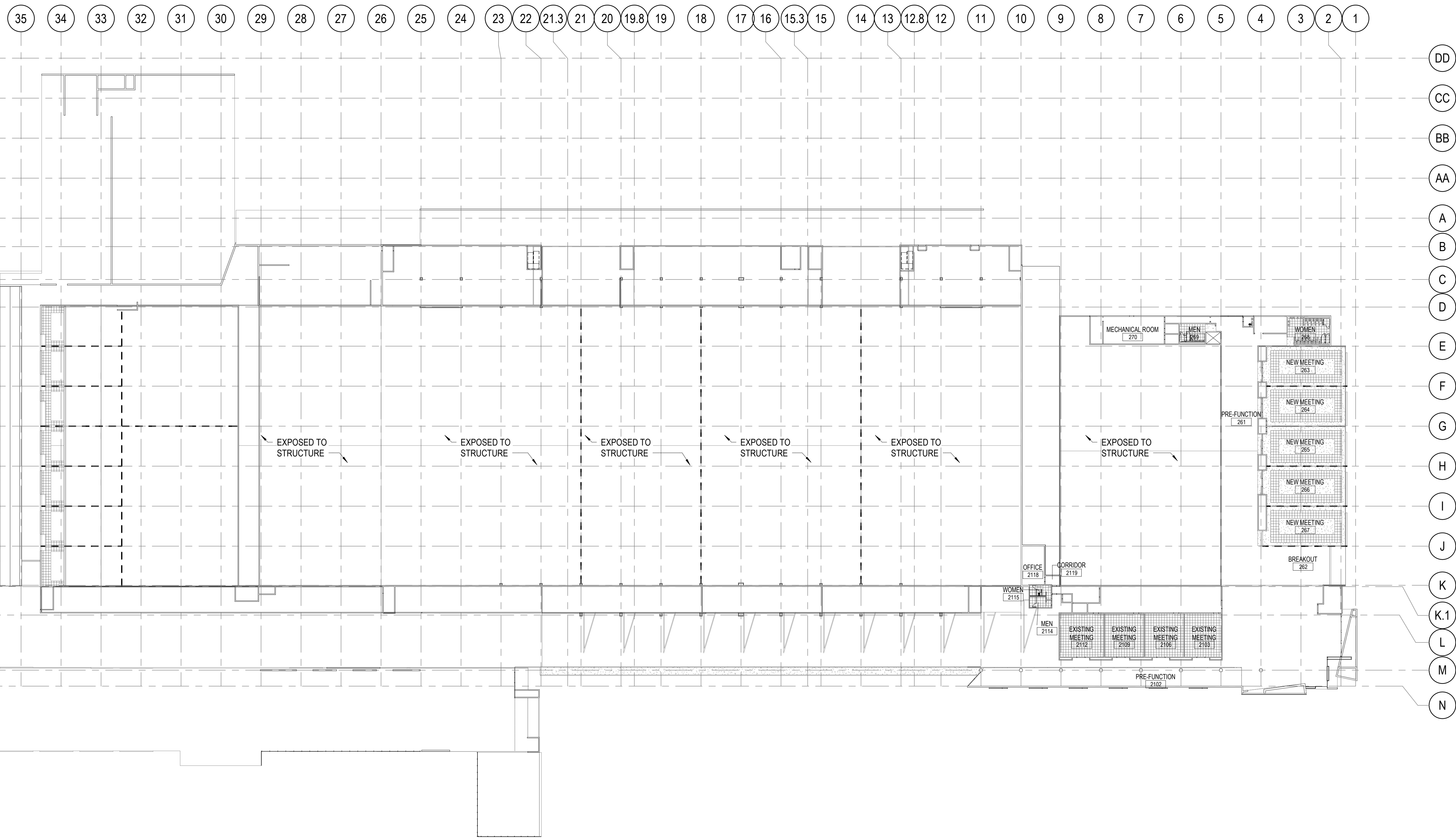
RCP NOTES BY NUMBER

RCP LEGEND

RCP GENERAL NOTES



1. THE CONTRACTOR SHALL COMPARE THIS REFLECTED CEILING PLAN WITH ELECTRICAL LIGHTING PLANS, MECHANICAL SUPPLY, RETURN, AND EXHAUST PLANS AND REPORT ANY OMISSIONS OR INCONSISTENCIES TO THE ARCHITECT.
2. SEE ELECTRICAL DRAWINGS FOR THE LOCATIONS OF CEILING MOUNTED SMOKE DETECTORS, SPEAKERS, EXIT SIGNAGE, FIRE ALARM DEVICES, WALL MOUNTED EXIT LIGHTS, ETC.
3. 18" MINIMUM VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM OF EXTENDED SPRINKLER HEADS AND THE TOP OF ANY FILES, SHELVING, LOCKERS, ETC.
4. THE CONTRACTOR SHALL VERIFY THAT ACCESS PANELS OF TYPE SPECIFIED ARE INSTALLED IN NON-ACCESSIBLE TYPE CEILINGS WHERE SERVICE OR ADJUSTMENT TO MECHANICAL, PLUMBING, OR ELECTRICAL ITEMS MAY BE REQUIRED. ACCESS PANELS SHALL BE THE FIRE RATED TYPE EQUAL TO THE RATING OF THE CEILING IN WHICH THEY OCCUR. CONTRACTOR TO VERIFY ACCESS PANEL LOCATIONS WITH ARCHITECT PRIOR TO INSTALLATION.
5. ALL NEW AND EXISTING DRYWALL CEILINGS AND SOFFITS SHALL RECEIVE FLAT FINISH PAINT U.N.O.
6. ALL WET ENVIRONMENT AREA CEILINGS SHALL RECEIVE HIGH PERFORMANCE PAINT, U.N.O.
7. PAINT ALL INTERIOR EXPOSED STRUCTURE, METAL, COLUMNS, CONDUIT, DUCTWORK, PIPING, JOISTS ETC. U.N.O AT LOCATIONS EXPOSED TO PUBLIC VIEW.
8. PAINT ACCESS PANELS AND OTHER MISCELLANEOUS CEILING MOUNTED ITEMS TO MATCH THE SURFACE UPON WHICH THEY OCCUR, U.N.O.
9. REPLACE ANY DAMAGED, STAINED, OR DIRTY EXISTING CEILING TILES WITH NEW TO MATCH EXISTING U.N.O.
10. FOR FURTHER DIMENSIONS SEE LARGE SCALE PLANS, SECTIONS, ELEVATIONS, AND DETAILS.
11. COORDINATE GYPSUM BOARD FURR DOWN HEIGHTS WITH FULL HEIGHT CABINETS AND INTERIOR ELEVATIONS (A45 SERIES).
12. SPRINKLER HEAD LOCATIONS ARE NOT SHOWN ON ARCHITECTURAL REFLECTED CEILING PLANS. REFER TO CODE COMPLIANCE DATA TO DETERMINE IF FULL SPRINKLER COVERAGE IS REQUIRED.
13. SPRINKLER HEADS SHALL BE INSTALLED CENTERED IN BULKHEADS AND IN ACT TILES, WHERE APPLICABLE.
14. 18" MINIMUM VERTICAL CLEARANCE SHALL BE MAINTAINED BETWEEN THE BOTTOM OF EXTENDED SPRINKLER HEADS AND THE TOP OF ANY FILES, SHELVING, LOCKERS, ETC.
15. THE CONTRACTOR SHALL VERIFY THAT ACCESS PANELS OF TYPE SPECIFIED ARE INSTALLED IN NON-ACCESSIBLE TYPE CEILINGS WHERE SERVICE OR ADJUSTMENT TO MECHANICAL, PLUMBING, OR ELECTRICAL ITEMS MAY BE REQUIRED. ACCESS PANELS SHALL BE THE FIRE RATED TYPE EQUAL TO THE RATING OF THE CEILING IN WHICH THEY OCCUR.
16. LOCATE SUPPLY DRAIN AND VENT PIPES TO MAINTAIN SCHEDULED CEILING HEIGHTS. COORDINATE NECESSARY RELOCATIONS WITH MEP ENGINEERS.
17. WHERE EXISTING LAY-IN CEILINGS ARE TO REMAIN, THE CONTRACTOR SHALL REPLACE ANY TILES THAT HAVE BEEN DAMAGED WITH MATERIALS THAT MATCH THE EXISTING FOR COLOR, TEXTURE, PATTERN, ETC. IF UNIFORMITY CANNOT BE ACHIEVED, THE ENTIRE CEILING SHOULD BE REPLACED. COORDINATE WITH OWNER AND ARCHITECT.
18. ALL GYPSUM CEILINGS, SOFFITS, & FASCIA SHALL BE PAINTED, UNLESS NOTED OTHERWISE.
19. ALL EXPOSED STRUCTURE, DUCTWORK, CONDUIT, PIPING, ETC. SHALL BE PAINTED, UNLESS NOTED OTHERWISE.
20. ALL EXTERIOR WINDOWS SHALL RECEIVE WINDOW COVERINGS, UNLESS NOTED OTHERWISE.



1 OVERALL RCP - MESSANINE LEVEL
1" = 40'-0"

PROJECT
PROJECT LOGO IF AVAILABLE
EXPOSITION CENTER

CLIENT LOGO IF AVAILABLE
Dane County - Alliant Energy Center

KEYPLAN

ISSUE CHART

1	100% SCHEMATIC DESIGN	6.22.20
DATE	ISSUE	1 DATE
Job Number	221929	

TITLE
REFLECTED CEILING PLAN - MEZZANINE LEVEL

SHEET NUMBER
A12-20

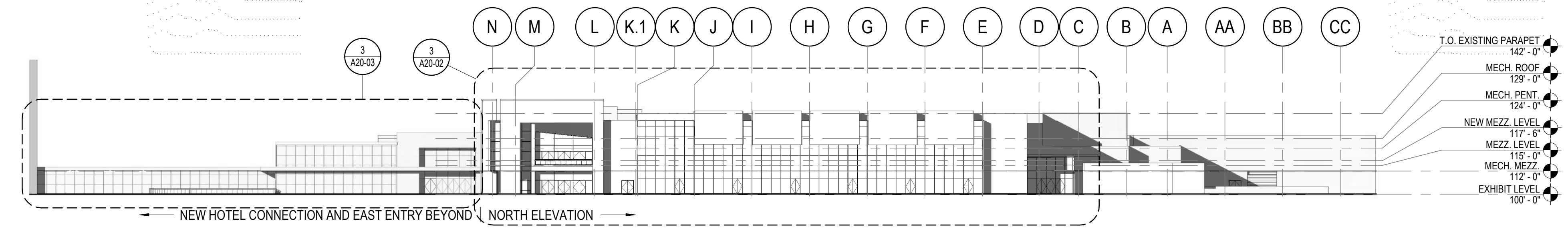
SCHEMATIC DESIGN 06/22/2020

**EXTERIOR ELEVATION
 GENERAL NOTES**

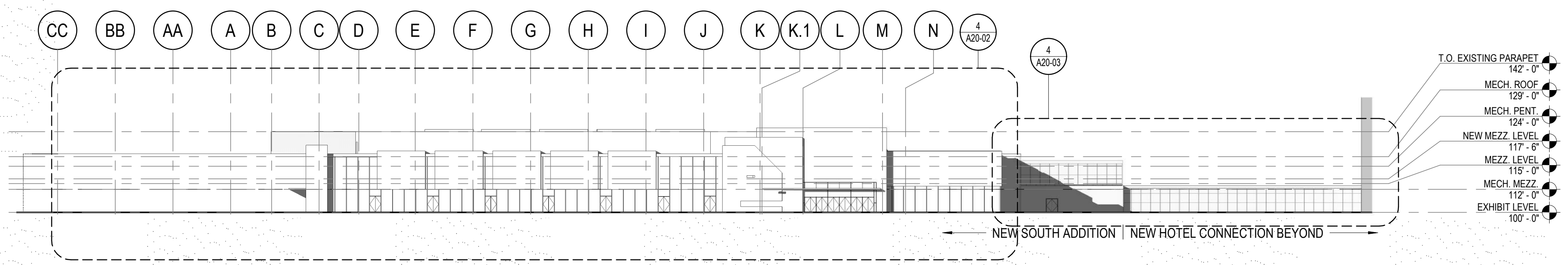
1. MATERIAL SYMBOLS ON ELEVATIONS ARE TO DISPLAY THE EXTENT OF THE MATERIAL ONLY. THEY ARE NOT TO SCALE.
2. REFER TO SHEET A20-00 FOR EXTERIOR BUILDING ASSEMBLY TYPES.
3. PROVIDE BRICK EXPANSION JOINTS PER THE AMERICAN BRICK INSTITUTES RECOMMENDATIONS

**EXTERIOR ELEVATION
 LEGEND**

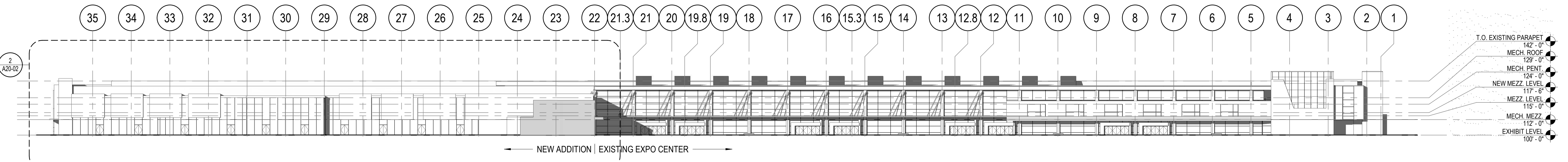
- ◊ EXTERIOR GLAZED OPENING TYPE RE: A33-XX SERIES
- ⊕ TEMPERED GLAZING FOR CODE
- - - BUILDING EXPANSION JOINT. RE: XIAX-XX
- MASONRY EXPANSION JOINT. MATCH BRICK COLOR



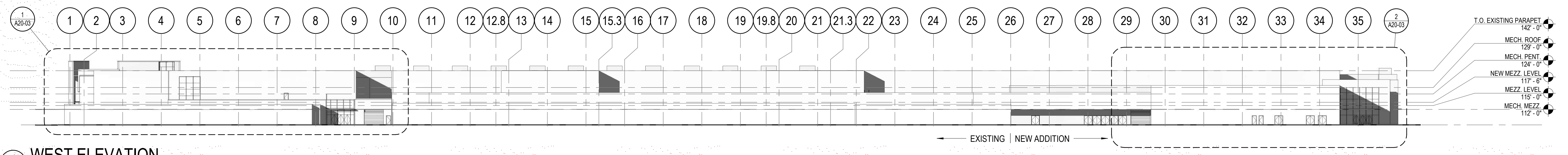
4 NORTH ELEVATION
 1" = 40'-0"



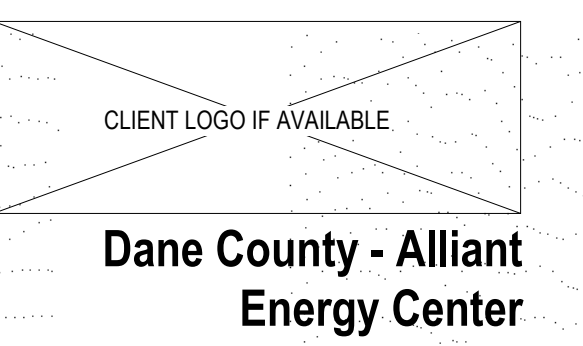
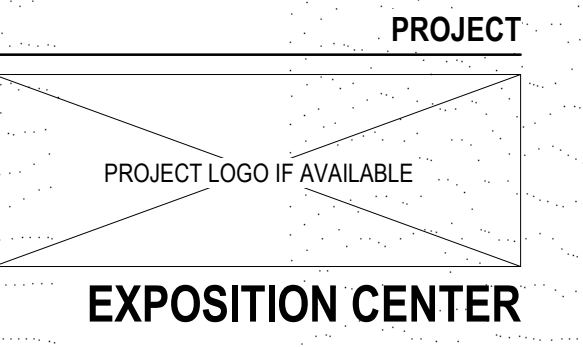
3 SOUTH ELEVATION
 1" = 40'-0"



2 EAST ELEVATION
 1" = 40'-0"



1 WEST ELEVATION
 1" = 40'-0"



KEYPLAN

ISSUE CHART

1	100% SCHEMATIC DESIGN	6.22.20
ISSUE	DATE	1 DATE
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OVERALL EXTERIOR ELEVATIONS

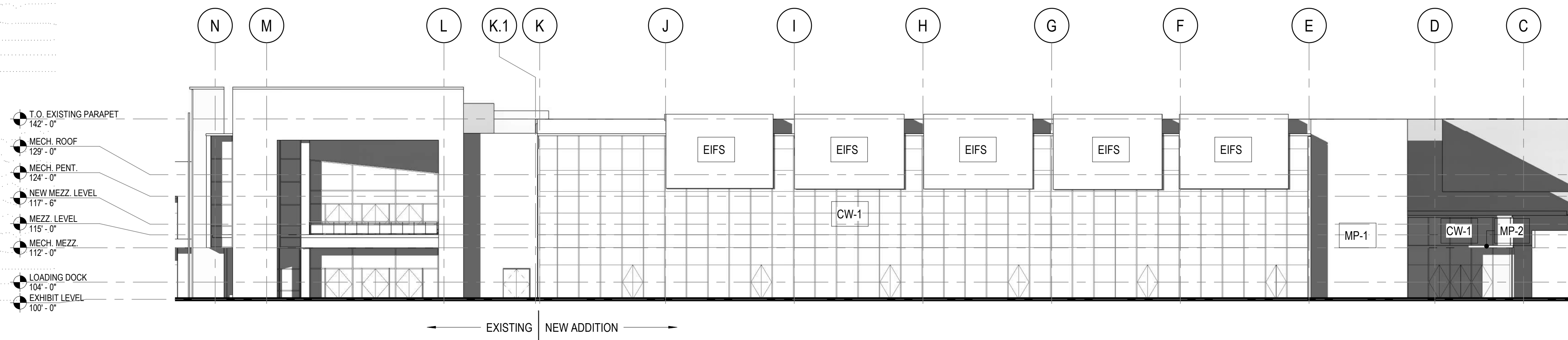
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A20-01

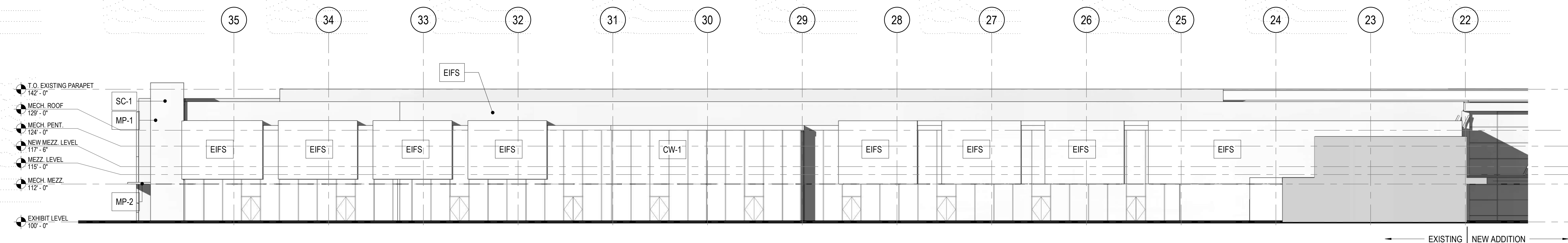
SCHEMATIC DESIGN 06/22/2020

**NEW ENLARGED EXTERIOR
ELEVATIONS MATERIAL LEGEND**

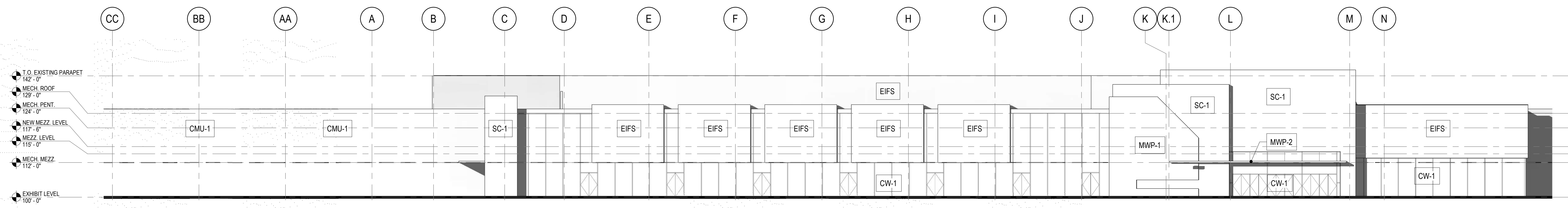
- MWP-1** METAL WALL PANEL 1
- MWP-2** METAL WALL PANEL 2
- SC-1** STONE CLADDING
- CW-1** CURTAIN WALL GLAZING SYSTEM
- CW-2** CURTAIN WALL GLAZING SYSTEM
- CMU-1** CONCRETE MASONRY UNIT
- EIFS** EXTERIOR INSULATION AND FINISH SYSTEM (STUCCO)



3 NORTH ELEVATION - NEW ADDITION
1/16" = 1'-0"



2 EAST ELEVATION - NEW SOUTH ADDITION
1/16" = 1'-0"



4 SOUTH ELEVATION - NEW ADDITION
1/16" = 1'-0"

PROJECT
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Energy Center**

KEYPLAN

ISSUE CHART

1	100% SCHEMATIC DESIGN	6.22.20
ISSUE	DATE	DATE
Job Number	221929	TITLE

**ENLARGED EXTERIOR
ELEVATIONS**

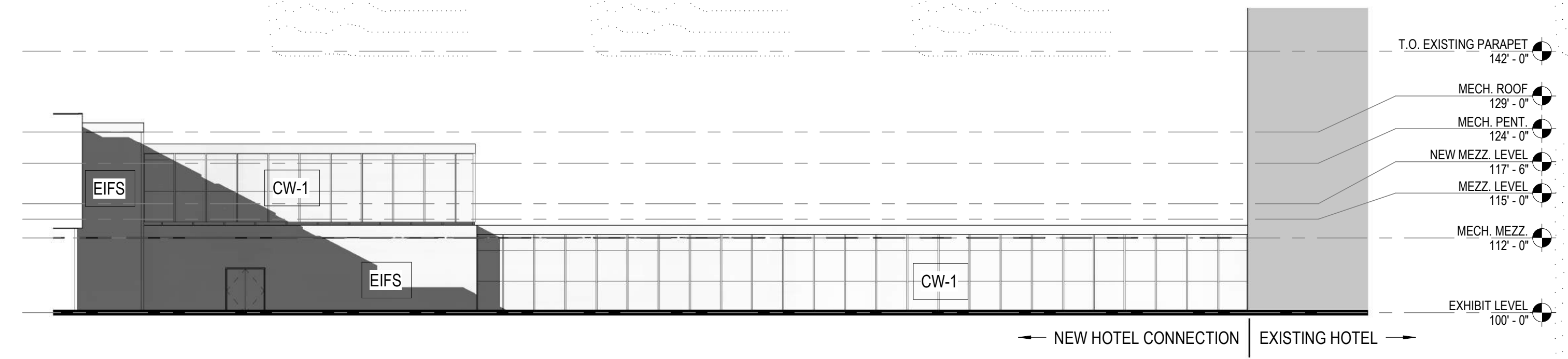
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A20-02

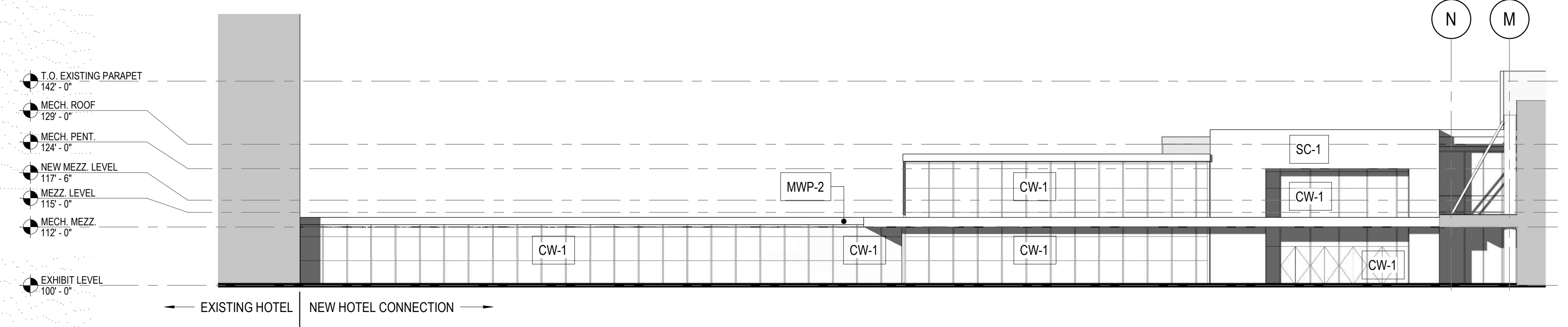
SCHEMATIC DESIGN 06/22/2020

NEW ENLARGED EXTERIOR ELEVATIONS MATERIAL LEGEND

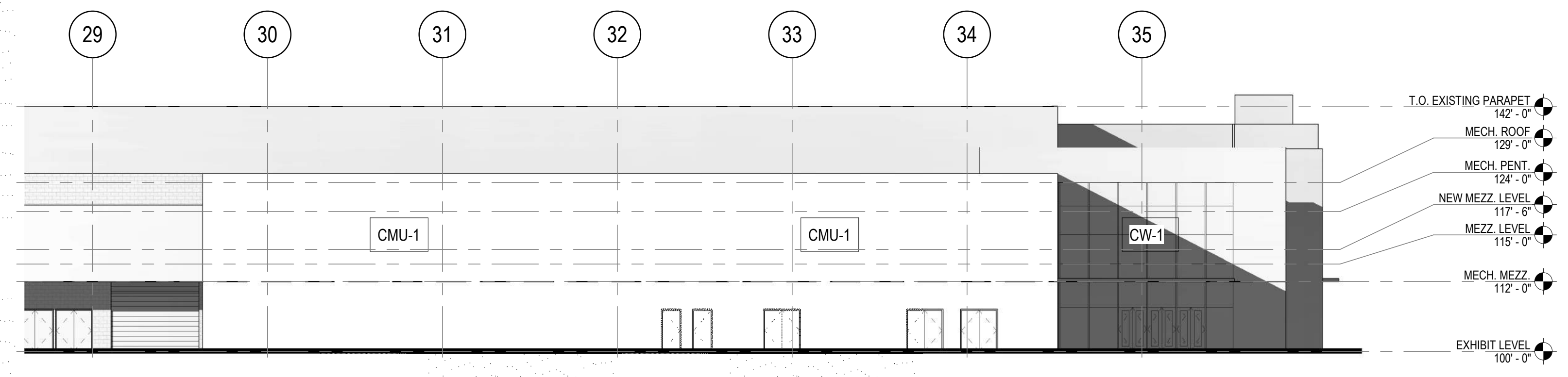
- MWP-1** METAL WALL PANEL 1
- MWP-2** METAL WALL PANEL 2
- SC-1** STONE CLADDING
- CW-1** CURTAIN WALL GLAZING SYSTEM
- CW-2** CURTAIN WALL GLAZING SYSTEM
- CMU-1** CONCRETE MASONRY UNIT
- EIFS** EXTERIOR INSULATION AND FINISH SYSTEM (STUCCO)



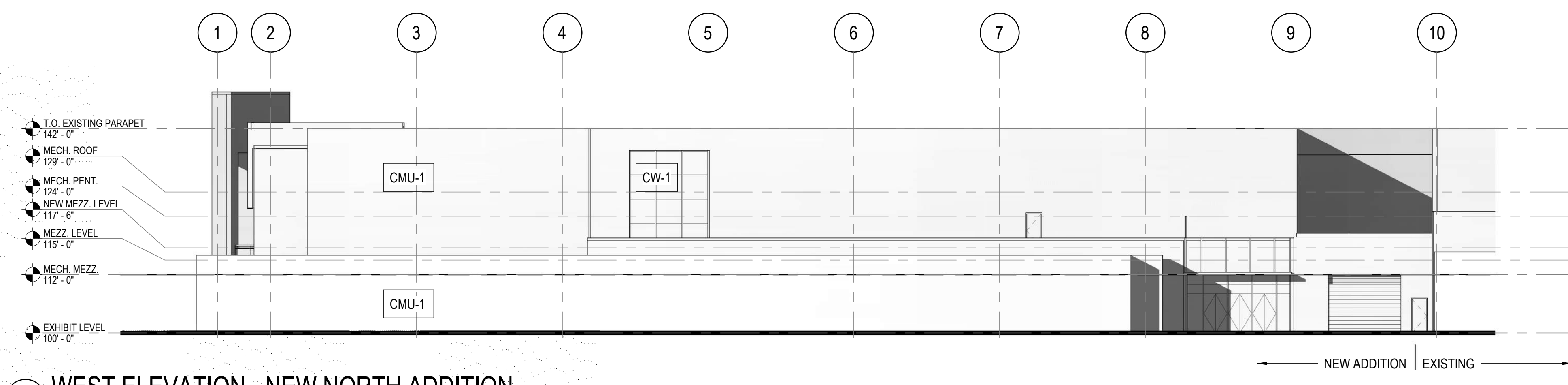
4 SOUTH ELEVATION HOTEL CONNECTION
1/16" = 1'-0"



3 NORTH ELEVATION HOTEL CONNECTION
1/16" = 1'-0"

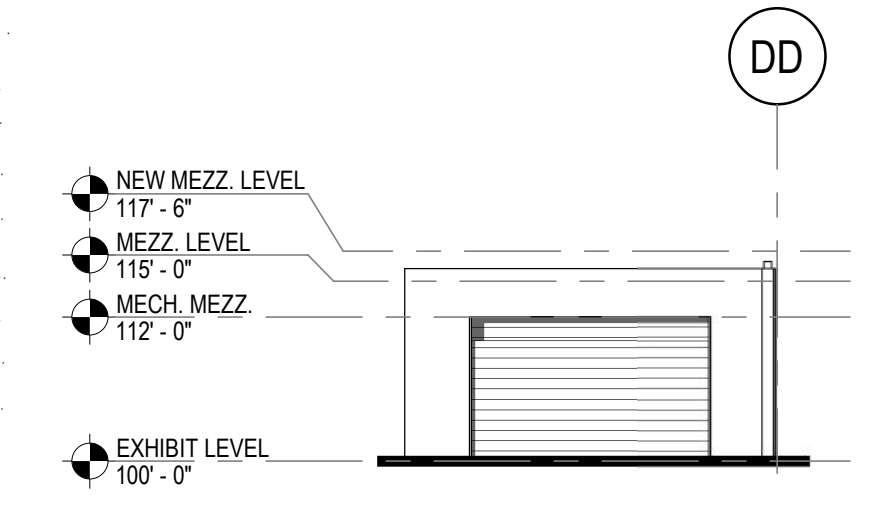


2 WEST ELEVATION - NEW SOUTH ADDITION
1/16" = 1'-0"

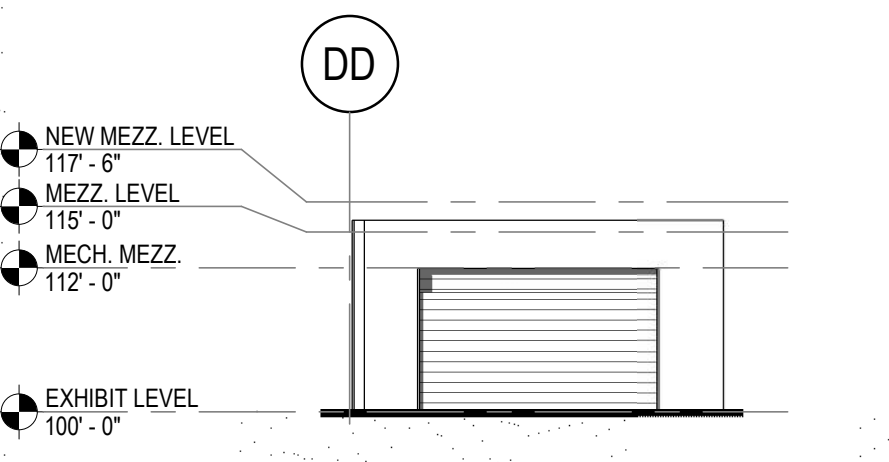


1 WEST ELEVATION - NEW NORTH ADDITION
1/16" = 1'-0"

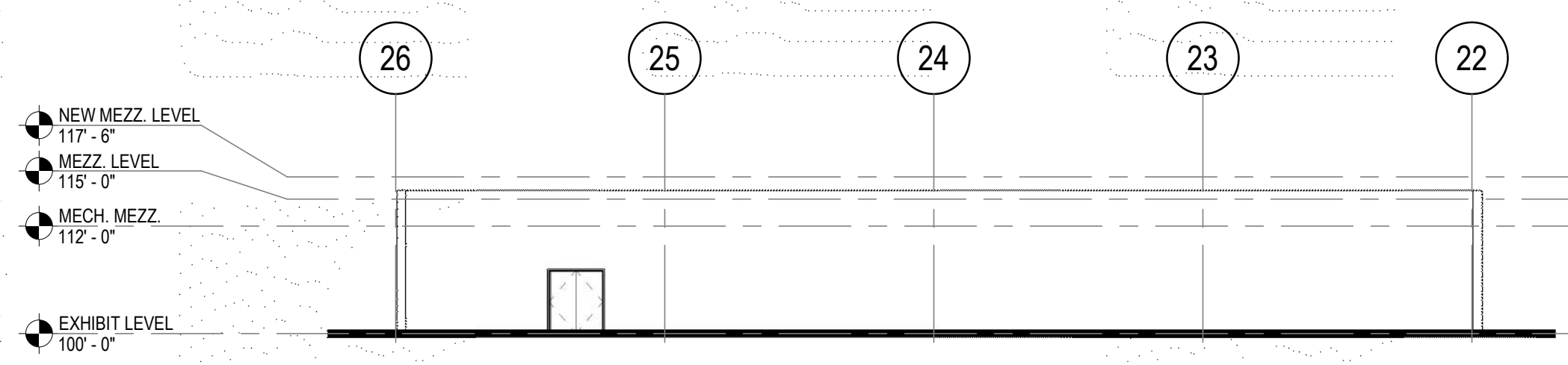
8 STORAGE BUILDING SOUTH ELEVATION
1/16" = 1'-0"



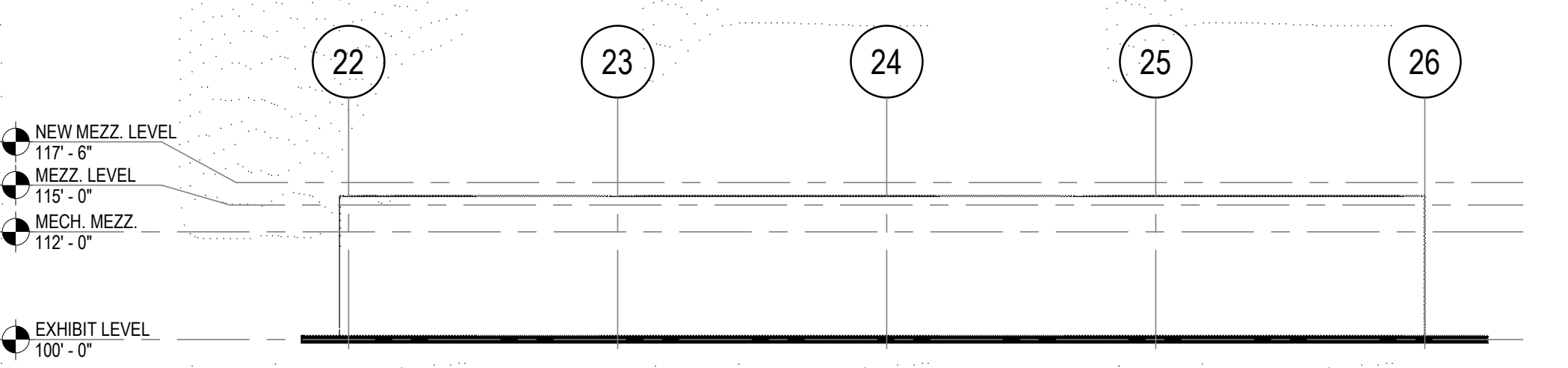
7 STORAGE BUILDING NORTH ELEVATION
1/16" = 1'-0"



6 STORAGE BUILDING EAST ELEVATION
1/16" = 1'-0"



5 STORAGE BUILDING WEST ELEVATION
1/16" = 1'-0"



PROJECT
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Dane County - Alliant Energy Center

KEYPLAN

ISSUE CHART

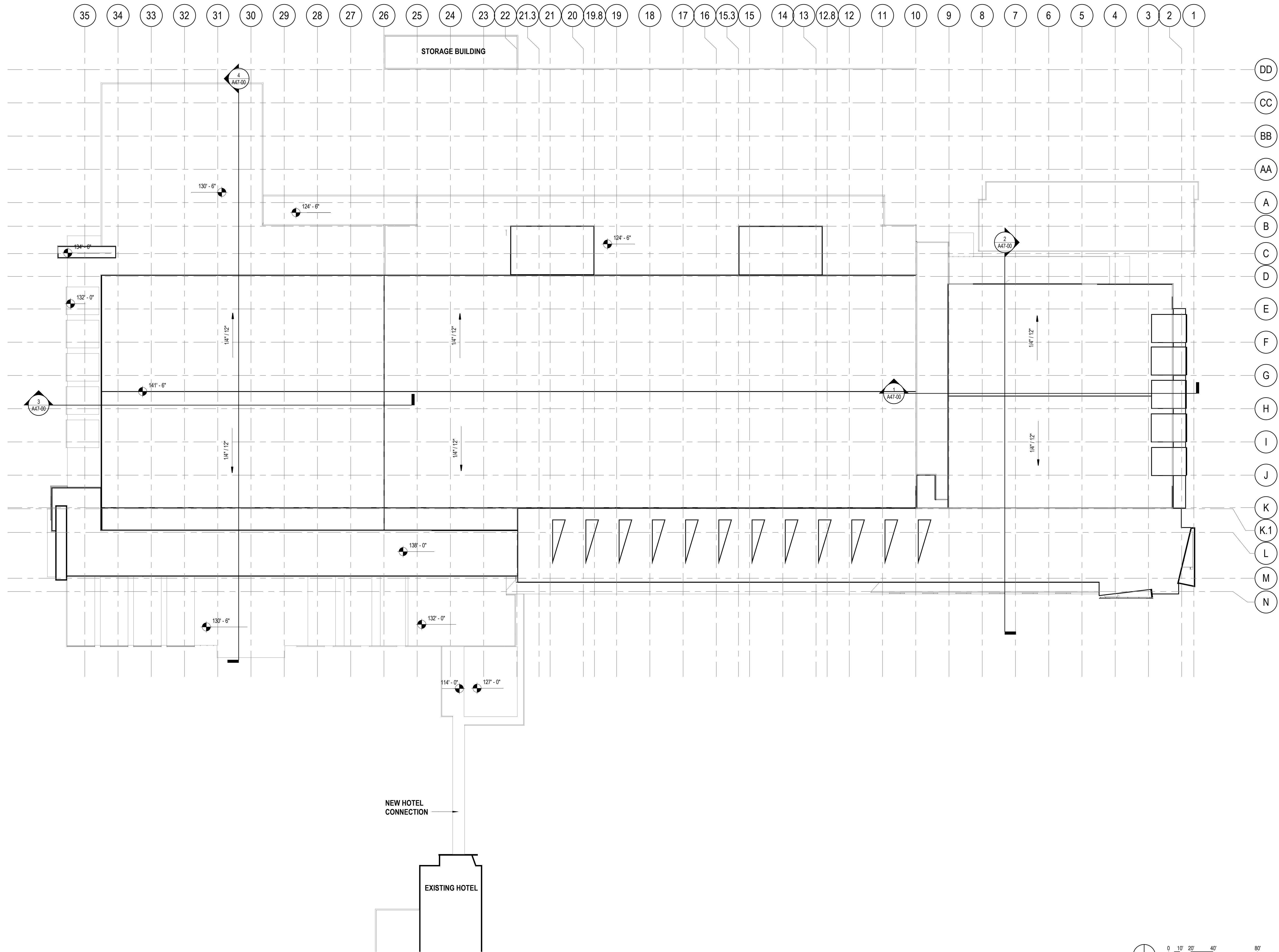
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	ISSUE	1 DATE
Job Number	221929	TITLE

ENLARGED EXTERIOR ELEVATIONS

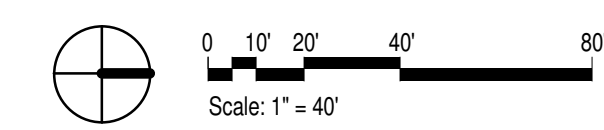
SHEET NUMBER

A20-03

SCHEMATIC DESIGN 06/22/2020



1 ROOF PLAN
 1" = 40'-0"



PROJECT
 PROJECT LOGO IF AVAILABLE
EXPOSITION CENTER

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ISSUE CHART

1	100% SCHEMATIC DESIGN	6.22.20
ISSUE	DATE	1 DATE
Job Number	221929	TITLE

ROOF PLAN

SHEET NUMBER

A32-20

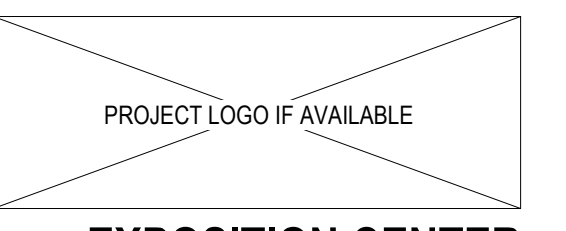
6/19/2020 5:15:30 PM BIM 360://Dane Co. WI - AEC Exhibit Hall Expansion/ARCH/AEC Expo Center/RI 9.rvt

SCHEMATIC DESIGN 06/22/2020

Table with columns: Number, Name, Level, Department, Area. Contains room schedule data for EXHIBIT LEVEL, MECH MEZZ, and NEW MEZZ LEVEL.

Table with columns: Number, Name, Level, Department, Area. Contains room schedule data for EXHIBIT LEVEL, MECH MEZZ, and NEW MEZZ LEVEL.

PROJECT



EXPOSITION CENTER



Dane County - Alliant Energy Center

KEYPLAN

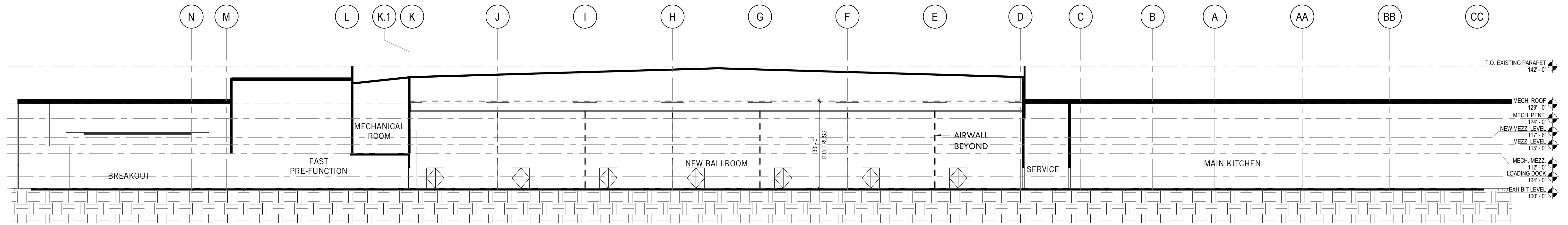
ISSUE CHART

Table with columns: Issue Number, Description, Date, Status. Shows 1 issue: 100% SCHEMATIC DESIGN 6.22.20 1. DATE.

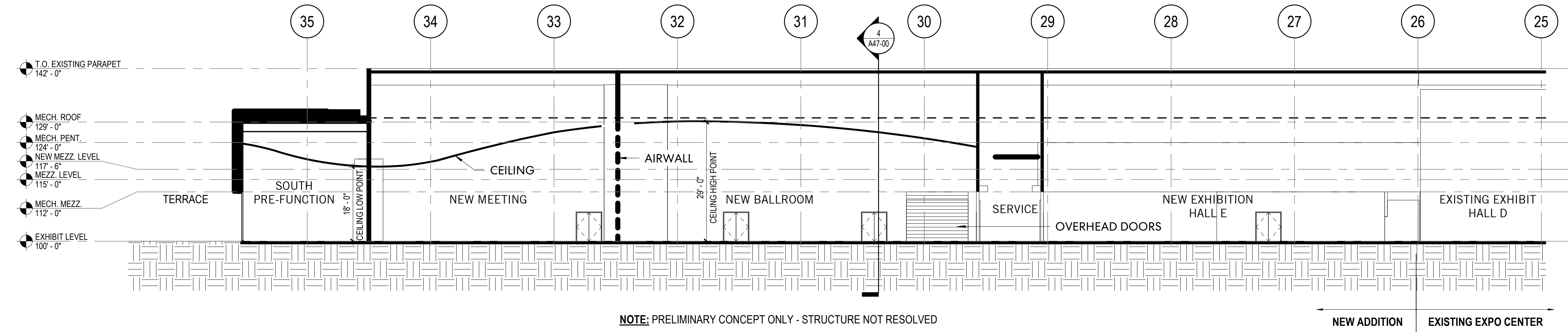
INTERIOR ROOM FINISH SCHEDULE

SHEET NUMBER

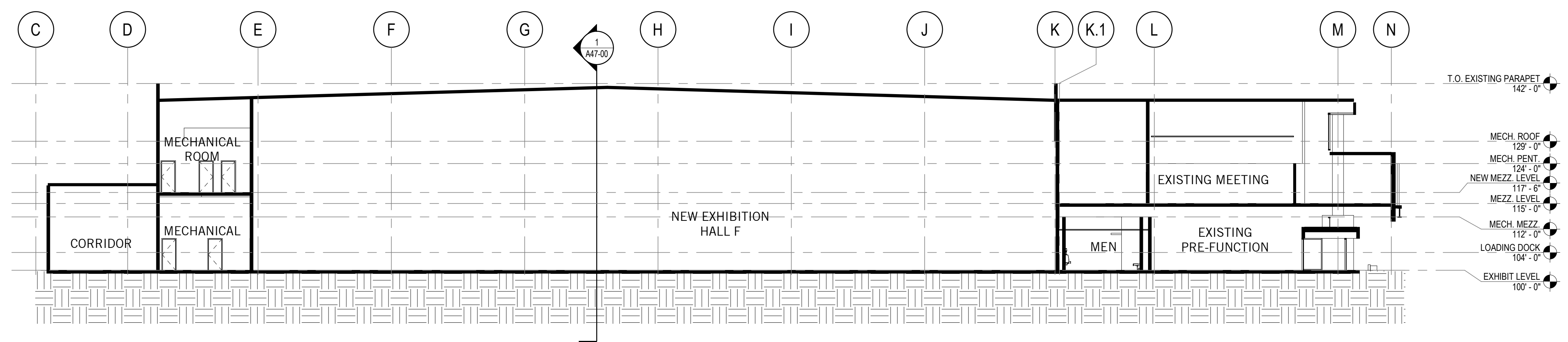
A43-05



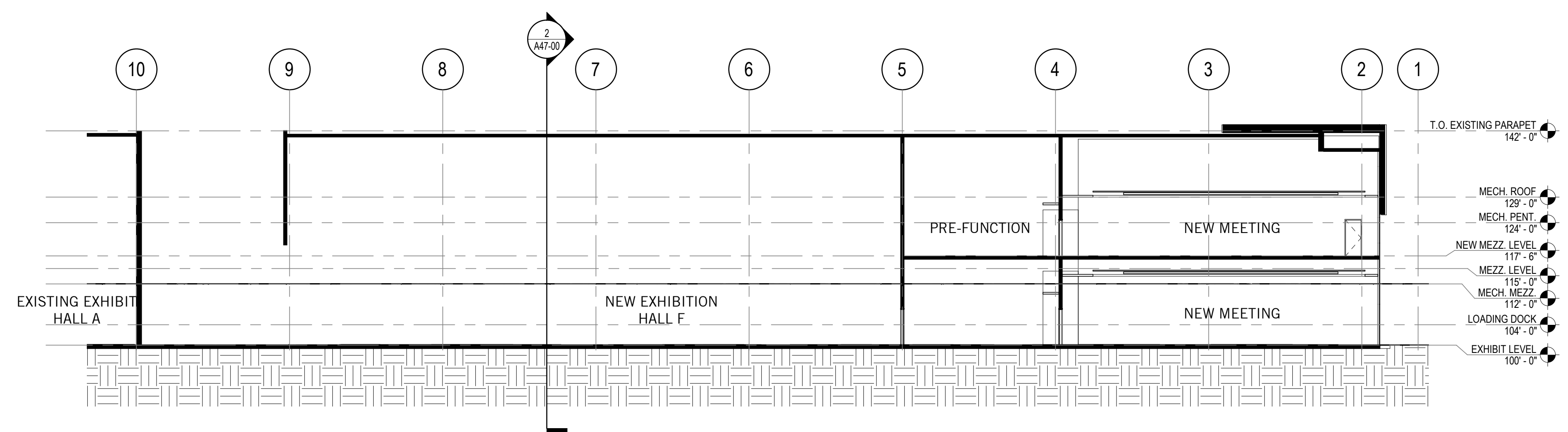
4 BUILDING SECTION - SOUTH BALLROOM - LOOKING SOUTH
1/16" = 1'-0"



3 BUILDING SECTION - SOUTH BALLROOM & EXHIBIT HALL E - LOOKING WEST
1/16" = 1'-0"



2 BUILDING SECTION - NORTH EXHIBIT HALL F - LOOKING NORTH
1/16" = 1'-0"



1 BUILDING SECTION - NORTH EXHIBIT HALL F - LOOKING WEST
1/16" = 1'-0"

PROJECT
PROJECT LOGO IF AVAILABLE
EXPOSITION CENTER

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KEYPLAN

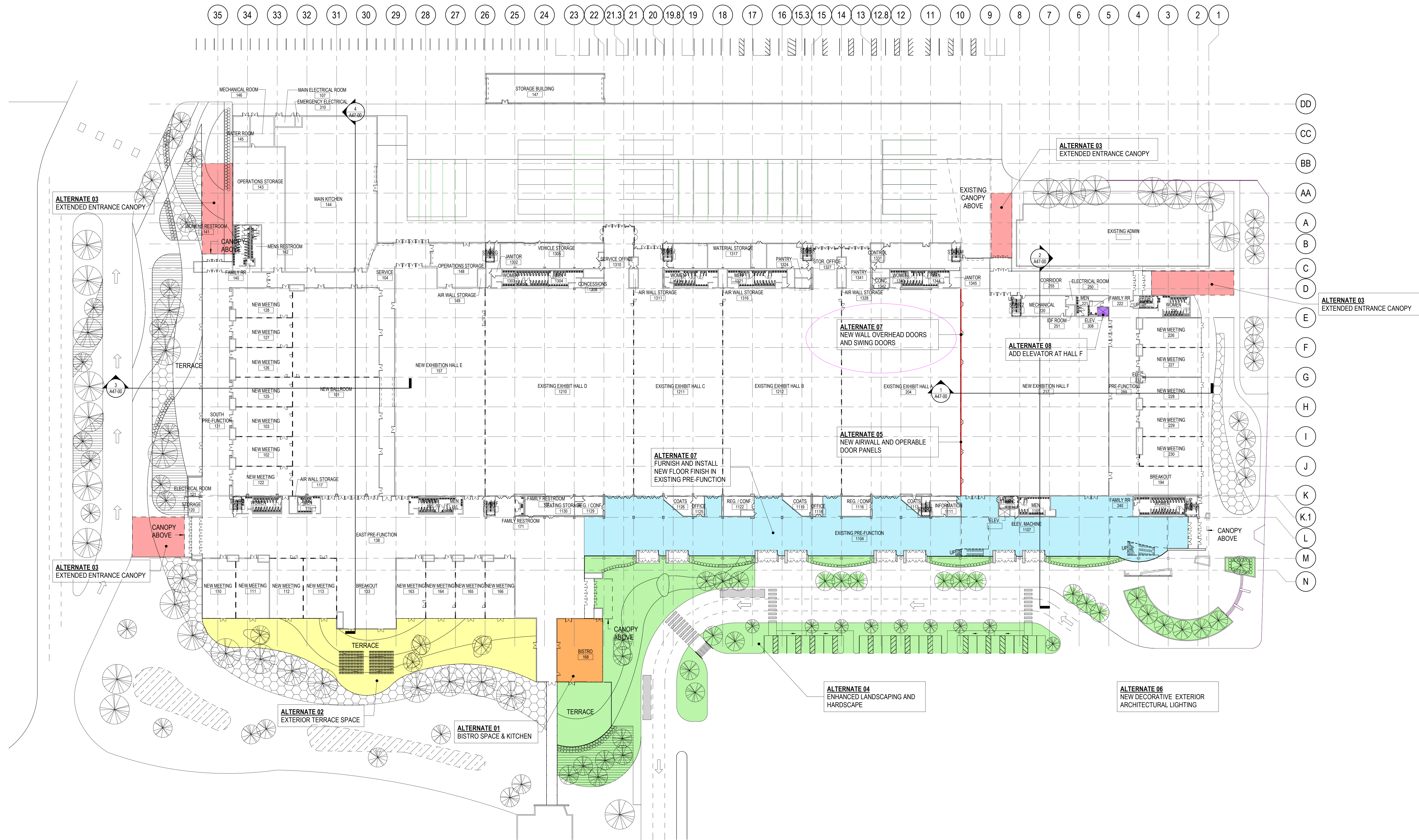
ISSUE CHART

1	100% SCHEMATIC DESIGN	6.22.20
ISSUE	DATE	1 DATE
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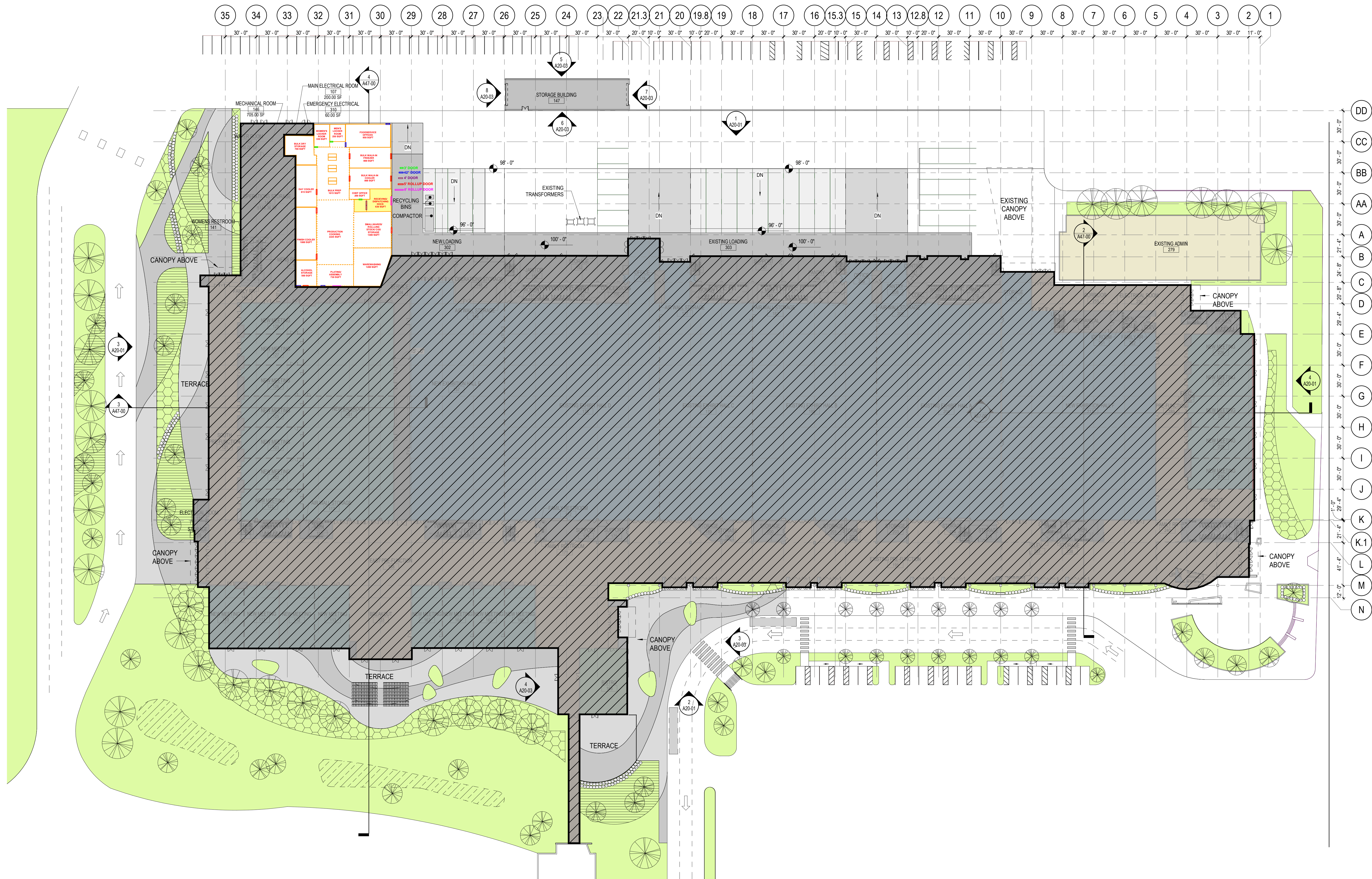
OVERALL BUILDING SECTIONS

SHEET NUMBER

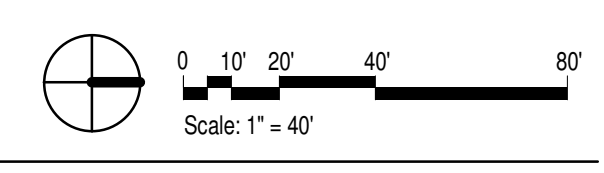
A47-00



1 OVERALL FLOOR PLAN - EXHIBIT LEVEL - ALTERNATES
1" = 40'-0"



1 FOOD SERVICE CONCEPTUAL SPACE BLOCKING - REFERENCE ONLY
1" = 40'-0"



PROJECT

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EXPOSITION CENTER

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Dane County - Alliant Energy Center

KEYPLAN

SCHEMATIC DESIGN 06/22/2020

ISSUE CHART

ISSUE	DATE
Job Number	TITLE
FOOD SERVICE CONCEPTUAL SPACE BLOCKING - REFERENCE ONLY	
SHEET NUMBER	

FS-01

SECTION 5.0

Outline Specifications



PRELIMINARY ENGINEERING NARRATIVE

PROJECT NAME: Dane Co. – Alliant Energy Center (AEC) Exhibition Hall &
Campus Redevelopment
PROJECT NUMBER: 2019078
DATE: August 30, 2019

MECHANICAL

Base Design Criteria

1. Applicable Codes
 - A. The Mechanical Systems will be designed in accordance with the following Codes:
 - 1). Wisconsin Administrative Code including the following:
 - a). SPS 310 - Flammable, Combustible and Hazardous Liquids
 - b). SPS 363 - Energy Conservation
 - c). SPS 364 - Heating, Ventilating and Air Conditioning
 - d). SPS 365 - Fuel Gas Appliances
 - 2). International Mechanical Code – 2015
 - 3). International Energy Conservation Code – 2015
 - 4). International Fuel Gas Code – 2015
 2. Applicable Guidelines and Standards
 - A. The Mechanical Systems will be designed in accordance with appropriate portions of the following Guidelines and Standards:
 - 1). National Fire Protection Association (NFPA) guidelines and standards including the following:
 - a). NFPA 30 - Flammable and Combustible Liquids Code
 - b). NFPA 54 - National Fuel Gas Code
 - c). NFPA 92B - Guide for Smoke Management in Malls, Atria, and Large Areas
 - d). NFPA 101 – Life Safety Code
 - 2). Occupational Safety and Health Administration (OSHA)
 - 3). ASHRAE Handbook of Fundamentals, 2017 Edition
 3. Outdoor Design Conditions
 - A. Exhibition Hall
 - 1) Summer
 - a) Dry-Bulb Temperature = 87°F per SPS 363, Table 363.0302
 - b) Wet-Bulb Temperature = 75°F per SPS 363, Table 363.0302
 - 2) Winter
 - a) Dry-Bulb Temperature = -15°F per SPS 363, Table 363.0302
 - B. New Arena (seasonal operation)
 - 1). Summer
 - a). Dry-Bulb Temperature = 87°F per SPS 363, Table 363.0302

- b). Wet-Bulb Temperature = 75°F per SPS 363, Table 363.0302
- 2). Winter
 - a). Dry-Bulb Temperature = 18°F
- 4. Building Envelope Thermal Performance
 - A. The building enclosure will be designed to comply with **IECC 2013 prescriptive requirements**. Isolated enclosure assemblies will perform as follows:

System	Type	Assembly U-Factor [BTU/hr-ft ² -F]	Solar Heat Gain Coefficient [-]
Roof System	Insulation Entirely Above Deck	IECC 2013	-
Exterior Wall System	Steel-Framed	IECC 2013	-
Fenestration System	Double-Glaze, aluminum frame	IECC 2013	IECC 2013
Floor System	Unheated Slab On-Grade	IECC 2013	-
Floor System	Below Grade Basement	IECC 2013	-

- B. Window-to-Wall Ratios:
 - 1). Arena
 - a). North 30%
 - b). South 30%
 - c). East 30%
 - d). West 30%
 - 2). Exhibition Hall Expansion
 - a). North 10%
 - b). South 40%
 - c). East 57%
 - d). West 10%

- 5. Indoor Design Conditions
 - A. Office, Conference, Exhibition Hall and Ballrooms
 - 1). Dry-Bulb Temperature
 - a). Summer = 75°F ± 2°F
 - b). Winter = 70°F ± 2°F
 - 2). Relative Humidity
 - a). Summer = 50% maximum ± 5%
 - b). Winter = No requirement
 - B. Telecommunication Rooms
 - 1). Dry-Bulb Temperature = 72°F ± 2°F (year-round)

- 2). Relative Humidity = No requirement
- C. Mechanical and Electrical Rooms
 - 1). Dry-Bulb Temperature
 - a). Summer = 95°F Maximum
 - b). Winter = 60°F Minimum
 - 2). Relative Humidity = No requirement
- D. Elevator Machine Room
 - 1). Dry-Bulb Temperature = 75°F (year-round)
 - 2). Relative Humidity = No requirement
- E. Unoccupied Spaces
 - 1). Dry-Bulb Temperature = 65 - 95°F
 - 2). Relative Humidity = No requirement
- F. Arena
 - a). Summer = 74°F ± 2°F
 - b). Winter (unoccupied) = 55°F
- 6. Heating and Cooling Loads
 - A. Electrical
 - 1). Offices
 - a). Lighting = 0.9 watts per sq ft
 - b). Equipment = 1.0 watts per sq ft
 - 2). Conference Rooms
 - a). Lighting = 1.5 watts per sq ft
 - b). Equipment = 2.0 watts per sq ft
 - 3). Exhibition Hall
 - a). Lighting = 2.5 watts per sq ft
 - b). Equipment = 1.0 watts per sq ft
 - 4). Corridor
 - a). Lighting = 0.5 watts per sq ft
 - b). Equipment = 0 watts per sq ft
 - 5). Storage Rooms
 - a). Lighting = 1.0 watts per sq ft
 - b). Equipment = 0 watts per sq ft
 - 6). Arena
 - a). Lighting = 0.5 watts per sq ft
 - b). Equipment = 0 watts per sq ft
 - B. Occupancy
 - 1). The occupancy heat rejection will be based on ASHRAE Handbook of Fundamentals, Chapter 18 for Moderately Active Office Work or:
 - a). Sensible = 250 Btuh/person
 - b). Latent = 200 Btuh/person
 - 2). The number of occupants in each space will be based on the actual occupant density listed in the facility program.
 - a). Exhibition Hall/Ballrooms: 7 sf/person

- b). Arena: 2,000 persons total - based on 107,500 sf and 1,457 stadium seating
- C. Infiltration
 - 1). New Arena
 - a). The building heat loss and cooling/dehumidification calculations will include an infiltration load based on 0.15 cfm of infiltration air per square foot of exterior wall.
 - 2). Exhibition
 - a). The building heat loss and cooling/dehumidification calculations will include an infiltration load based on 0.10 cfm of infiltration air per square foot of exterior wall.
 - 3). The following infiltration rates will be used for doors:
 - a). 200 cfm per door for exterior main doors
 - b). 5 cfm per square foot for exterior overhead doors
- 7. Ventilation Rates
 - A. The minimum ventilation (outdoor air) rates will be as follows:
 - 1). 7.5 CFM per person.
- 8. Seismic Criteria
 - A. Seismic bracing will not be provided for mechanical systems for this facility.
- 9. Noise Criteria
 - A. Sound attenuation equipment will be provided based on standard design practice. Results are not guaranteed due to many items not under control of the design team and actual building usage.

Systems

NEW ARENA

ASSUMPTIONS

The Arena is physically separated from adjacent Pavilions.

AIR HANDLING

Provide 32,500 CFM indoor, single-zone Air Handling Unit to serve the Arena ring and seating with 85-ton remote air-cooled packaged heat pump heating/cooling coil(s), hot gas reheat coil(s) for dehumidification, full capacity air economizer with control damper and weather station. Automated building relief damper(s) and sensors to maintain building pressure during economizer. Variable frequency drive for fan control. Return air humidity sensor for dehumidification control. Remote condensing units to be roof-mounted above mechanical room.

Provide 18,500 CFM indoor, multiple zone Air Handling Unit to serve ancillary functions with 45-ton remote air-cooled packaged heat pump heating/cooling coil(s), hot gas reheat coil(s) for dehumidification, full capacity air-side economizer with control damper. Variable frequency drive for each fan. Return air humidity sensor for dehumidification control. Remote condensing units to be roof or grade-mounted near mechanical room.

Provide 15 variable air volume terminal zones with DDC temperature control for each VIP box, VIP club, occupied back of house/support space, pre-function, and restroom on perimeter wall. 10 terminals to include hot water reheat for heating back-of-house or other enclosed areas total of 250 MBH heating.

Provide (2) 7,500 CFM indoor Energy recovery ventilator with supply and exhaust fans to handle minimum ventilation requirement and toilet exhaust. Variable frequency drives for fan control. Exhaust shall be galvanized duct from restrooms to mechanical room.

Provide exposed galvanized ductwork for low pressure distribution in stadium seating and ring areas. Provide galvanized metal ductwork to serve back-of-house and other enclosed spaces. Duct mains and vertical risers shall be galvanized metal. Serving entire perimeter of concourse and bowl levels with two separate duct "loops".

OTHER HEATING

Provide distributed Gas Fired Infrared heaters totaling 300 MBH of heating capacity at stadium seating and perimeter viewing areas.

Provide Gas Fired heater(s) totaling 100 MBH capacity at mechanical room for winter freeze protection.

OTHER EXHAUST

Provide additional exhaust as required at cooking equipment.

EXHIBITION HALL EXPANSION

COOLING PLANT

Existing chilled water plant consists of two 400-ton water cooled chillers and associated cooling towers on the roof above. Each chiller and cooling tower have an associated primary pump. There is a single secondary chilled water pump with a VFD. 12" pipe headers are sized for additional 400-ton capacity. There is adequate space in the existing mechanical room for additional chiller, pumps and cooling tower sump, as well as cooling tower on the roof. Chilled water system serves all air handling unit and fan coil unit cooling coils.

Provide new 400-ton water cooled high efficiency centrifugal chiller, associated cooling tower on the roof, 3,000-gallon cooling tower sump, 960 gpm primary chilled water pump with VFD, 1,440 gpm secondary chilled water pump with VFD and 800 gpm condenser water pump. Provide all required control valves, and other required pipe accessories required to integrate into existing chilled water system. Connect chilled water and condenser water piping from new equipment to existing pipe headers.

HEATING PLANT

Existing steam plant consists of two 250 HP steam boilers served by both fuel oil and natural gas, boiler feed tank, three feedwater pumps and blowdown separator. Steam system serves all air handling unit heating coils and steam-hot water heat exchanger. 12" steam header is sized for additional 250 HP steam boiler. Existing hot water system serves perimeter loads in the lobby, mezzanine, forum exhibition hall and loading docks.

Provide new 250 HP steam firetube boiler with fuel oil and natural gas feeds. Connect to existing boiler feed tank and connect steam supply to existing 12" steam header. Provide new 1,200 lb/hr, 100 gpm steam to water heat exchanger, two 100 gpm, 75 ft head hot water pumps with VFD's, air separator, expansion tank, control valves and other pipe accessories required for a fully functional hot water system. This hot water system will serve perimeter loads in the expanded lobby, exhibition hall and ballroom.

AIR HANDLING

Provide new air handling mechanical rooms on east and west side of new exhibition hall expansion. These mechanical rooms should be an expansion of the existing air handling mechanical rooms. Provide outside air intake as required to meet ventilation requirements and airside economizer. Provide relief fans to maintain slight positive pressure in each exhibition hall. Extend chilled water and steam to each air handling unit. Each AHU shall be provided with supply fan(s) on VFD(s), return/relief fan(s) on VFD(s), chilled water coils, steam heating coils, outside air, return air and relief air control dampers, outside air and relief air ducts to louvered penthouses on the roof, outside airflow monitoring stations, return air smoke detectors and all necessary air, water and steam valves, devices and specialties for a fully functional system.

Within new air handling mechanical room on the west side of the exhibition hall expansion space, provide (5) VAV air handling units. Each unit shall be sized as follows:

1. Exhibition Hall E (west half): 12,000 CFM single zone AHU
2. Exhibition Hall F (west half): 18,000 CFM single zone AHU
3. Ballroom: 36,000 CFM multizone AHU. Provide approximately eight VAV boxes with hot water reheat coils
4. Back of House: 12,000 CFM multizone AHU. Provide approximately 18 VAV boxes with hot water reheat coils
5. Kitchen: 12,000 CFM single zone AHU. Unit does not require return fans.

Within new air handling mechanical room on the east side of the exhibition hall expansion space, provide (5) VAV air handling units. Each unit shall be sized as follows:

1. Exhibition Hall E (east half): 12,000 CFM single zone AHU
2. Exhibition Hall F (east half): 18,000 CFM single zone AHU
3. 1st Floor Prefunction: 42,000 CFM multizone AHU. Provide approximately 15 VAV boxes with hot water reheat coils.
4. 2nd Floor Prefunction: 45,000 CFM multizone AHU. Provide approximately 12 VAV boxes with hot water reheat coils.

5. Bistro: 15,000 CFM multizone AHU. Provide approximately six VAV boxes with hot water reheat coils.

Demand Control Ventilation to be provided via redundant CO2 sensors for all high-occupancy spaces including all ballrooms, exhibition halls and meeting rooms.

Shaft space has been accounted for from each mechanical room to the roof to account for outside air, relief air, supply air and return air ductwork. There are three mechanical shafts on the west side totaling approximately 300 SF clear shaft area. There are three mechanical shafts on the east side totaling approximately 375 SF clear shaft area.

Existing supply air ductwork between column 23 and 26 of the current existing southern end of Exhibit hall D shall be temporarily removed during addition of structural joists (See Structural section below), then reinstalled in original locations.

OTHER HEATING

Provide hot water fin tube heat at the perimeter of the prefunction and bistro. Provide hot water unit heaters at the perimeter loading dock, receiving, staging and mechanical spaces. Extend new hot water piping to the fin tube heaters and unit heaters.

OTHER EXHAUST

Variable Flow/temperature-controlled Kitchen Hood Exhaust Fan on the roof, approximately 15,000 CFM. Provide black iron grease exhaust ductwork wrapped with fire resistant insulation, from all kitchen hoods to the exhaust fan.

HVAC CONTROLS

Building Automation System and Controls

- A. The Dane County Alliant Energy Center campus currently has a Johnson Controls Metasys Building Automation System. Future phases will continue with a single control vendor (Johnson Controls) but expand the system in a manner that allows field-level DDC controllers be competitively bid, should the owner so choose, while maintaining Metasys as the 'front-end' integrator to all field-level controls.
- B. The existing Metasys system will remain as is, with no upgrade required. Johnson Controls' new Metasys User Interface (MUI) product shall co-exist with the existing Metasys system.
- C. All new HVAC equipment will be controlled via DDC with electric actuation.
- D. The highest level of communication will be BACnet IP.
- E. The BAS will consist of the following components:
 - 1). Server(s) or "Primary Workstation" which will house the BAS software, communicate with the BAS hardware, and collect and store information. Data will be stored in a standard database (e.g. SQL). Server(s) will be provided and managed by the owner according to their standard IT operational procedures.
 - 2). Web access to BAS from any web-enabled device (PC, tablet) connected to the building network.

- 3). IP-level Supervisory Controllers to manage the communication with the field-level controllers and provide supervisory logic. This also will include Network Automation Engines to support possible integration of 3rd party BACnet controllers for future expansions.
 - 4). BACnet MS/TP or BACnet IP Application Specific and Programmable Controllers for field equipment control (e.g. AHU, Fan Coil Unit, VAV Box).
- F. The BAS will be modular in nature and will be able to support additions in controls hardware without physical replacement of existing components.
 - G. The BAS will allow the owner to view systems and associated data in a graphical format, schedule HVAC equipment, be notified of and acknowledge alarms, override points, and adjust setpoints.
 - H. The BAS will provide control of the following example systems: Chilled Water System, Steam and/or Hot Water System, Air Handling Units, and Terminal Units.
 - I. The BAS will integrate to HVAC equipment that is furnished with Original Equipment Manufacturer (OEM) Controls for systems in which control is preferred to come packaged with equipment (e.g. Roof-Top Units). The criteria for OEM controls (vs. custom DDC from the selected building controls vendor) will be made based on where OEM control can achieve the designed sequence of operations combined with overall cost-savings.
 - J. A new temperature control panel (TCP) will be provided for each major system added (e.g. AHU, chiller) and will reside as close to the actual equipment location as possible – typically in a mechanical room.

PLUMBING

A. Base Design Criteria

- 1). Applicable Codes
 - a). The proposed building renovation and addition will comply with the Wisconsin Administrative Code including the following:
 - i. SPS 382 – Design, Construction, Installation, Supervision, Maintenance and Inspection of Plumbing
 - ii. SPS 382 – Appendix
 - iii. SPS 384 – Plumbing Products
 - iv. SPS 384 - Appendix
 - 2). The following codes are referenced:
 - i. International Building Code, 2015 Edition
 - ii. International Mechanical Code, 2015 Edition
 - iii. International Fuel Gas Code, 2015 Edition
 - iv. National Fire Protection Association (NFPA) guidelines and standards
 - v. American Society of Plumbing Engineers (ASPE) databooks
 - vi. LEED (Leadership in Energy and Environmental Design), Version 4.0

B. System Descriptions

- 1). Demolition
 - a). Existing fire protection, storm and domestic water piping between column 23 and 26 of the current existing southern end of Exhibit hall D shall be temporarily removed during addition of structural joists (See Structural section below), then reinstalled in original locations.
- 2). Storm and Clearwater Drainage
 - a). System Description
 - i. A storm drainage system will be provided to convey rainwater from flat roofs to site storm sewers.
 - ii. Secondary roof drainage will be accomplished by using a dedicated piped overflow drainage system separate from the primary storm drainage system which will discharge through the building wall onto grade. Clearwater waste from air handling units, coolers, and other devices and equipment that discharge clearwater will be conveyed by gravity flow through a separate piping system and will connect to the building storm drain.
 - b). Design Criteria
 - i. The primary storm drainage system will be sized based on a maximum rainfall rate of 3.5 in/hr. The secondary storm drainage system will be sized based on rainfall rate of 4 in/hr.
 - ii. The sizing for all clearwater discharge from equipment system will be based on the maximum flow rate of the equipment.
 - c). Equipment and Material
 - i. Storm and clearwater drainage systems which cannot discharge to the storm sewer by gravity flow will be drained by gravity to a sump with duplex pumps and will be pumped into the building storm drainage

system. Each pump will be sized for 100% of the estimated design flow.

- d). Distribution
 - i. Below ground storm piping will be service weight hub-and-spigot cast iron pipe with neoprene push-on compression joints, hubless cast iron with heavy-weight no-hub couplings with stainless steel clamps, PVC DWV schedule 40 with solvent cement socket fitting joints.
 - ii. Above ground storm piping will be PVC schedule 40 with solvent cement socket fitting joints, hubless cast iron pipe with heavy duty stainless steel clamps.
 - iii. Roof and overflow drain bodies and above ground storm, secondary roof drainage and clearwater waste piping will be insulated.
- 3). Sanitary Waste and Vent
- a). System Description
 - i. A sanitary waste and vent system will be provided for all plumbing fixtures and other devices that produce sanitary waste. Plumbing fixtures will be drained by gravity through conventional soil, waste and vent stacks, building drains and building sewers to the street sewer.
 - ii. All fixtures will have traps and will be vented through the roof. Vent terminals will be located away from air intakes, exhausts, doors, openable windows and parapet walls at distances required by the plumbing code.
 - b). Design Criteria
 - i. The sanitary waste piping will be pitched to maintain a minimum velocity of 2 fps when flowing half full.
 - ii. The sanitary vents and the venting system will be designed and installed so that the water seal of a trap will be subject to a maximum pneumatic pressure differential equal to 1" water column. This will be accomplished by sizing and locating the vents in accordance with the venting tables contained in the plumbing code.
 - c). Equipment and Material
 - i. Sanitary wastes which cannot discharge to the sewer by gravity flow will be drained by gravity to duplex sewage ejectors and will be pumped into the sanitary drainage system.
 - ii. Drainage systems containing oil will be run through appropriate oil interceptors before connecting into the sanitary system. Oil interceptor shall be sized for the new proposed commercial kitchen.
 - iii. Floor drains, floor sinks and indirect waste receptors will be provided with trap sealer when subject to loss of their trap seals due to evaporation caused by infrequent use.
 - iv. Sewage ejectors will be connected to the emergency (standby) power system to permit operation during a loss of normal power.
 - v. All sanitary waste piping which collects clearwater condensate from air handing equipment will be insulated to prevent condensation on the piping.
 - d). Distribution

- i. Below ground sanitary waste and vent piping will be hubless cast-iron pipe with heavyweight no-hub couplings with stainless steel clamps, PVCDWV Schedule 40 with solvent cement socket fitting joints.
 - ii. Above ground sanitary waste and vent piping will be Type DWV copper tube with PVCDWV Schedule 40 with solvent cement socket fitting joints.
- 4). Domestic Water
 - a). System Description
 - i. Domestic water will be provided to all toilet room fixtures, electric water coolers/drinking fountains, sinks, emergency shower/eyewash units, and any other devices that require a domestic water supply.
 - ii. Hot water at 120°F will be provided to all fixtures and devices that require hot water.
 - b). Design Criteria
 - i. The piping will be sized to limit the velocity in any section of the system to a maximum of 8 fps for cold water system and 4 fps for hot water and hot water circulating systems.
 - ii. Each water heater will be sized for 100% of the design hot water load.
 - c). Equipment and Material
 - i. A water meter will be provided on the service main in a vault below grade outside of the building. The water meter will be sized for the building's maximum design flow rate.
 - ii. Domestic hot water will be produced by a duplex, gas-fired, instantaneous storage-type water heater. Booster water heaters will be provided as part of equipment, (dishwashers, laundries, etc.) which have water temperature requirements above the normal distribution temperature stated above.
 - iii. The hot water system temperature will be maintained by recirculating the hot water through a continuous loop with an in-line circulating pump.
 - iv. Duplex alternating water softeners will be installed ahead of the water heaters.
 - v. Water hammer arrestors will be provided at all quick closing solenoid valves and at other potential water hammer sources.
 - d). Distribution
 - i. The domestic hot and cold-water systems will be Type L copper tube with wrought copper fittings and soldered joints. Solder will be lead-free, 95-5 type solder. Piping 2-1/2" and larger and located in mechanical equipment rooms may be rolled groove mechanical joints.
 - ii. The hot water system will be insulated in accordance with Code. The cold-water system will be insulated to prevent condensation from forming. Isolation valves will be provided at all riser connections, branch piping run-outs to fixture groups, and at devices requiring maintenance.
- 5). Plumbing Fixtures
 - a). System Description
 - i. All plumbing fixtures will be new, commercial grade products.

- ii. Plumbing fixtures designated as barrier-free will be manufactured and installed in accordance with local, state and federal accessibility requirements.
- b). Equipment and Material
 - i. Water closets will be wall hung, vitreous china, with elongated bowls. Flush valves will be diaphragm type, sensor operated, battery powered, 1.28-gallon flush.
 - ii. Urinals will be wall hung, vitreous china, Flush valves will be diaphragm type, sensor operated, battery powered 0.125-gallon flush.
 - iii. Lavatories will be vitreous china. Faucets will be hot and cold mixing type sensor operated, battery powered, 0.5 gpm flow control. Refer to architectural floor plans for areas with wall hung units and counter mounted units.
 - iv. Sinks will be countertop mounted stainless steel. Faucets will be hot and cold mixing type, 1 gpm flow control. Sinks in break rooms will be fitted with garbage disposals.
 - v. Electric water coolers will be wall mounted, self-contained, dual level, sensor operated, with stainless steel cabinets and disposable activated carbon water filters. Bottle filler accessory.
 - vi. Janitor sinks will be floor mounted, precast terrazzo, drop front, with stainless steel splash panels. Faucets will be hot and cold mixing type with hose connections and vacuum breakers.
 - vii. Exterior hose bibs will be flush mounted, freeze resistant, with vacuum breakers and loose key operators.
 - viii. Mechanical room hose bibs will be surface mounted, with vacuum breakers.
- 6). Non-Potable Water System
 - a). System Description
 - i. Non-potable water system will provide make-up water to mechanical (HVAC) systems such as heating hot water, chilled water, and cooling towers. A reduced pressure backflow preventer will protect the domestic water supply and will be sized for 100% of the design load.
 - b). Design Criteria
 - i. The piping will be sized to limit the velocity in any section of the system to a maximum of 8 fps.
 - c). Equipment and Material
 - i. Water hammer arrestors will be provided at all solenoid valves and at other potential water hammer sources.
 - d). Distribution
 - i. The non-potable water system piping will be Type L copper tube with wrought copper fittings and soldered joints. Solder will be lead-free, 95-5 type solder. Piping 2-1/2" and larger and located in mechanical equipment rooms may be rolled groove mechanical joints.
 - ii. The non-potable water system will be insulated to prevent condensation from forming.
 - iii. Isolation valves will be provided at all riser connections, branch piping run-outs to fixture groups, and at fixtures requiring maintenance.

- 7). Compressed Air
 - a). System Description
 - 1.) The Compressed Air system will be provided to serve outlets as required by the Owner.
 - b). Design Criteria
 - i. The Compressed Air system will be designed to provide 100 psig Compressed Air at the most remote outlet. The system will be sized based upon a load of 1 scfm per outlet and the total number of connected outlets connected to the system. Any point loads for specific equipment will be added to the outlet load after any diversity factors are applied. The diversity factors indicated below will be used for determining the load for outlets:
 - ii. The Compressed Air piping will be sized to limit the pressure drop across the system to 5 psi.
 - c). Equipment and Material
 - i. Compressed air piping will tie-into the existing compressed air system in the existing expo hall. The existing air compressors have sufficient capacity to support the new addition.
 - d). Distribution
 - i. CA piping will be ASTM B-280 Type L, oxygen cleaned, with brazed joints.
- 8). Natural Gas
 - a). Description
 - i. Natural gas is anticipated to be piped to equipment (ex: boilers, water heaters) as required to meet building needs. Gas pressure will be determined based on equipment requirements. Natural gas is anticipated to be a centrally piped and distributed system to serve lab and fume hood gas outlets. Natural gas will be extended to the building from the gas company's natural gas main in the street. It is anticipated that the gas meter(s) will be located at grade at the service entrance to the building.
 - ii. Natural gas piping will be extended to the new kitchen to serve all food service equipment requiring gas. Provide PRV's at each piece of equipment as required.
 - b). Design Criteria
 - i. All design and installation will be in accordance with the Wisconsin Plumbing Code.
 - ii. Natural gas will be supplied at a pressure of 2 psig. Piping will be sized to limit the pressure drop across the system to 10% of the supply pressure.
 - c). Equipment and Material
 - i. Where shutoff valves are installed in valve boxes, the valve boxes will be steel frames with steel doors, piano hinges and level latches. All pipe penetrations through the box walls will be sealed.
 - ii. Point of use pressure regulators will be self-operated spring-loaded constant pressure valves with internal relief capability.
 - d). Distribution

- i. Natural gas piping 2-1/2" and smaller will be Schedule 40 black steel pipe with malleable iron threaded fittings. Natural gas piping 3" and larger will be Schedule 40 black steel pipe with welded fittings.
- ii. Natural gas valves 2-1/2" and smaller will be two-piece ball valves with bronze bodies and stainless steel balls. Valves 3" and larger will be plug valves with cast iron bodies.

FIRE PROTECTION

A. Base Design Criteria

- 1). Applicable Codes, Guidelines and Standards:
 - a). The Fire Protection Systems will be designed in accordance with the following Codes, Guidelines and Standards:
 - i. NFPA 13, Installation of Sprinkler Systems, latest Edition
 - ii. NFPA 14, Installation of Standpipe Hose Systems, latest Edition
 - iii. NFPA 20, Installation of Stationary Pumps for Fire Protection, latest Edition
 - iv. NFPA 30, Flammable and Combustible Liquids Code, latest Edition
 - v. NFPA 72, National Fire Alarm Code, latest Edition

B. System Descriptions

- 1). Fire Pump
 - a). System Description
 - i. The building standpipe and sprinkler system will be served by a UL Listed centrifugal fire pump when water supply pressures are not adequate to meet minimum fire protection demands.
 - ii. When required by the local Authority Having Jurisdiction (AHJ), insurance carrier or by the Owner, the fire pump will be installed in a dedicated fire pump room with direct exterior access.
 - b). Design Criteria
 - i. The fire pump will be sized in accordance with NFPA 13, NFPA 14, and NFPA 20.
 - ii. Current water supply flow tests will be obtained from the City Water Department in order to determine the capacity of the water mains.
 - c). Equipment and Material
 - i. The fire pump will be a horizontal split case centrifugal fire pump.
 - ii. The jockey pump will be a centrifugal type pump used for pressure maintenance in the Fire Protection Piping System.
 - iii. The fire pump controller will include all features required in NFPA 20.
 - d). Distribution
 - i. The fire pump installation will include a fire pump test header, fire department connection, and fire pump bypass line. Piping and valves will be configured in accordance with NFPA 20.
 - ii. Fire Pump Test Header - A fire pump test header will be provided for each fire pump. The test header will consist of 2-1/2" outlets with caps and chains. An automatic ball drip valve will be installed between the control valve for the test header and the exterior wall of the building.
 - iii. Fire Department Connection (FDC) - The fire department connection will consist of 2-1/2" inlets with drop clappers, snoots, caps and chains.

A check valve will prevent flow from the fire protection system to the FDC.

An automatic ball drip valve will be installed between the check valve and the FDC to allow any minor leakage past the check valve to drain out of the system.

The FDC location will be coordinated with the local Fire Department and Project Architect.

Typically, the design will require a fire hydrant within 100 feet of the FDC.

2). Standpipe System

a). System Description

- i. When required, the building will be protected by a hydraulically designed, Class I Standpipe System without hoses or hose cabinets.

b). Design Criteria

- i. The design of the standpipe system will comply with NFPA 14.
- ii. For "Automatic" standpipe systems in a fully sprinklered building, the standpipe system will be designed and hydraulically calculated to provide a flow of 250 gpm at 100 psig residual pressure at the highest fire department valve located on the most remote standpipe. An additional flow of 250 gpm flow will be added at the next highest valve on that standpipe. Finally, 250 gpm flows will be added at the two next remote standpipes, bringing the total to 1,000 gpm.

c). Equipment and Material

- i. The standpipe system piping will be black steel.
- ii. Piping will either be Schedule 10 with welded or roll groove couplings or Schedule 40 with welded or cut groove couplings.

d). Distribution

- i. Standpipe risers within a standpipe system shall be interconnected.
- ii. A 2-1/2" fire department valve will be provided on the stair's floor landings.
- iii. Additional fire department valves will be provided on the roof and at other locations as required by Code or the local authority.
- iv. All roof exterior fire department valves will be protected from freezing with shutoff valves located inside the thermal envelope of the building.

3). Wet Pipe Sprinkler System

a). System Description

- i. The building will be protected throughout with hydraulically calculated sprinkler systems, which except for special protection needs, will be wet pipe systems. All areas of the building will be protected per NFPA 13, including electrical rooms (switchgear, transformers, generators, closets, etc.), loading docks, stair towers, exterior canopies, and mechanical rooms.

b). Design Criteria

- i. The sprinkler system for the building will be designed and installed in accordance with NFPA 13.
- ii. All systems will be hydraulically calculated with a computer calculation program using the Hazen-Williams method.
- iii. If there are no special Client standards or Client insurance carrier requirements, the following sprinkler design densities shall apply:

Areas designated, as Light Hazard will be designed for a minimum sprinkler flow of 0.10 gpm per sq ft.

Areas designated as Ordinary Hazard, Group 1 and where stockpiles of combustibles do not exceed 8 ft, will be designed for a minimum sprinkler flow of 0.15 gpm per sq ft.

Areas designated as Ordinary Hazard, Group 2 and where stockpiles of combustibles do not exceed 12 ft, will be designed for a minimum sprinkler flow of 0.20 gpm per sq ft.

The system demand will be based upon the most remote 1500 sq ft.

- iv. The pipe sizing for the systems will be as required to satisfy the hydraulic demand.
- c). Equipment and Material
 - i. The piping for the wet pipe sprinkler system will be black steel.
 - ii. Piping 2" and smaller in size will be Schedule 40 with threaded joints.
 - iii. Piping larger than 2" will be Schedule 10 with welded or rolled groove couplings or Schedule 40 with welded, threaded, or cut groove coupling
 - iv. All sprinklers in Light Hazard areas will be quick response type.
 - v. The type of sprinkler used in a particular area will be selected by the Engineer and the Architect. Generally, concealed sprinklers will be installed in areas of high visibility and quality of finishes. Recessed sprinklers will be installed in other areas having suspended ceilings. Pendent or upright sprinklers will be installed in areas without ceilings. Sidewall sprinklers will be used only when other types cannot be used.
 - vi. Areas subject to temperatures below 40°F will be protected by dry sprinklers when possible. If dry sprinklers cannot be provided, then a dry pipe sprinkler system will be installed. Glycol antifreeze system will not be an option to dry sprinklers or dry pipe system.
- d). Distribution
 - i. The sprinkler system will be provided throughout the building in accordance with NFPA 13 and when required by the Owner, with insurance carrier requirements.
- 4). Dry Pipe Sprinkler System
 - a). System Description
 - i. Areas of the building subject to temperatures below 40°F will be protected by a dry pipe sprinkler system.
 - b). Design Criteria
 - i. The dry pipe sprinkler system will be designed and installed in accordance with NFPA 13.
 - ii. All systems will be hydraulically calculated with a computer calculation program using the Hazen-Williams method.
 - iii. If there are no special client standards or client insurance carrier requirements, the following sprinkler design densities shall apply:
 - Areas designated, as Light Hazard will be designed for a minimum sprinkler flow of 0.10 gpm per sq ft.
 - Areas designated as Ordinary Hazard, Group 1 and where stockpiles of combustibles do not exceed 8 ft, will be designed for a minimum sprinkler flow of 0.15 gpm per sq ft.
 - Areas designated as Ordinary Hazard, Group 2 and where stockpiles of combustibles do not exceed 12 ft, will be designed for a minimum sprinkler flow of 0.20 gpm per sq ft.

The system demand will be based upon the most remote 1950 sq ft for ceilings that are pitched less than or equal to a 1 in 6 slope. Ceilings exceeding this pitch will require that the 1950 sq ft be increased by 30%.

- iv. The pipe sizing for the systems will be as required to satisfy the hydraulic demand.
- c). Equipment and Material
- i. Piping for the dry pipe system will be galvanized steel.
 - ii. Piping 2" and smaller will be Schedule 40 with threaded joints.
 - iii. Piping larger than 2" will be Schedule 10 with welded or rolled groove or Schedule 40 with welded, threaded, or cut groove.
 - iv. All sprinklers in Light Hazard areas will be quick response type. Sprinklers on dry pipe systems will be either upright type or dry pendent type, depending upon the actual installation method.
 - v. A UL Listed dry pipe valve with trim will be used.
- d). Distribution
- i. The sprinkler system will be provided throughout the building in accordance with NFPA 13 and when required by the Owner, with insurance carrier requirements.

ELECTRICAL

Exhibition Hall Expansion

Electrical Systems

The new exhibition Hall Expansion will require a new electrical service for power and a distribution system. The electrical system will be similar to the existing, but with improvements to accommodate growth and flexibility in the spaces for the current and future events and venues.

Codes and Standards

Design shall be done in accordance with applicable Local, State, and Federal codes. The following codes, standards, and guidelines will be used for the design as applicable or as directed by the authorities having jurisdiction:

- Wisconsin Administrative Code.
- NFPA standards as referenced in the Wisconsin Administrative Code.
- 2015 IBC as referenced in the Wisconsin Administrative Code.

The codes, standards and guidelines listed indicate recommended or minimum requirements based on input from owner representatives and recommendations. Minimum requirements or standards may be exceeded.

Electrical Demolition

The areas involved including the south wall of the Exhibition Hall will have meticulous demolition adjacent to equipment and rooms which shall not be disturbed. Electrical systems in the surrounding spaces shall be maintained in service without impact from demolition.

- The (3) 600-amp panel boards at the south end of the Exhibition Hall shall be relocated along with any receptacles. Anticipated new location southern wall of the new Exhibition halls
- The electrical systems in the joist/beam space between columns 23 and 26 of the current existing southern end of Exhibit hall D shall be removed to facilitate the installation of additional structural elements to strengthen the roof. These systems shall be reinstalled after the structural work is complete.
 - The electrical work will also include rerouting all systems that are not located in the area of demolition but have raceway, boxes, conductors, and cabling through this space. Reroute all these systems outside the area of demolition to maintain each system's operation during demolition.

Electrical Service

New electric service will be provided to the expansion area of Phase 1. The utility MG&E will provide utility switches and transformers to facility according to the anticipated load of the building. It is anticipated that the new electric service will be equal to the existing distribution, with pad mounted switches at grade and transformers in a utility vault below grade. Electrical routing on site and distribution of the utility service to the building to be continued in the following phases. The expansion will require 208Y/120-volt and 480Y/277-volt services. It is anticipated that one 1000 kVA utility transformer will be required for the 208Y/120-volt service. It is anticipated that two 1000 kVA utility transformer will be required for the 480Y/277-volt service. Utility power will enter

the building underground, enter service entrance breakers on the main level, and rise in the building to the electrical equipment in the mezzanine mechanical/electrical rooms.

Power Distribution

The new utility transformers will provide power to a 3000-amp, 120/208-volt, 3 phase, 4 wire switchboard, and two 1600-amp 277/480-volt, 3 phase, 4 wire switchboards. Switchboards will be circuit breaker construction.

The 3000-amp, 120/208-volt Switchboard will provide power to branch panelboards and distribution panelboards. Branch panelboards will provide power to receptacle power panelboards located in service areas near the load being served. Distribution panelboards will provide power to larger loads including equipment that supports the function of the space.

The two 1600-amp, 277/480-volt Switchboards will provide power to branch panelboards and distribution panelboards. Branch panelboards will provide power to lighting panelboards located in service areas near the load being served. Distribution panelboards will provide power to larger loads including Kitchen, HVAC, and plumbing equipment. All panelboards will have a main breaker with feeder and branch circuit breakers. All panelboards will be designed to allow for 25% future capacity within the Phase 1 expansion.

Power will be distributed to the load with conductors installed in electric metallic tubing conduit raceway. In areas where the branch distribution will be concealed above a ceiling, branch circuit metal clad cabling will be used.

The catwalk system shall have panelboards located though out for ease of providing power drops to booths at the exhibition level.

All panelboards will be door in door construction with a main circuit breaker and feeder or branch circuit breakers. All panelboards will be designed to allow for 25% future capacity within the Phase 1 expansion.

Solar PV panels will be located on the roof. Assume 75% coverage of new roof area. Provide power distribution from the solar panels to the main switchboard with an energy meter.

Standby Power

A new emergency diesel power generator will be provided to serve the exit, egress, and emergency loads as defined by code. These loads include exit and egress lighting, fire detection and alarm system, and public safety communication systems.

The emergency generator will distribute 100 kW of power at 480Y277-volts, 3 phase. The emergency distribution will consist of automatic transfer switches, distribution panelboards, transformers, and branch panel boards. Power will be distributed to the load with conductors installed in electric metallic tubing conduit raceway.

The emergency power room will be located on the mezzanine level and house the emergency transfer switches and the emergency distribution equipment.

Point of Use Devices

Point of use devices shall be provided throughout the facility to provide power to the conference rooms, kitchen equipment, exhibition space, building support spaces, booths in the lobby and similar spaces.

- Receptacles shall be provided for the booths with a 30-amp twist lock. These receptacles will be located at no more than 20 feet on center along the walls.

- Floor boxes in the exhibition halls will be Maxicon boxes, equal to the current floor boxes in the existing exhibition halls. Floor boxes will be on 30 foot on center spacing. Each floor box shall have (6) 30-amp twist lock receptacles and (1) 50 amp 3-phase receptacle.
- Receptacles in the conference rooms shall be 20-amp straight blade devices and 30-amp twist lock devices along the walls. Floor boxes will be provided throughout the space with (4) 30-amp twist lock devices.
- All receptacles in wet environments shall be protected with ground fault circuit interrupting (GFCI) circuits either at the point of use or at the panelboard branch circuit breaker.
- Dedicated and specialty receptacle circuits shall be provided per equipment requirements.
- Convenience 20-amp receptacles shall be placed throughout the spaces for general purpose use, such as cleaning.
- Seating areas shall have 20-amp receptacles with USB charging power for portable devices.

Interior Lighting

Luminaires shall be designed with a color temperature of 4000K. LED luminaires shall be provided with 10%-100%, 0-10V controllable drivers to accommodate dimming and multi-level lighting levels. Ambient lighting levels shall meet or exceed IES recommendations for illumination per space type.

- Luminaires in the Exhibition Hall shall have four levels of lighting, LED high bay round fixtures, LED high bay rectangular fixtures, fluorescent industrial fixtures and fluorescent emergency egress fixtures to match the existing exhibition lighting.
 - Design will be explored if the LED high bay round fixtures and LED high bay rectangular fixtures can be combined into a single luminaire with distribution to match the exhibition halls. Matching the existing exhibition halls is critical for even distribution and controls.
- Luminaires in the conference rooms shall be designed to include recessed LED volumetric type troffer and, as required for a task, presentation, display, or artwork, recessed LED downlights and wall washers. The luminaires will be dimmable to 1%. The luminaires will be tunable white to allow for adjusting the color temperature based on the multifunction use of the space.
- Luminaires in the storage, mechanical, electrical, and telecom areas shall be industrial LED strip type, surface or pendant mounted. The luminaires shall have lenses and be positioned in the space to direct illumination to the task area.
- Luminaires in the Restrooms and Toilet Rooms shall be a combination of recessed LED downlights and recessed LED perimeter ceiling luminaires, and decorative wall LED luminaires at the sinks. Luminaires shall have lenses and located to provide adequate lighting in general areas while having diffused vertical illumination at the sink to avoid facial shadows.
- Luminaires in corridors shall be recessed LED down lights mounted in the center of the corridor pathway and wall washers along the walls for artwork and display purposes.

Exterior Lighting

Luminaires shall be designed with a color temperature of 4000K. LED luminaires shall be provided with 10%-100%, 0-10V controllable drivers to accommodate step dimming to lower levels when the space is not active. Ambient lighting levels shall meet or exceed IES recommendations for illumination per type of outdoor activity.

Parking Lots shall have pole mounted LED area lighting with occupancy sensors and time clock function for dusk to dawn operation. Pathways shall have pole mounted pathway luminaires and in wall path and step luminaires. Entrances shall have building mounted lighting to identify the entry and provide illumination at pathway.

The façade shall have ground mounted and building mounted LED luminaires to pronounce the design character of the facility and have a visual impact to the surrounding area. The building will be illuminated to identify the structure from the major routes leading to the facility.

Illumination Levels

The following levels are target illumination levels for the spaces in the expansion with a task level at 30" above the floor.

▪ Exhibition Hall	550-700 lux
▪ Conference Rooms	350-500 lux
▪ Corridors	150-350 lux
▪ Lobby	550-700 lux
▪ Toilet rooms	250-350 lux
▪ Custodial	250-350 lux
▪ General Storage	100-200 lux
▪ Mechanical/Electrical	250-350 lux

Interior/Exterior Lighting Control

All luminaires shall have digital lighting controls (occupancy sensors/daylight sensors/low-voltage switch stations/wireless controls station via tablet) shall represent the basis of design. This will include a low voltage digital dimming, lighting controls and lumen management through a modular connected network. The system shall match the existing, RAB Light Cloud.

- Occupancy sensors are to be used with localized controls in all areas except the lobby, exhibition halls, corridors, mechanical and electrical spaces, kitchen, and areas where automatic off would create a hazard to the occupants or the use of the space will not benefit from automatic off. Sensors will function as either automatic on/off or manual on/automatic off. Other applications of occupancy sensors will be provided where energy savings can be realized. Sensors will be located to detect occupants and to minimize automatic shutoff during occupied periods.
- Conference Rooms shall have, local dimming, sensors, and tablet housed software for controls. Luminaires will be designed for dimming from 10%-100% lumen output and will be color tunable white to allow the occupant to select the color of the space, 2700K, 3000K, 3500K, 4000K, and 5000K.
- The exhibition halls and lobby will be controlled by the RAB Light Cloud's time clock function. The areas will be zoned into sections based on the fixture type within the air curtain divisions. High Bay Luminaires will be designed for dimming from 10%-100% lumen output, which will allow the owner to dim the lighting to closely match the existing spaces when all the air curtains are open,
- Daylight zones shall be controlled based on ambient lighting levels, a daylight sensor will be provided to control the luminaires and reduce the energy usage in the zone as required by the energy code.
- Exterior lighting shall be controlled by the RAB Light Cloud's time clock function with astronomical control. The areas of the parking area will be zoned per lot. Each pole area luminaire will have an occupancy sensor to dim the output to minimal acceptable levels when there are no occupants in the area. The luminaires will go to full brightness upon detection of an occupant.
- Pathway lighting will be controlled similar to the parking lot area lighting.

- Building lighting will be controlled RAB Light Cloud's time clock function with astronomical control. Preset on and off times will provide lighting only when needed.

Emergency Egress and Exit Lighting

Emergency lighting and Exit Signage will be provided throughout the facility to provide wayfinding and to illuminate the path of egress in the event of a power failure.

- Select normal power luminaires will be backed up by the generator to illuminate the egress pathway during a power outage.
- LED exit signage shall be provided to direct occupants to the building exits in case of emergency. These luminaires will be wall and ceiling mounted, cast aluminum type with a white finish and RED letters.

Fire Alarm System

The fire alarm system will be a stand-alone, fully addressable system that will match the existing system. The fire alarm system will be comprised of smoke detectors, heat detectors, duct detectors, manual pull stations, and audio/visual signaling devices.

The fire alarm system will comply with requirements of NFPA 72 and the local Fire Marshal.

The system will be comprised of a fire alarm control panel extended from the existing panel, audio/visual notification devices, smoke detectors and heat detectors, duct smoke detectors, control and monitoring relays, and manual pull station. Cabling will be in conduit throughout the building.

Arena

Electrical Systems

The new Arena will require a new electrical service for power and a distribution system. The electrical system will accommodate growth and flexibility in the spaces for the current and future events and venues.

Codes and Standards

Design shall be done in accordance with applicable Local, State, and Federal codes. The following codes, standards, and guidelines will be used for the design as applicable or as directed by the authorities having jurisdiction:

- Wisconsin Administrative Code.
- NFPA standards as referenced in the Wisconsin Administrative Code.
- 2015 IBC as referenced in the Wisconsin Administrative Code.

The codes, standards and guidelines listed indicate recommended or minimum requirements based on input from owner representatives and recommendations. Minimum requirements or standards may be exceeded.

Electrical Service

New electric service will be provided to the Arena. The utility MG&E will provide a pad mounted transformer to support the facility. The Arena will require 480Y/277-volt services. It is anticipated that one 750 kVA utility transformer will be required for the 480Y/277-volt service. Utility power will enter the building underground to the electrical equipment in the electrical room.

Power Distribution

The new utility transformer will provide power to a 1200-amp, 277/480-volt, 3 phase, 4 wire switchboards. Switchboard will be circuit breaker construction.

The Switchboard will provide power to branch panelboards, distribution panelboards, 480:208Y120 volt transformers, and 120/208-volt distribution and branch panelboards. All panelboards will have a main breaker with feeder and branch circuit breakers. All panelboards will be designed to allow for 25% future capacity.

Power will be distributed to the load with conductors installed in electric metallic tubing raceway. In areas where the branch distribution will be concealed above a ceiling, branch circuit metal clad cabling will be used.

Standby Power

A new emergency diesel power generator will be provided to serve the exit, egress, and emergency loads as defined by code. These loads include exit and egress lighting, fire detection and alarm system, and public safety communication systems.

The emergency generator will distribute 50 kW of power at 480Y277-volts, 3 phase. The emergency distribution will consist of automatic transfer switches, distribution panelboards, transformers, and branch panel boards. Power will be distributed to the load with conductors installed in electric metallic tubing conduit raceway.

Point of Use Devices

Point of use devices shall be provided throughout the facility to provide power building support spaces, vending, booths.

- Receptacles shall be provided for the booths with a 30-amp twist lock. These receptacles will be located at no more than 20 feet on center along the walls.
- All receptacles in wet environments shall be protected with ground fault circuit interrupting (GFCI) circuits either at the point of use or at the panelboard branch circuit breaker.
- Dedicated and specialty receptacle circuits shall be provided per equipment requirements.
- Convenience 20-amp receptacles shall be placed throughout the spaces for general purpose use, such as cleaning.

Interior Lighting

Luminaires shall be designed with a color temperature of 4000K. LED luminaires shall be provided with 10%-100%, 0-10V controllable drivers to accommodate multi-level lighting levels. Ambient lighting levels shall meet or exceed IES recommendations for illumination per space type.

- Luminaires in the Arena shall have two levels of lighting, LED high bay round fixtures, and industrial LED strip type fixtures with lenses.
- Luminaires in the storage, mechanical, electrical, and telecom areas shall be industrial LED strip type, surface or pendant mounted. The luminaires shall have lenses and be positioned in the space to direct illumination to the task area.
- Luminaires in the Restrooms, Toilet Rooms, and corridors shall be a combination of surface mounted LED vapor tight strip lights.

- Luminaires in the VIP area will be LED down lights and LED linear type, recessed in a ceiling. The luminaires shall have lenses and be positioned in the space to direct illumination to the task area.

Exterior Lighting

Luminaires shall be designed with a color temperature of 4000K. LED luminaires shall be provided with 10%-100%, 0-10V controllable drivers to accommodate step dimming to lower levels when the space is not active. Ambient lighting levels shall meet or exceed IES recommendations for illumination per type of outdoor activity.

Parking Lots shall have pole mounted LED area lighting with occupancy sensors for 30% light reduction and time clock function for dusk to dawn operation. Pathways shall have pole mounted pathway luminaires at 8' above grade and wall mounted luminaires on the building. Entrances shall have building mounted lighting to identify the entry and provide illumination at pathway.

Illumination Levels

The following levels are target illumination levels for the spaces in the expansion with a task level at 30" above the floor.

▪ Arena	300-600 lux
▪ VIP box, club	300-400 lux
▪ Corridors	150-350 lux
▪ Toilet rooms	250-350 lux
▪ Custodial	250-350 lux
▪ General Storage	100-200 lux
▪ Mechanical/Electrical	250-350 lux

Interior/Exterior Lighting Control

All luminaires shall have digital lighting controls (occupancy sensors/daylight sensors/low-voltage switch stations/wireless controls station via tablet) shall represent the basis of design. This will include a low voltage digital dimming, lighting controls and lumen management through a modular connected network. The system shall match the existing, RAB Light Cloud.

- Occupancy sensors are to be used with localized controls in all areas except Arena, corridors, mechanical and electrical spaces, and areas where automatic off would create a hazard to the occupants or the use of the space will not benefit from automatic off. Sensors will function as either automatic on/off or manual on/automatic off. Other applications of occupancy sensors will be provided where energy savings can be realized. Sensors will be located to detect occupants and to minimize automatic shutoff during occupied periods.
- The Arena will be controlled by the RAB Light Cloud's time clock function. The areas will be zoned into sections. High Bay Luminaires will be designed for dimming from 10%-100% lumen output, which will allow the owner to dim the lighting.
- Daylight zones shall be controlled based on ambient lighting levels, a daylight sensor will be provided to control the luminaires and reduce the energy usage in the zone as required by the energy code.
- Exterior lighting shall be controlled by the RAB Light Cloud's time clock function with astronomical control. The areas of the parking area will be zoned per lot. Each pole area luminaire will have an occupancy sensor to dim the output to minimal acceptable levels when there are no occupants in the area. The luminaires will go to full brightness upon detection of an occupant.

Emergency Egress and Exit Lighting

Emergency lighting and Exit Signage will be provided throughout the facility to provide wayfinding and to illuminate the path of egress in the event of a power failure.

- Select normal power luminaires will be backed up by the generator to illuminate the egress pathway during a power outage. UL924 control devices will override the luminaire's controls to full output.
- LED exit signage shall be provided to direct occupants to the building exits in case of emergency. These luminaires will be wall and ceiling mounted, cast aluminum type with a white finish and RED letters.

Fire Alarm System

The fire alarm system will be a stand-alone, fully addressable system that will match the existing system. The fire alarm system will be comprised of smoke detectors, heat detectors, duct detectors, manual pull stations, and audio/visual signaling devices.

The fire alarm system will comply with requirements of NFPA 72 and the local Fire Marshal.

The system will be comprised of a fire alarm control panel extended from the existing panel, audio/visual notification devices, smoke detectors and heat detectors, duct smoke detectors, control and monitoring relays, and manual pull station. Cabling will be in conduit throughout the building.

Plaza

Electrical Systems

The new Outdoor Plaza will require two electrical services for power and a distribution system. One of the services is an existing electrical service located at the Pavilion. A new electrical service will be added at the southeast corner of the Plaza.

Codes and Standards

Design shall be done in accordance with applicable Local, State, and Federal codes. The following codes, standards, and guidelines will be used for the design as applicable or as directed by the authorities having jurisdiction:

- Wisconsin Administrative Code.
- NFPA standards as referenced in the Wisconsin Administrative Code.
- 2015 IBC as referenced in the Wisconsin Administrative Code.

The codes, standards and guidelines listed indicate recommended or minimum requirements based on input from owner representatives and recommendations. Minimum requirements or standards may be exceeded.

Electrical Service

New electric service will be provided to the Plaza. The utility MG&E will provide a pad mounted transformer to support the facility. The Arena will require 480Y/277-volt services. It is anticipated that one 500 kVA utility transformer will be required for the 480Y/277-volt service.

Power Distribution

The new utility transformer will provide power to an 800-amp, 277/480-volt, 3 phase, 4 wire distribution panelboard. This panelboard will have provisions to connect temporary cables (Cam

connections, 30-amp, 50-amp receptacle connections, or similar method) for power distribution to areas in the Plaza for booths and displays.

Exterior Lighting

Luminaires shall be designed with a color temperature of 4000K. LED luminaires shall be provided with 10%-100%, 0-10V controllable drivers to accommodate step dimming to lower levels when the space is not active. Ambient lighting levels shall meet or exceed IES recommendations for illumination per type of outdoor activity.

Parking Lots shall have pole mounted LED area lighting with occupancy sensors and time clock function for dusk to dawn operation. Pathways shall have pole mounted pathway luminaires.

Exterior Lighting Control

Exterior lighting shall be controlled by the RAB Light Cloud's time clock function with astronomical control. The areas of the parking area will be zoned per lot. Each pole area luminaire will have an occupancy sensor to dim the output to minimal acceptable levels when there are no occupants in the area. The luminaires will go to full brightness upon detection of an occupant.

INFORMATION TECHNOLOGY

A. Systems Narrative

- 1). Purpose
 - a). This Basis of Design (BOD) describes the magnitude, functions and requirements of the low voltage systems for Phase 1 of the Dane County Alliant Energy Center – Expansion. It presents a description of the individual systems' proposed design, function, and represents decisions and information available to the design team through Phase 1 only. It is a living document that will be modified to best meet the needs of Phase 1 only. Phase 1 includes the Exhibition Building expansion, the new Arena building and the Plaza.
- 2). Demolition
 - a). Existing DAS rack and all existing cabling within the mezzanine area between column 23 to 26 of the current Exhibition hall D will need to be removed to allow for the addition of structural joists to be installed (See Structural section below), then this rack and existing cabling will either need to be reinstalled in the same location or if the provider determines, it will need to be relocated to a different area within the existing building.
- 3). Approach
 - a). Identify the low voltage systems included in the project.
 - b). Coordinate the low voltage intrabuilding cabling plan and low voltage support spaces with Dane County Alliant Energy operations staff , Perkins + Will, Don Ginberg Architecture and Strang Inc.
 - c). Coordinate the low voltage interbuilding cabling plan with Dane County Alliant Energy operations staff.
 - d). Assist Perkins + Will and Don Ginberg Architecture with IT systems' device location programming.
 - e). Coordinate low voltage systems locations with Mechanical, Electrical, Structural and Architectural needs.
 - f). Identify, discuss and research industry trends for Point of Sale IT Systems for exterior installations.
 - g). Coordinate development of IT Design Documents with entire Project team.
- 4). Scope of Work
 - a). The IT systems in this project will include design information for the building structured cabling system. This includes cabling for telecommunications, video, audio, security and other systems as necessary for each venue.
 - b). The building structured cabling system will also be used to support other applications including building automation and controls, access control rough-in and CCTV video, in addition the coordination of audio video rough-ins and expansion for all areas of Phase 1 of this project.
 - c). The IT System design will include provisions for using the building and campus data network for head-end networked communication for systems including building automation and controls, security and fire alarm.
- 5). Responsibilities
 - a). Continued coordination with the operation staff at the Dane County facility will require additional confirmation of exact service information between all buildings.

- b). Continued coordination with the entire design team will be required for additional documentation to be completed.
- 6). Definitions
- a). Backbone Cabling - Cables connecting BEF to MDF and MDF to IDFs.
 - b). BEF - Building Entrance Facility. The campus BEF is in the Dane County Coliseum, provided by Charter Communications and AT&T formerly Ameritech. Voice, data and video services are brought into the Exhibition hall from the Coliseum building via underground conduits between the buildings. The current site plan available to the design team is not an official survey but a cumulation of previous utility work. No optical fiber routes coming into the Campus or between buildings are indicated on this survey. The routes of the communications cabling will need to be confirmed by a detailed site survey done before any construction can take place.
 - c). Cable - Assembly of one or more conductors or optical fibers within enveloping sheath, constructed to permit the use of conductors singly or in groups.
 - d). Cable Link - Includes SIO, station cable and termination hardware in consolidation points and MDF or IDF.
 - e). Cable Channel - Same as Cable Link, plus patch cords at SIO and in MDF or IDF.
 - f). Cross-Connect - Group of connection points, wall or rack mounted, used to mechanically terminate and administer building wiring.
 - g). Faceplate - Component at SIO that holds the jacks.
 - h). Horizontal Cabling - Cables connecting SIOs to MDF and IDFs.
 - i). IDF - Intermediate Distribution Frame - Used to distribute station cabling to workstation outlets and to house communications equipment.
 - j). Intrabuilding - Within a single building.
 - k). Interbuilding - Between two or more buildings.
 - l). IT - Information Technology
 - m). Jack - Modular connector located in SIO.
 - n). LAN - Local Area Network - Network or networks typically covering a small geographic area. Typically includes only Client-owned cabling and equipment.
 - o). MDF - Main Distribution Frame - Located in the Dane County Coliseum Building. Building voice, data and video services are distributed to IDFs within the Coliseum and other buildings on campus from this room.
 - p). Outlet - See SIO
 - q). STP - Shielded Twisted Pair - Balanced, 4-pair cable used for copper station cabling. Each pair is wrapped with a shielding material and the overall cable is also wrapped with a shielding material.
 - r). SIO - Standard Information Outlet - A device assembly located in work area on which station cabling terminates and which can receive modular connectors.
 - s). Station Cabling - See Horizontal Cabling.
 - t). Telecommunications - Any transmission, emission, or reception of signs, signals, writings, images, sounds, or information of any nature by wire, radio, visual, optical, or other electromagnetic systems.

- u). UTP - Unshielded Twisted Pair - Balanced, 4-pair cable used for copper station cabling and multi-pair copper backbone cables.
- v). WAN - Wide Area Network - Network or networks typically covering a large geographic area. Typically includes Client-owned and service provider-owned cabling and equipment.

B. Structured Cabling

1). Base Design Criteria

- a). Applicable Codes, Guidelines and Standards
 - i. Regulatory Codes City, state and federal
 - ii. NFPA 70-1996 National Electric Code (NEC)
 - iii. ANSI/TIA/EIA 568-B.1 Commercial Building Telecommunications Cabling Standard Part 1: General Requirements
 - iv. ANSI/TIA/EIA 568-B.1-4 Recognition of Category 6 and 850 nm Laser-Optimized 50/125 μm Multimode Optical Fiber Cabling
 - v. ANSI/TIA/EIA 568-B.2 Commercial Building Telecommunications Cabling Standard Part 2: Balanced Twisted-Pair Cabling Components
 - vi. ANSI/TIA/EIA 568-B.3 Optical Fiber Cabling Components Standard
 - vii. ANSI/TIA/EIA-569-B Commercial Building Standards for Telecommunications Pathways and Spaces
 - viii. ANSI/TIA/EIA-606-A Administration Standard for Commercial Telecommunications Infrastructure
 - ix. ANSI/TIA/EIA-607-A Commercial Building Grounding and Bonding Requirements for Telecommunications
 - x. BICSI TDMM BICSI Telecommunications Distribution Methods Manual
- b). Load Calculation Criteria – Exhibition Hall only
 - i. The following outlet quantities indicate the general outlet densities expected for the project. Specific requirements to satisfy user needs will be implemented as space programming is completed.
 - ii. The values in this table show the number of faceplates in each room and the number of jacks at each faceplate. For example, a workstation office would have a total of 2 faceplates containing a total of 1 voice and 2 data jacks:

Room or Space Function	No. of Faceplates	Voice Jacks per Faceplate	Data Jacks per Faceplate	Audio Jacks per Faceplate
Typical Office	2	1	2	-
Meeting Room	4	1	2	1
Exhibition Hall Walls	2	1	2	1
Floor Box every 30 feet in Exhibition Hall	1	1	1	1
Ballroom Walls every 50 feet	1	1	2	1

- c). Equipment Sizing Criteria
 - i. Pathways

Cable pathways will be sized with a minimum of 50% spare capacity, or spare pathways will be provided to allow for growth. Typical pathway sizing is as follows:

Outdoor Interbuilding - 100% spare capacity over initially installed cabling.

Indoor Intrabuilding - Fill to 50% of maximum allowed by Code.

Station - 1" minimum conduit size for a maximum of 6 data cables.

Pathways will be installed to connect IDFs in an efficient manner.

ii. Termination and Mounting Space

Equipment racks and wall fields will be sized with a minimum of 30% spare capacity.

iii. Copper Voice Backbones

Interbuilding copper voice backbones will be sized at 1.5 pairs per full-time employee expected in the facility.

Intrabuilding copper voice backbones will be sized at one pair per 100 square feet of floor area, plus 50 pairs.

iv. Network Electronics

Network electronics will be sized, furnished and installed by the Owner.

2). System Descriptions

a). General

i. The Information Technology (IT) structured cabling design will provide the Dane County Alliant Energy Center Exhibition Hall (Only) Expansion for phase 1, with a solid infrastructure to support all network-related services. This includes adequate space planning, security, power, cooling, and a high-quality structured cabling system. These components will provide the foundation to support the building occupants' IT needs well into the future.

ii. The structured cabling system will be provided as a certified cabling system. The manufacturer or manufacturers of the cable and termination components will qualify and warranty the performance of the entire system.

b). Support Rooms

i. General

All IT support rooms have several common requirements. Each new room will be provided with rough-in only at main door for card access security control. Each room will have emergency and/or UPS power and continuous HVAC cooling.

The existing support rooms are currently on the East and West support area spaces in the Exhibition Hall, the expansion should locate the new rooms in a similar fashion so that they can serve and have clear access to cable pathways coming in and out of the rooms. Pedestrian and equipment access should be through a door located off an exterior corridor or main lobby and should not require access through any other locked room. Door width will be at least three feet.

Suspended ceilings should not typically be provided, however some means of maintaining the environmental parameters of the

rooms must be implemented. If a suspended ceiling is required to maintain environmental integrity, the ceiling should be installed high enough to allow all pathways and room services to come into the rooms below the ceiling.

Floors, walls and ceilings in the support rooms will be treated to minimize dust and the potential for static electricity. At least two walls will be covered with fire treated plywood (3/4-inch-thick, 8 feet high, A-C grade).

ii. Main Distribution Frame (MDF) **New Arena Building** only

The building MDF provides a protected environment for terminating all backbone cables and is in the support area. This room is where the building IT systems connect to the campus IT systems and will be fed from the Dane County Coliseum Building.

The MDF for this new arena building requires a minimum of 80 total square feet of space. The room will house voice cable terminations, data network equipment and data cable terminations.

iii. Intermediate Distribution Frames (IDF) **New Arena Building** only

The building is longer than the minimum distance allowed by standard design practices (100 meters/ 300 feet) and will be required to have an additional telecommunications room to serve the main floor space.

Each floor should have its own IDF if there will be a need for data or voice service or devices located within that space. No telecommunications outlet can be more than 90 meters from telecommunications room (IDF).

The IDFs provide a protected environment for terminating backbone cabling and station cabling on each floor and IT services to the floor will be provided from the IDFs. Network electronics will also be housed in the IDFs.

Number of IDFs per floor is usually governed by the size of the floor plate. Maximum station cable length must be less than 90 meters (295 feet).

Each IDF requires a minimum of 80 square feet (8 feet by 10 feet) of space.

iv. Intermediate Distribution Frames (IDF) **New Plaza space** only

A building with a space of 80 square feet of space should be reserved for the IDF that will serve the data and other low voltage needs for the new plaza. The maximum distance allowed by standard design practices (100 meters/ 300 feet) will be required to feed any data outlet that is to serve this plaza.

Other low voltage services have different requirements for distances, but it is likely the electronics could be housed in the rack of this 80 square foot space.

The IDFs provide a protected environment for terminating backbone cabling and station cabling on each floor and IT services to the floor will be provided from the IDFs. Network electronics will also be housed in the IDFs.

v. Intermediate Distribution Frames (IDF) **Exhibition Hall Expansion** only

The IDF's will connect to the building MDF with intrabuilding backbone cabling. The IDFs provide a protected environment for terminating backbone cabling and station cabling on each floor and IT services to the floor will be provided from the IDFs. Network electronics will also be housed in the IDFs. The location of the IDF's for the expansion will be located on each side of Exhibition Halls E and F in the mezzanine above the halls. The IDF for the Ballroom will be located on the same level as the Ballrooms.

Each IDF requires a minimum of 120 square feet (8 feet by 10 feet) of space.

c). Backbone Cabling (all of Phase 1)

i. General

The existing campus duct bank and manhole system are not identified on a site plan that would locate the Campus IT infrastructure. The operations staff have noted there is a main optical fiber feed into the Dane County Coliseum that feed the entire campus. As stated, it is not known if the service is fed via manhole and duct bank or single underground conduits.

ii. Interbuilding Data Backbone Cabling and Connection Hardware

The data system uses fiber optic cabling to bring data service into the Coliseum building at the Campus from Charter Communications and AT&T. The data backbone size for total fiber optic strands is not known at this time. No survey information exists to determine this information at the time of this report. It is expected the site contains both single mode and multimode strands.

Per the operations staff on site there is a feed from the Coliseum to the Exhibition Hall, but the strand count and type is not known at this time.

All fiber strands will terminate on connectors in rack mounted patch panels in the Alliant Energy center Main Telecommunications Room and route out to each IDF from there.

iii. Intrabuilding Data Backbone Cabling and Connection Hardware

The data system will use fiber optic cabling to distribute data service from the MDF to the IDFs. The data backbone from the MDF to each IDF will be sized during a later design phase when loads are better defined. Backbone cabling and connection hardware will be required for the New Arena Building and the new Plaza (if required) to be fed from the main campus distribution frame in the Dane County Coliseum building,

All fiber strands will terminate on connectors in rack mounted patch panels in the MDF for the new Arena and Plaza and IDFs in the expanded Exhibition Hall.

iv. Interbuilding Voice Backbone Cabling and Connection Hardware

The existing copper voice system entrance to the campus is in the Coliseum building. Per the operations staff there are currently 600 pair of copper voice backbone cables between the

existing Coliseum and the existing Exhibition Hall. The voice backbone for expansion of the Exhibition Hall is to be sized at a pair quantity to be determined in a later design phase. New copper voice cabling will need to be routed between the existing Demarcation point in the Coliseum to the New Arena Building.

All cable pairs will terminate on wall-mounted protector panels and be cross-connected to wall-mounted system terminal blocks.

v. Intra-building Voice Backbone Cabling and Connection Hardware

The voice system will use copper cabling to distribute voice service from the MDF to the IDFs. This will occur for the expansion of the Exhibition Hall, the new Arena Building and the new Plaza.

All cable pairs will terminate on wall-mounted 110-blocks.

d). Station Cabling

i. Data Station Cabling and Connecting Hardware

Each data jack will connect to the nearest IDF with a 4-pair UTP, Category 6 cable. All four pairs will terminate at the outlet and in the IDF.

Category 6 rated 8P8C type jacks will be used at the outlet locations and rack mounted patch panels will be used in the IDFs.

Cables from wall mounted and surface raceway mounted outlets will run in conduit, J-hooks and cable trays to the IDFs.

The above description applies to all data cabling and hardware for the expansion of the Exhibition Hall and the entire new Arena Building. Any data station cabling for the Plaza will require more detail to be determined. It is likely the cabling and jacks will be category 6 but all cable and devices will need to be exterior/outdoor rated and might need to be IP rated as well depending on the applications.

ii. Voice Station Cabling and Connecting Hardware

Each voice jack will connect to the nearest IDF with a 4-pair UTP, Category 6 cable. All four pairs will terminate at the outlet and in the IDF.

Category 6 rated 8P8C type jacks will be used at the outlet locations and wall mounted 110-blocks will be used in the IDFs.

Cables from wall mounted and surface raceway mounted outlets will run in conduit, J-hooks and cable trays to the IDFs.

The above description applies to all copper voice cabling and hardware for the expansion of the Exhibition Hall and the entire new Arena Building. Any data station cabling for the Plaza will require more detail to be determined. It is likely the cabling and jacks will be category 6 but all cable and devices will need to be exterior/outdoor rated and might need to be IP rated as well depending on the applications.

iii. Patch Cables

Patch cables will be provided to match the data outlet cable and termination hardware. This ensures maximum performance of

the cable system by matching station cable impedance with patch cable impedance.

Patch cabling for the Plaza may require an outdoor rated cable and IP rated jacks or covered jacks may be necessary.

e). Support Equipment

i. Innerduct

All backbone fiber optic cabling will be installed in flexible, nonmetallic innerduct. This innerduct will protect the cables and segregate conduits and conduit sleeves.

ii. Equipment Racks

All copper and fiber optic patch panels will be installed in 7-foot-high, standard TIA/EIA 19" equipment racks.

Horizontal and vertical cable management will be provided in all equipment racks.

The racks and patch panels will be necessary for the expansion of the Exhibition Hall in each IDF, the entire new Arena building, both MDF and IDFs and a dedicated room for the Plaza data connections in an adjacent building that will not exceed the 90-meter length requirement.

iii. Cable Raceways

The cable raceway system will consist of a combination of cable tray, J-hooks, conduit, surface raceway, cable runway and D-rings. The cable runway and D-rings will only be used in the support rooms.

Cable pathways from the voice and data outlets to the IDFs will use conduit above inaccessible ceilings, cable tray above accessible ceilings and major cable runs and J-hooks for aggregating small quantities of cables in common areas.

iv. Grounding System

The current Exhibition Hall telecommunications racks are not connected to a telecommunications grounding and bonding system. A new grounding and bonding system are recommended to provide equipment protection in all support rooms. Ground bars and conductors will be provided to minimize the potential difference between the grounding system and the electrical sources powering the IT equipment. The existing Exhibition Hall will be retrofitted with ground bars for each data rack. A new grounding system is to be installed as part of this Phase 1 in the project.

The new Arena Building will have a new grounding and bonding system installed.

3). MEP Requirements

a). General

- i. No piping or ductwork should pass over or through any IT support room, unless they are used to provide services to the support rooms. Piping and ductwork used to provide services to these rooms will be coordinated with the anticipated IT equipment layout within the rooms.

b). Electrical Requirements

- i. IT support rooms will be connected to the building standby power source. Rack-mounted UPS equipment will be used to maintain system operation while the standby power source comes on-line.
 - ii. IT support rooms will be lit to a minimum of 50-foot candles between the equipment rack rows (measured at three feet above the floor) and will provide adequate vertical surface illumination to the bottom of racks.
 - iii. Access to IT support rooms will be controlled by the building access control system to allow the Owner to track access to the rooms.
 - c). Mechanical Requirements
 - i. IT support rooms will be maintained at between 68- and 72-degrees Fahrenheit with 30% to 50% relative humidity at all times. If the building HVAC system cannot provide continuous operation or adequate capacity to meet these criteria, supplemental cooling units will be installed.
 - d). Piping Requirements
 - i. The MDF and IDFs will be sprinkled and include protective cages around the sprinkler heads.
- 4). Distributed Antenna System (DAS)
 - a). General
 - i. Dane County does not provide the DAS system for this Campus. However, currently Verizon Communications and US Cellular are putting their own equipment and antennas for a DAS system to function on this campus. This project will need to allow for physical space for the racks, equipment and radio/antennas to be installed by these communications organizations. During the walkthrough of the Exhibition Hall we observed a rack that Verizon owns that is located on the mezzanine catwalk. The expansion for phase 1 should also allow for another rack within the mechanical spaces for Verizon Communications. No specific equipment currently owned by US Cellular was observed or pointed out during the walk through.
 - ii. No on site coordination with Verizon and US Cellular has taken place at this time, all further requirements will still need to occur before any physical dimension can be given for planning purposes. Both vendor providers have been contacted and are aware of the expansion of the campus. They are working inhouse to determine their needs and will provide information when the project is in a future phase.
- 5). Building Systems Clocks
 - a). General
 - i. Dane County does have an older Simplex Master Clock System installed in the Exhibition Hall at this time. The main panel is housed in the electrical lead technician's office. After some time to check online it does not appear this system is available from Simplex any longer, so expansion into the new areas for the Exhibition Hall is likely not possible, this will require confirmation with the manufacturer. If the system is not able to expand, it is recommended to move forward with a new atomic clock system that can include analog clocks of similar to what is already installed. If new digital clocks are needed, there will be 120v power needs for each of these clocks.
- 6). Overhead Paging System in the Exhibition Hall System Descriptions
 - a). General
 - i. The Exhibition Hall does have amplifiers installed in a rack located in the main electrician's office within the Exhibition Hall there are two amplifiers and five

DSP Controllers within this above-mentioned rack. Currently checking with the firm that provides regular maintenance to determine if this system is expandable to new exhibition halls and ball rooms.

- ii. Each exhibition hall, the lobby and some of the outdoor spaces have existing speakers installed that have signal sent to them from the above-mentioned equipment.
- iii. It appears there is also an emergency page jack located in the rack as well but the manufacturer of the device it is noted on is not labeled.
- iv. Intermediate Distribution Frames (IDF) Arena Building only

The building is longer than the minimum distance allowed by standard design practices (100 meters/ 300 feet) and will be required to have an additional telecommunications room to serve the main floor space.

Each floor should have its own IDF if there will be a need for data or voice service or devices located within that space. No telecommunications outlet can be more than 90 meters from telecommunications room (IDF).

The IDFs provide a protected environment for terminating backbone cabling and station cabling on each floor and IT services to the floor will be provided from the IDFs. Network electronics will also be housed in the IDFs.

Each IDF requires a minimum of 80 square feet (8 feet by 10 feet) of space.

7). Telephone System – **Exhibition Hall Expansion, New Arena Building and New Plaza**

a). General

- i. The campus currently has an analog telephone system. The main switch location is e in the Dane County Coliseum.
- ii. The operation staff stated that approximately 600 pair copper voice cables are routed from the Dane Country Coliseum to the Exhibition Hall. The quantity of currently used lines at the Exhibition Hall was not discussed. From discussions the operations staff can activate a voice line at the floor box location with the halls now to provide a voice service for the vendors displaying for each show.

C. Local Area Network (LAN) **Exhibition Hall Expansion, New Arena Building and New Plaza**

1). General Description

- a). The current Local Area Network routes optical fiber cabling from the main demarcation point within the Coliseum building to the main telecommunications room within the Exhibition Hall. From that fiber each electronic data switch is fed. If a vendor requests data connectivity at their booth for the show, that is negotiated as part of their event. There is a data jack within each floor box located in the current Exhibition Hall. Copper Data cabling routes underfloor back to each rack in the support space to a patch panel. The ports on the patch panel can be connected to the electronic data switch via a patch cord to the electronic data switch and the data service is provided this way. The operations staff will provide a connection to the booth by connecting the port within the floor box to the LAN. Similar floor boxes and pathways will be required to be installed for the Exhibition Hall expansion.

- 2). Equipment
 - a). Electronic Data Switches
 - i. Switches function at Layer 2 in the OSI network model and facilitate the physical connections to the fiber and copper cable plants through Ethernet-based interfaces. All of the new data jacks and cabling that are to be a part of the expansion of the exhibition hall should be Category 6 rated UTP.
 - b). Routers
 - i. Routers function at Layer 3 in the OSI network model and facilitate the logical routing of data packets across the Ethernet-based interfaces. For the Exhibition Hall expansion, the technology operations staff will need to determine if additional routers will be required to service the spaces.
 - c). Servers
 - i. Servers will be provided by the Owner and be connected to the appropriate workgroup switched.
- 3). Topology
 - a). The LAN design will follow a hierarchical star topology which provides component modularity and the potential for various level of redundancy throughout the system. This topology is very similar to the building structured cabling topology and assists in maintenance and troubleshooting of the entire networked system. Each element of this topology is typically referred to as a Layer.
 - i. Network Core

The LAN Network core for the current campus is in the building MDF and is at the center of the star topology. It will facilitate communication amongst the other LAN elements and connect the LAN to “edge” devices that link to networked elements outside of the building.

A second network core if required will need to be determined and provides system redundancy if the primary core fails. This redundant core will form the center of a second star topology in the LAN and will be linked to the same LAN devices as the primary core. By locating the redundant core in a different room than the primary core, physical redundancy is improved.
 - b). Interbuilding Connections
 - i. The building LAN will be connected to the Wide Area Network (WAN) to access information located outside of the building. Routers and other edge devices will connect to the network core to provide LAN access to the WAN.
 - ii. The building LAN will be connected to the campus LAN to access information located outside of the building. Fiber-based Ethernet links using the interbuilding fiber backbone will provide the link from building to campus. Access to the Wide Area Network (WAN) for resources located outside the campus LAN boundaries will be facilitated using existing campus WAN connections.
- 4). Protocols
 - a). Ethernet
 - b). IP

D. Wireless Local Area Network

1). General Description

- a). The campus has wireless access points in place in each building that are fed from the IDF's located through-out.

E. Wireless Paging – currently not used in the buildings.

F. Audio-Visual

a). General

- i. The Exhibition Hall has recently added new audio video equipment to the meeting rooms at the north side of building.

- ii. At this time only two of the smaller meeting rooms are equipped with the following

A motorized screen

An overhead projector

A touch screen control panel near the screen at front of room

Overhead speaker system connected to

Microphone jack

A HDMI Jack

A VGA Jack

A phono Jack

A dedicated audio / video rack with equipment for each 2 rooms

- iii. All existing and new meeting spaces in the Exhibition Hall should be fitted out to have all the above equipment installed to meet the Owner's vendor's needs. The spaces are either going to need a projector/screen combination or a network computer with connection to a video display monitor. Size of the monitor will be determined by the room size. The size of the motorized screen and projector noted above will need to be better refined for each room size.

- iv. AV Room - Expanded Exhibition Hall, New Arena Building, New Plaza

The spaces are still being defined at this point.

Each support room for the two meetings rooms is approximately 60 square feet (6 feet by 10 feet) of space.

G. CATV– currently not expected to be used in the Phase 1 of the project

H. BAS – refer to the Mechanical BOD for information about this system

I. Fire Alarm – refer to the Electrical BOD for information about this system

J. Security – no current dedicated monitoring room any access control or video surveillance

K. Access Control – only rough-in of box and conduit will be included for the future expansion

L. CCTV

1.General Description

- a). There are currently IP video cameras installed within the Exhibition Hall, the lobby and the exterior of the building. The expansion of the building should expect there to be a minimum of one camera located in each new exhibition hall, the ball rooms that could be broken up into meeting spaces, all loading dock areas, and any other space the Owner deems necessary.

- b). At the present time there are two Exacq Vision Network Video Recording devices installed, each with 1 TB for storage. Depending on quantity of

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cameras and storage time required a minimum of another 1 TB of network video recording should be added.

- c). It is expected the New Arena will also have IP Cameras installed both interior and exterior for the building. This building should also have a minimum of 1 TB storage for the same network video recording device.
- d). Although not discussed, is it expected the New Plaza should plan for IP Cameras and video storage similar to the current Exhibition Hall.

SITE UTILITIES

A. Piping Systems

1). Storm

- a). System Description: Collection and conveyance of storm water runoff from pavement and landscaped areas, and clear water from facility plumbing systems.
- b). Design Criteria
 - 1) Wisconsin Statute, Chapter SPS 382 *Design, Construction, Installation, Supervision, Maintenance and Inspection of Plumbing*
 - 2) Wisconsin Statute, Chapter SPS 384 *Plumbing Products*
 - 3) City of Madison, *Standard Specifications for Public Works Construction* (Standard Specifications), 2017 Edition
 - 4) City of Madison Ordinances, Chapter 37 *Erosion and Stormwater Runoff Control*
 - 5) Wisconsin Department of Natural Resources (WDNR) Code NR 151 *Runoff Management*
- c). Equipment and Material
- d). Distribution
 - 1) Utility pipe bedding and cover shall be 3/8-inch crushed stone chips.
 - 2) Utility trench backfill shall be compacted 3/4-inch dense-graded stone in paved areas and existing subsoil in non-paved areas.
 - 3) Storm sewer 12-inch and larger: ASTM C76 reinforced concrete pipe (RCP).
 - 4) Storm sewer 10-inch and smaller: ASTM D3034 SDR35 polyvinyl chloride (PVC) pipe with ASTM F477 gasketed joints.
 - 5) Subdrains: ASTM F2648 polyethylene (PE) pipe.
 - 6) Manholes, Catch Basins and Inlets: ASTM C478 precast concrete risers and cone sections with cast iron frame and grate castings.

2). Sanitary

- a). System Description: Collection and conveyance of wastewater from facility plumbing systems.
- b). Design Criteria
 - 1) Wisconsin Statute, Chapter SPS 382 *Design, Construction, Installation, Supervision, Maintenance and Inspection of Plumbing*
 - 2) Wisconsin Statute, Chapter SPS 384 *Plumbing Products*
- c). Equipment and Material
- d). Distribution
 - 1) Utility pipe bedding and cover shall be 3/8-inch crushed stone chips.

- 2) Utility trench backfill shall be compacted 3/4-inch dense-graded stone in paved areas and existing subsoil in non-paved areas.
 - 3) Sanitary sewer: ASTM D3034 SDR35 polyvinyl chloride (PVC) pipe with ASTM F477 gasketed joints.
 - 4) Manholes: ASTM C478 precast concrete risers and cone sections with watertight joints and pipe sleeves, external molded rubber chimney seal, and cast iron frame and cover casting.
- 3). Madison Metropolitan Sewerage District (MMSD) Sanitary Force Main
- a. System Description: 42-inch force main conveying wastewater from Pumping Station 8 to the wastewater treatment facility.
 - b. Design Criteria
 - 1) Wisconsin Statute NR 110 *Sewerage Systems*
 - 2) AWWA C303 *Concrete Pressure Pipe, Bar-Wrapped, Steel-Cylinder Type*
 - c. Equipment and Material
 - d. Distribution
 - 1) Live taps shall be provided at each point of connection. Estimated construction cost at \$500,000.
 - 2) Provide a line stop with temporary bypass piping above ground. Estimated construction cost at \$200,000.
 - 3) Pipe: AWWA C303 Prestressed Concrete Cylinder Pipe (PCCP). Relay approximately 1000 lineal feet of existing 42-inch sanitary force main. Estimated construction cost at \$800,000.
 - 3) Structure: ASTM C478 precast concrete risers and cone sections with cast iron frame and grate castings. Provide new air release structure to replace existing structure to be removed. Estimated construction cost at \$50,000.
 - 4) Provide trench dewatering for soils with high groundwater. Estimated construction cost at \$250,000
- 4). Water
- a). System Description: Distribution of potable water for domestic use in facility plumbing systems.
 - b). Design Criteria
 - 1) Wisconsin Statute, Chapter SPS 382 *Design, Construction, Installation, Supervision, Maintenance and Inspection of Plumbing*
 - 2) Wisconsin Statute, Chapter SPS 384 *Plumbing Products*
 - c). Equipment and Material
 - d). Distribution
 - 1) Utility pipe bedding and cover shall be 3/8-inch crushed stone chips.
 - 2) Utility trench backfill shall be compacted 3/4-inch dense-graded stone in paved areas and existing subsoil in non-paved areas.
 - 3) Water main: AWWA C151 Class 52 ductile iron pipe with AWWA C104 cement lining and AWWA C105 single layer polyethylene encasement.
 - 4) Gate Valve: AWWA C509 or C515 resilient wedge gate valve with cast iron valve box and valve box adapter.
- 5). Natural Gas

- a). System Description: Distribution of natural gas by local utility for site and facility uses.
 - b). Design Criteria
 - 1) Madison Gas and Electric (MG&E)
 - 2) NFPA 54 *National Fuel Gas Code*
 - 3) 2018 International Fuel Code, Chapter 4 *Gas Piping Installations*
 - c). Equipment and Material
 - d). Distribution
 - 1) From utility to meter: by local utility provider
 - 2) From meter to facility: Underground pipe to meet ASTM D2513 thermoplastic polyethylene pipe with butt-weld or socket-type polyethylene fusion joints and fittings. Above ground pipe to meet ASTM A53 Type E or S black steel pipe.
- 6). Fire Protection
- a). System Description: Distribution of water for fire protection use at the site and in facility fire protection systems.
 - b). Design Criteria
 - 1) Wisconsin Statute, Chapter SPS 382 *Design, Construction, Installation, Supervision, Maintenance and Inspection of Plumbing*
 - 2) Wisconsin Statute, Chapter SPS 384 *Plumbing Products*
 - 3) NFPA 24 *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*
 - c). Equipment and Material
 - d). Distribution
 - 1) Utility pipe bedding and cover shall be 3/8-inch crushed stone chips.
 - 2) Utility trench backfill shall be compacted 3/4-inch dense-graded stone in paved areas and existing subsoil in non-paved areas.
 - 3) Water main: AWWA C151 Class 52 ductile iron pipe with AWWA C104 cement lining and AWWA C105 single layer polyethylene encasement.
 - 4) Gate Valve: AWWA C509 or C515 resilient wedge gate valve with cast iron valve box and valve box adapter.
 - 5) Hydrant: AWWA C502 dry-barrel hydrant with two 2-1/2-inch hose nozzles and one 4-1/2-inch pumper connection nozzle.
 - 6) Post Indicator: UL 789 and FM 110 approved.

STRUCTURAL

A. Base Design Criteria

1). Applicable Codes, Guidelines and Standards:

a). 2015 IBC

2). Design Data

Building Height	90 to 106 ft
Fire Ratings	
Floor	2 hr (decking unprotected)
Roof	1 hr (decking unprotected)
Columns	3 hr
Occupancy Category	III
Basic Wind Speed	120 mph
Wind Pressure	C (Transitional due to lake proximity)
Ground Snow Load (Pg)	30 psf
Roof Snow Load	23.1 psf + Drift + Drift from Photovoltaic Panel
Seismic Site Class	D (Assumed)
Ss (0.2 sec)	8.5%g
S1 (1.0 sec)	4.6%g
Sds	0.091
Sd1	0.074
Seismic Design Category	B
Seismic Resisting System	Steel Systems Not Specifically Detailed For Seismic Resistance
Response Modification Factor	3.0
Cs	0.024
Analytical Procedure	Equivalent Lateral Force Analysis

3). Floor Vibration Criteria

Activity	Walking
Occupancy	Office
Reference	AISC Design Guide #11
Basic Wind Speed	120 mph
Wind Pressure	C (Transitional due to lake proximity)
Ground Snow Load (Pg)	30 psf
Roof Snow Load	23.1 psf + Drift
Seismic Site Class	D (Assumed)
Ss (0.2 sec)	8.5%g
S1 (1.0 sec)	4.6%g
Sds	0.091
Sd1	0.074

Seismic Design Category	B
Seismic Resisting System	Steel Systems Not Specifically Detailed For Seismic Resistance
Response Modification Factor	3.0
Cs	0.024
Analytical Procedure	Equivalent Lateral Force Analysis

B. Superimposed Live Loads

- 1). Exhibit Floor 100 PSF
- 2). Office 50 PSF (plus 15 PSF Partitions)
- 3). Banquet Halls 100 PSF
- 4). Stairs 100 PSF
- 5). Lobbies 100 PSF
- 6). Light Storage 125 PSF
- 7). Prefunction Areas 100 PSF

C. Dead Loads

- 1). Mezzanine Floor – Exhibit Hall

4" Concrete over 2" Metal Deck....	63 PSF
Steel Framing.....	17 PSF
Mechanical	5 PSF
Miscellaneous	2 PSF
Flooring	5 PSF
Ceiling	3 PSF
Total	95 PSF

- 2). Level 2 – Exhibit Hall

4" Concrete over 2" Metal Deck....	63 PSF
Steel Framing.....	37 PSF
Mechanical	5 PSF
Miscellaneous	2 PSF
Flooring	5 PSF
Ceiling	3 PSF
Total	115 PSF

- 3). Roof – Exhibit Hall

3" Metal Deck.....	5 PSF
Steel Framing.....	15 PSF
Mechanical	5 PSF
Miscellaneous	2 PSF
Flooring	5 PSF
Ceiling	3 PSF
Photovoltaic Panel	8 PSF

	Total	43 PSF
4).	Arena Roof – New Arena	
	1 ½" Metal Deck..	4 PSF
	Steel Framing.....	40 PSF
	Mechanical	5 PSF
	Miscellaneous	3 PSF
	Flooring	5 PSF
	Ceiling	3 PSF
	Photovoltaic Panel	8 PSF
	Total	68 PSF

D. Exhibit Hall Expansion

- 1). Foundation
 - a). Where bedrock is close to the surface (less than 6'-0"), shallow foundation in the form of spread footings and continuous wall footing will used. Allowable bearing pressure is 10,000 PSF Design Criteria.
 - b). Where bedrock is deeper (more than 6'-0" below grade), drilled piers with maximum soil bearing of 10,000 PSF will be used.
- 2). Exhibit Hall Floor (Elevation 0'-0")
 - a). Concrete slab on grade 6" thick (4,000 PSI) reinforced with 2.5 PSF reinforcement placed on 6" well-graded sand or gravel with no more than 5% by weight passing a No. 200 US standard sieve.
 - b). Vapor barrier below the slab on grade.
- 3). Mezzanine Framing (Elevation 15'-0")
 - a). 4" of concrete topping on 2" composite metal deck (total thickness of 6") supported on wide flange beams and girders
- 4). Level 2 Framing (Elevation 44'-0")
 - a). 4" concrete topping on 2" composite metal deck (total thickness of 6") supported on 70'-0" long W36 beams at 7'-6" on centers, supported on 13'-6" deep by 135'-0" long structural steel truss (1100 PLF) spaced at 70'-0" on centers.
 - b). The support area and pre-function is framed with 4" of concrete topping on 2" composite metal deck (total thickness of 6") supported on wide flange beams and girders.
- 5). Roof Framing
 - a). 3" metal deck on open web long span metal joist (120" deep) spaced at 10'-0" on centers.
- 6). Lateral System
 - a). Concentrically braced frames at select locations.

E. New Arena

- 1). Foundation
 - a). Where bedrock is close to the surface (less than 6'-0"), shallow foundation in the form of spread footings and continuous wall footing will used. Allowable bearing pressure is 10,000 PSF Design Criteria.

- b). Where bedrock is deeper (more than 6'-0" below grade), drilled piers with maximum soil bearing of 10,000 PSF will be used.
- 2). Arena Floor
 - a). Dirt for the most part and where applicable concrete slab on grade 6" thick (4,000 PSI) reinforced with 2.5 PSF reinforcement placed on 6" well-graded sand or gravel with no more than 5% by weight passing a No. 200 US standard sieve.
- 3). Arena Roof
 - a). 1 ½" metal deck supported on 16" open-web metal joists spaced on 5'-0" on centers supported on 13'-6" deep by 180'-0" long structural steel truss (1100 PLF) spaced on 30'-0" on centers supported on steel columns.
- 4). Lateral System
 - a). Concentrically braced frames at select locations.
- F. Existing Exhibit Hall
 - 1). Existing Roof
 - a). Due to the higher roof of the exhibition hall addition, additional load from drifting snow will be added to the existing roof. The exiting roof framing is not currently designed to support the added snow drift. The existing low and high roof framings need to be built up and reinforced to accommodate the added snow loads. The simplest option for the long span joists (120 SLH24) is to add two identical joists between the existing joists for the first three spaces for a total of 6 additional joists at the south end of the existing exhibition hall. This will space the joists at 10'0" on centers. The new joists will be assembled on site (they are usually shipped in segments) and will require the removal and re-installation of existing MEP and FP systems that are in the way of the joists installation. For the lower roofs, precast planks, additional rebar will be grouted in the cores of the planks of the most southern bay (Existing gridline 25 to 26).

END OF NARRATIVE