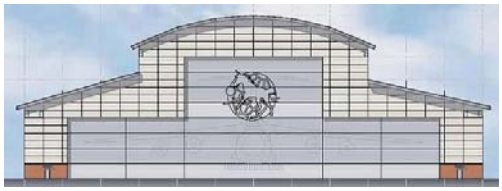


Appendix A

C-5 Fuel Cell Facility

Site Plans of Existing Conditions

N

Existing Service Road

Existing Service Road
And Fire Dept. Access

Existing
Fire Dept
Station
2 Stories

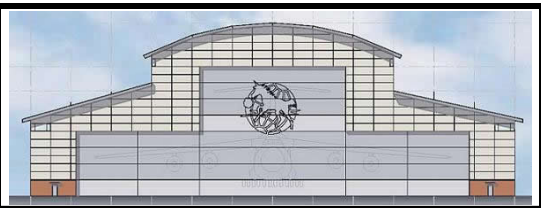
FUEL CELL FACILITY
Building Height = 104'
above finished floor

Existing HEF
Building
1 Story

Existing
Maintenance
Hangar
104' AFF

C-5 Fuel Cell Facility
Martinsburg, WV
Kyle Goodyear
Construction Management

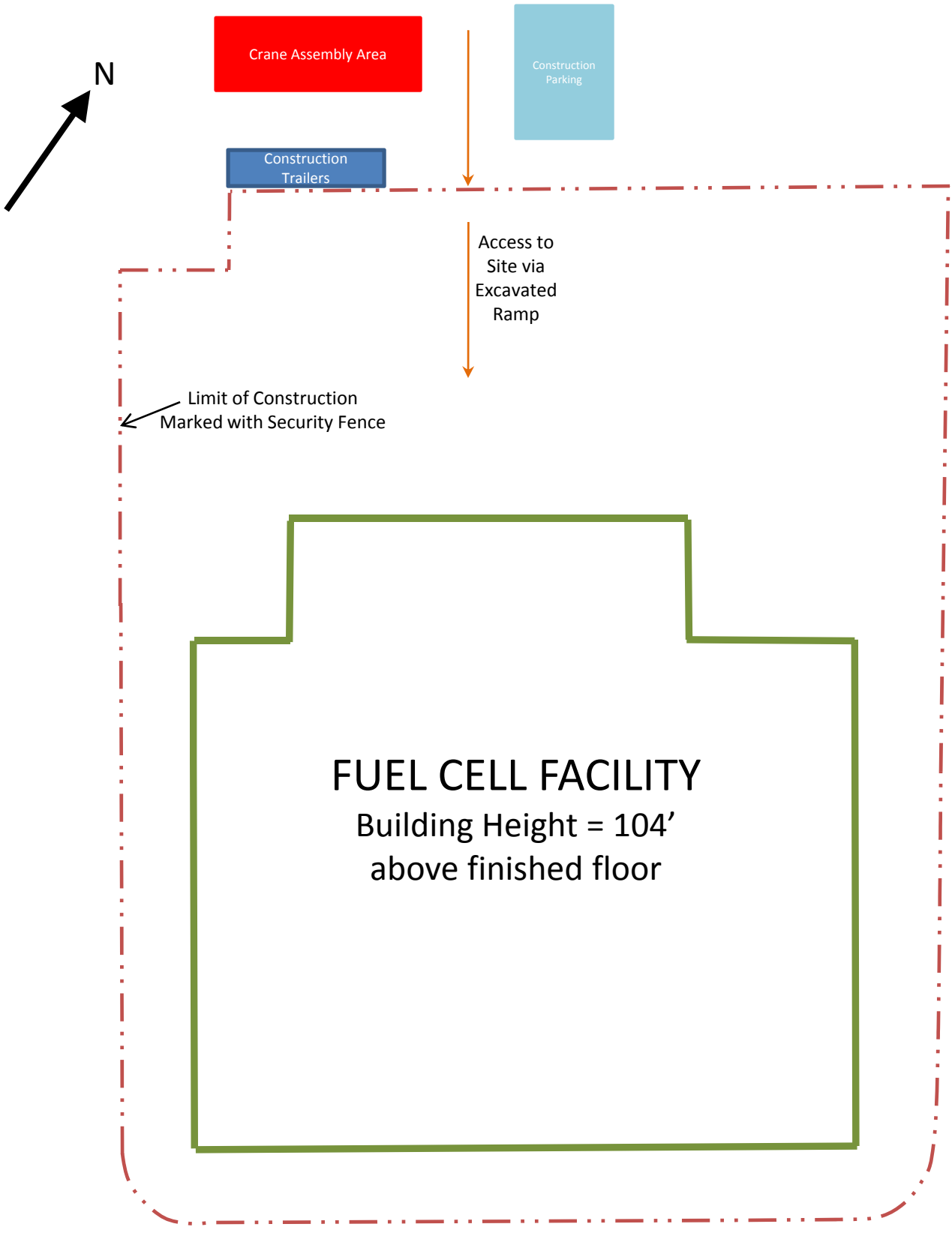
October 1, 2009



Gas
Water
Electric
Communications
Fire Line
Sanitary
Fire Hydrant

Site Utilities Plan

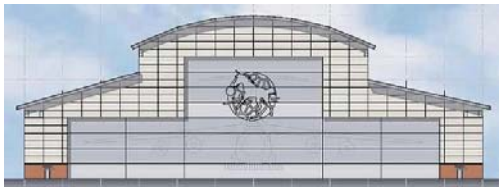
NTS



C-5 Fuel Cell Facility
Martinsburg, WV
Kyle Goodyear
Construction Management

October 1, 2009

Site Layout Plan
NTS



Appendix B

C-5 Fuel Cell Facility

Site Layout Plans

Site Entry/Exit

Base Road

N

Excavation Equipment Storage Area

GC and Sub Office Trailers

Storage Trailers

Site Fence

Limit of Construction

Excavated Ramp

Existing Fire Dept.

Caisson Construction

Excess Spoils Pile to be Hauled Off

Existing Taxiway

C-5 Fuel Cell Facility Martinsburg, WV Kyle Goodyear Construction Management	Excavation and Foundation Site Layout Plan 1"=60' October 25, 2009

Site Entry/Exit

Base Road

N

On-Site Truss Fabrication Area

GC and Sub Office Trailers

Storage Trailers

Site Fence

Limit of Construction

Excavated Ramp

Temp. shoring towers to be used

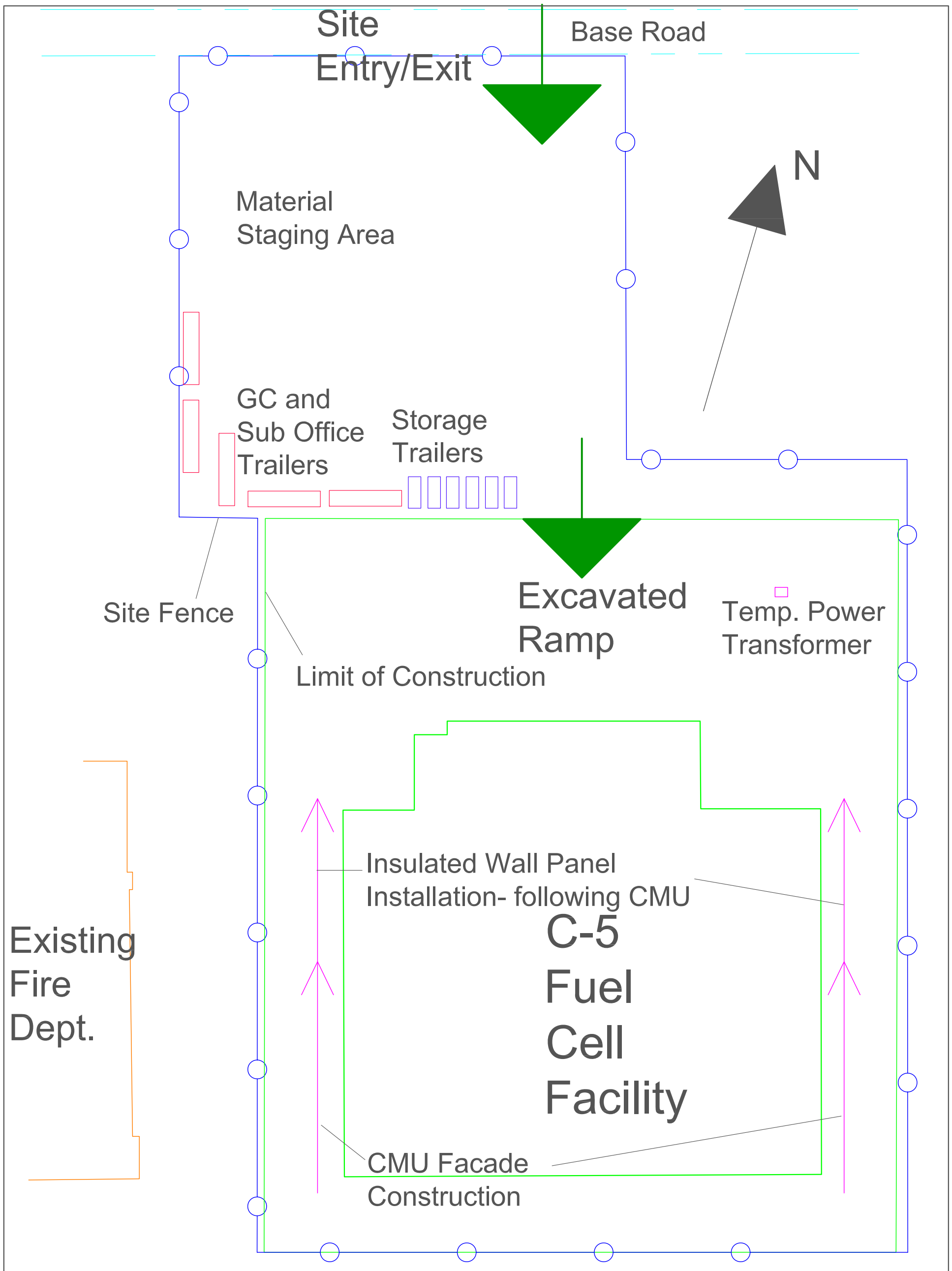
2 Crawler Cranes- a 3rd to be added later

C-5 Fuel Cell Facility

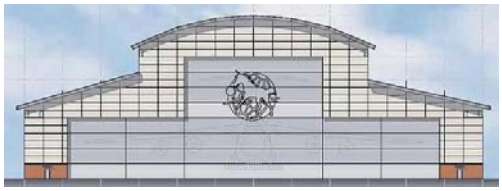
Existing Fire Dept.

Existing Taxiway

C-5 Fuel Cell Facility Martinsburg, WV Kyle Goodyear Construction Management	Steel Erection Site Layout Plan 1"=60' October 25, 2009



C-5 Fuel Cell Facility Martinsburg, WV Kyle Goodyear Construction Management	Building Enclosure Layout Plan 1"=60' October 25, 2009

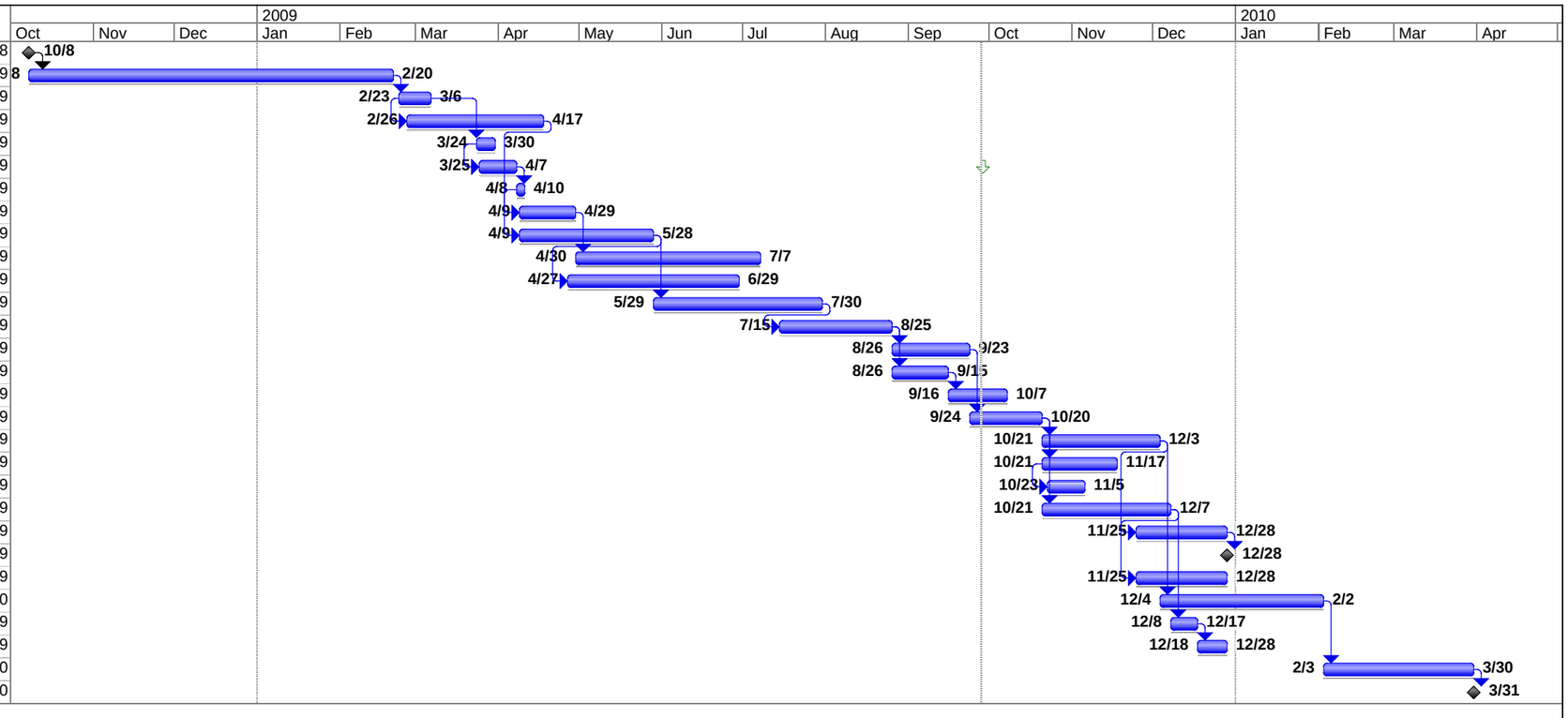


Appendix C

C-5 Fuel Cell Facility

Project Schedules

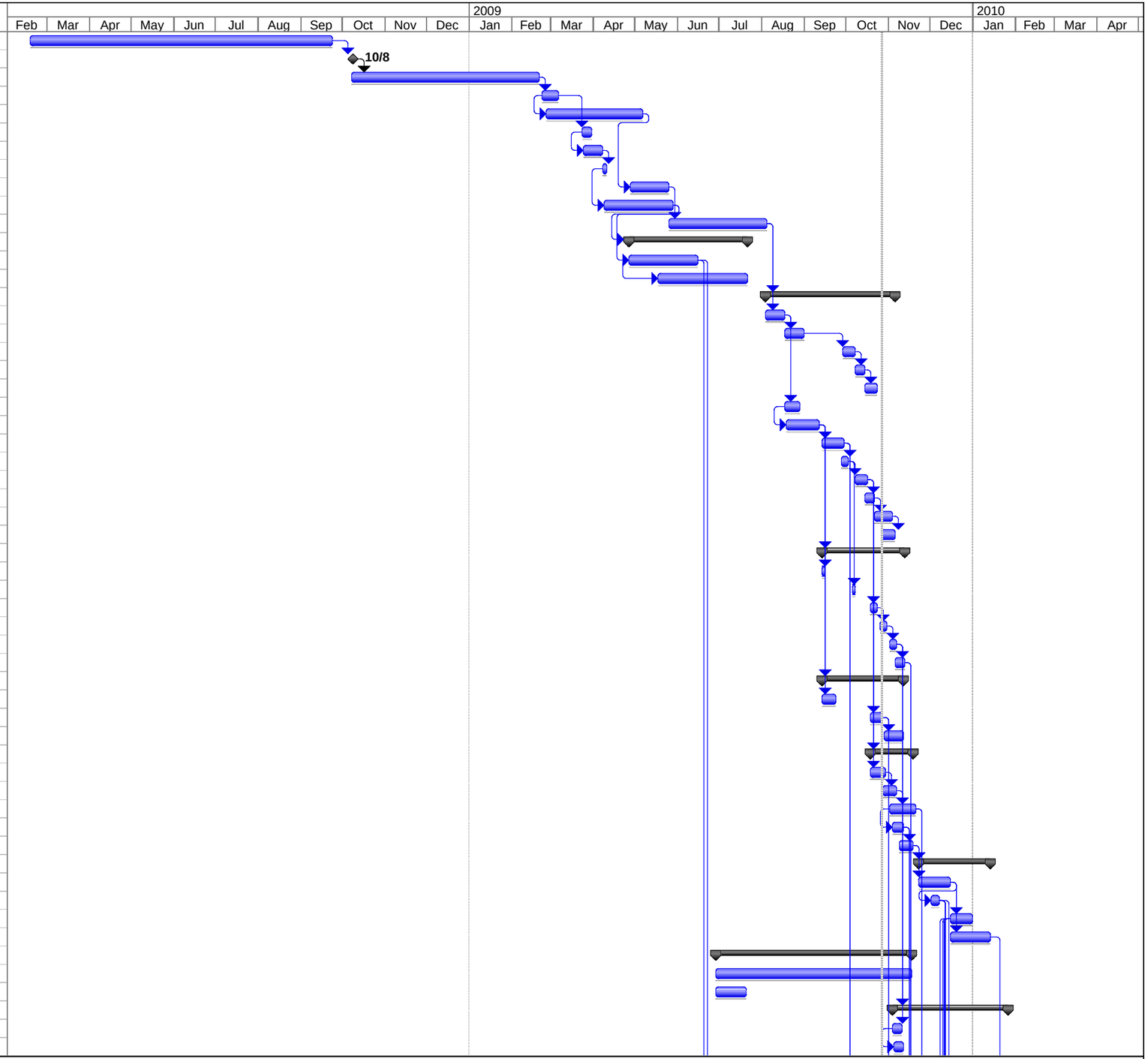
ID	Task Name	Duration	Start	Finish
1	Notice to Proceed	0 days	Wed 10/8/08	Wed 10/8/08
2	Design Phase	98 days	Wed 10/8/08	Fri 2/20/09
3	100% Design Document Review	10 days	Mon 2/23/09	Fri 3/6/09
4	Structural Shop Drawings	37 days	Thu 2/26/09	Fri 4/17/09
5	Office Mobilization	5 days	Tue 3/24/09	Mon 3/30/09
6	Issue Construction Documents	10 days	Wed 3/25/09	Tue 4/7/09
7	Initial Layout and Stakeout	3 days	Wed 4/8/09	Fri 4/10/09
8	Approve Structural Shop Dwgs	15 days	Thu 4/9/09	Wed 4/29/09
9	Site-Stormwater and Grading for Bldg	36 days	Thu 4/9/09	Thu 5/28/09
10	Fabricate Structural Steel and Joists	49 days	Thu 4/30/09	Tue 7/7/09
11	Construct Foundations	46 days	Mon 4/27/09	Mon 6/29/09
12	Underground Utilities	45 days	Fri 5/29/09	Thu 7/30/09
13	Steel Erection	30 days	Wed 7/15/09	Tue 8/25/09
14	Construct Roof	21 days	Wed 8/26/09	Wed 9/23/09
15	Masonry Walls	15 days	Wed 8/26/09	Tue 9/15/09
16	Install Insulated Metal Panels	16 days	Wed 9/16/09	Wed 10/7/09
17	Floor Slab	19 days	Thu 9/24/09	Tue 10/20/09
18	MEP Rough-In Overhead	32 days	Wed 10/21/09	Thu 12/3/09
19	Construct Interior Partition Walls	20 days	Wed 10/21/09	Tue 11/17/09
20	MEP Rough-In in Walls	10 days	Fri 10/23/09	Thu 11/5/09
21	Site Asphalt and Concrete	34 days	Wed 10/21/09	Mon 12/7/09
22	Install Hangar Door	24 days	Wed 11/25/09	Mon 12/28/09
23	Building Enclosed	0 days	Mon 12/28/09	Mon 12/28/09
24	Complete MEP Systems	24 days	Wed 11/25/09	Mon 12/28/09
25	Fire Alarm and Security System	43 days	Fri 12/4/09	Tue 2/2/10
26	Complete Sevice Road- Wearing and Paint	8 days	Tue 12/8/09	Thu 12/17/09
27	Landscaping	7 days	Fri 12/18/09	Mon 12/28/09
28	Testing and Commissioning	40 days	Wed 2/3/10	Tue 3/30/10
29	Project Complete	0 days	Wed 3/31/10	Wed 3/31/10



Project: C-5 Summary Schedule.mpp
Date: Mon 9/28/09

Task | Milestone | Rolled Up Task | Rolled Up Progress | External Tasks | Group By Summary
Progress | Summary | Rolled Up Milestone | Split | Project Summary | Deadline

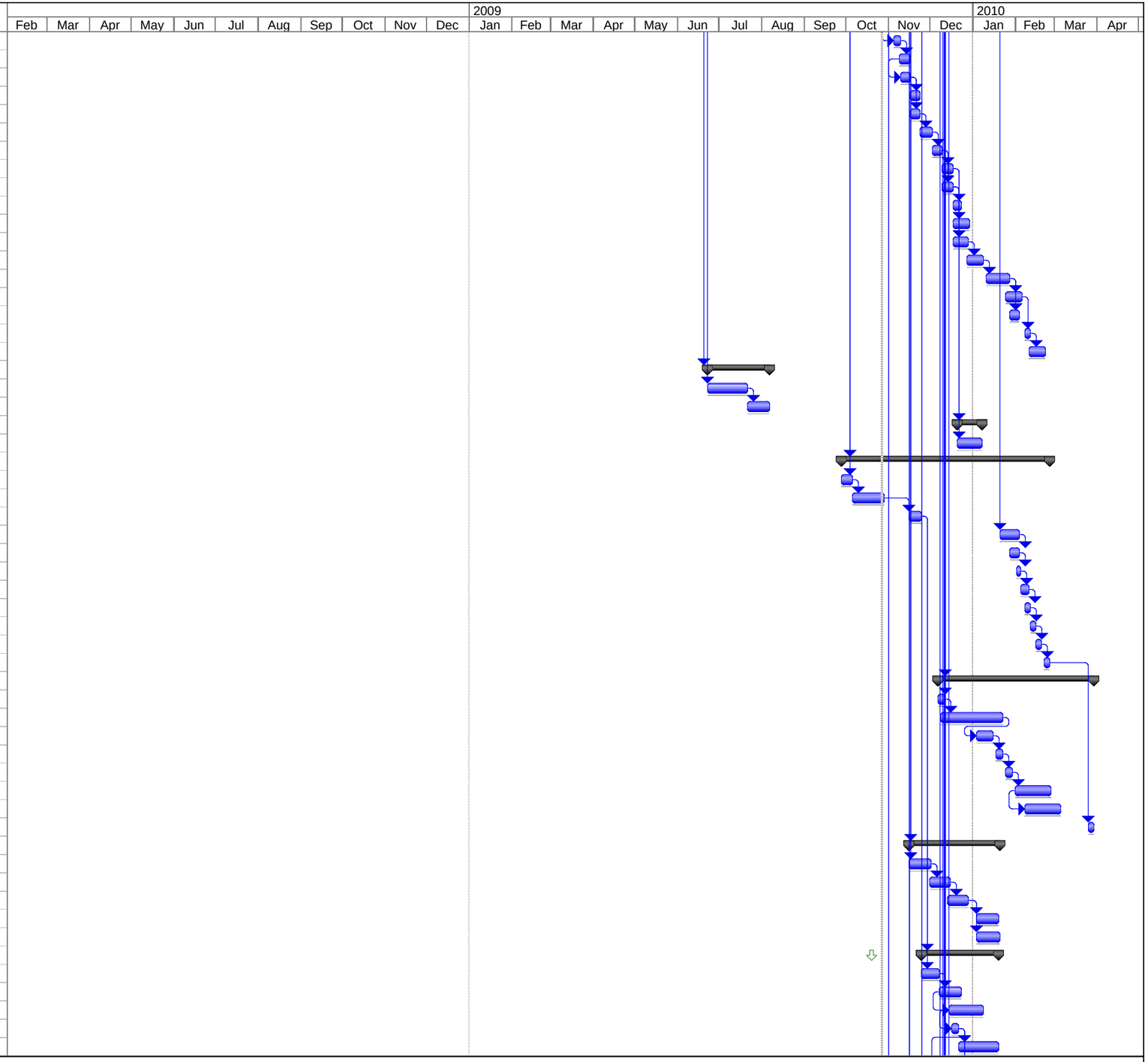
ID	Task Name	Duration	Start	Finish	Predecessors
1	Bidding/Selection Period	157 days	Mon 2/18/08	Tue 9/23/08	
2	**Notice to Proceed**	**0 days**	**Wed 10/8/08**	**Wed 10/8/08**	**1FS+11 days**
3	Design Phase	98 days	Wed 10/8/08	Fri 2/20/09	2FS-1 day
4	100% Design Document Review	10 days	Mon 2/23/09	Fri 3/6/09	3
5	Structural Shop Drawings	50 days	Thu 2/26/09	Wed 5/6/09	4SS+3 days
6	Office Mobilization	5 days	Tue 3/24/09	Mon 3/30/09	4FS+11 days
7	Issue Construction Documents	10 days	Wed 3/25/09	Tue 4/7/09	6SS+1 day
8	Initial Layout and Stakeout	3 days	Wed 4/8/09	Fri 4/10/09	7
9	Structural Shop Dwg Approval	20 days	Tue 4/28/09	Mon 5/25/09	5FS-7 days
10	Site- Stormwater and Grading for Bldg	36 days	Thu 4/9/09	Thu 5/28/09	8SS+1 day
11	Structural Steel Fabrication	51 days	Tue 5/26/09	Tue 8/4/09	9
12	**Foundation Construction**	**62 days**	**Mon 4/27/09**	**Tue 7/21/09**	**10FS-24 days**
13	Caisson Construction	36 days	Mon 4/27/09	Mon 6/15/09	10FS-24 days
14	Pier Caps & Grade Beams	47 days	Mon 5/18/09	Tue 7/21/09	13SS+15 days
15	**Steel Erection & Detailing**	**68 days**	**Tue 8/4/09**	**Thu 11/5/09**	**11FS-1 day**
16	Build Trusses on Site- Seq 1A, 1B	10 days	Tue 8/4/09	Mon 8/17/09	11FS-1 day
17	Build Trusses on Site- Seq 2A, 2B	10 days	Tue 8/18/09	Mon 8/31/09	16
18	Build Trusses on Site- Seq 3A	7 days	Tue 9/29/09	Wed 10/7/09	17FS+20 days
19	Build Trusses on Site- Seq 3B	5 days	Thu 10/8/09	Wed 10/14/09	18
20	Build Trusses on Site- Seq 3C	7 days	Thu 10/15/09	Fri 10/23/09	19
21	Erect & Detail- Seq 1A	9 days	Tue 8/18/09	Fri 8/28/09	16
22	Erect & Detail- Seq 1B	18 days	Wed 8/19/09	Fri 9/11/09	21SS+1 day
23	Erect & Detail- Seq 2A	12 days	Mon 9/14/09	Tue 9/29/09	22
24	Erect & Detail- Seq 2B	5 days	Mon 9/28/09	Fri 10/2/09	23FS-2 days
25	Erect & Detail- Seq 3A	7 days	Thu 10/8/09	Fri 10/16/09	24FS+3 days
26	Erect & Detail- Seq 3B	5 days	Thu 10/15/09	Wed 10/21/09	25FS-2 days
27	Erect & Detail- Seq 2C	9 days	Thu 10/22/09	Tue 11/3/09	26
28	Erect & Detail- Seq 3C	8 days	Tue 10/27/09	Thu 11/5/09	27FS-6 days
29	**Roof Deck Installation**	**44 days**	**Mon 9/14/09**	**Thu 11/12/09**	**22**
30	Roof Deck- Seq 1A, 1B	2 days	Mon 9/14/09	Tue 9/15/09	22
31	Roof Deck- Seq 2A, 2B	2 days	Tue 10/6/09	Wed 10/7/09	24FS+1 day
32	Roof Deck- Seq 3A	5 days	Mon 10/19/09	Fri 10/23/09	25
33	Roof Deck- Seq 3B	5 days	Mon 10/26/09	Fri 10/30/09	32
34	Roof Deck- Seq 2C	5 days	Mon 11/2/09	Fri 11/6/09	33
35	Roof Deck- Seq 3C	5 days	Fri 11/6/09	Thu 11/12/09	34FS-1 day
36	**Masonry Wall**	**43 days**	**Mon 9/14/09**	**Wed 11/11/09**	**22**
37	Masonry 1A, 1B	8 days	Mon 9/14/09	Wed 9/23/09	22
38	Masonry 2A, 2B	7 days	Mon 10/19/09	Tue 10/27/09	25
39	Masonry Walls Admin Area	10 days	Thu 10/29/09	Wed 11/11/09	38FS+1 day
40	**Insulated Wall Panels**	**23 days**	**Mon 10/19/09**	**Wed 11/18/09**	**25**
41	Wall Panels 1A, 1B	9 days	Mon 10/19/09	Thu 10/29/09	25
42	Wall Panels 2A, 2B	8 days	Wed 10/28/09	Fri 11/6/09	41FS-2 days
43	Clerestory Siding	15 days	Mon 11/2/09	Fri 11/20/09	42FS-5 days
44	Wall Panels South Elev	6 days	Wed 11/4/09	Wed 11/11/09	43SS+2 days
45	Wall Panels North Elev	8 days	Mon 11/9/09	Wed 11/18/09	44FS-3 days
46	**Metal Roof Panel Installation**	**38 days**	**Mon 11/23/09**	**Wed 1/13/10**	**45FS+2 days**
47	High Roof Panels	17 days	Mon 11/23/09	Tue 12/15/09	45FS+2 days
48	Admin Area Roof Panels	4 days	Wed 12/2/09	Mon 12/7/09	47FS-10 days
49	Low Roof Panels	12 days	Wed 12/16/09	Thu 12/31/09	47
50	Gutters & Downspouts	21 days	Wed 12/16/09	Wed 1/13/10	47
51	**Major Equipment & Systems Fabrication**	**102 days**	**Mon 6/29/09**	**Tue 11/17/09**	
52	Megadoor Fabrication & Delivery	102 days	Mon 6/29/09	Tue 11/17/09	
53	Oil/Water Separator	16 days	Mon 6/29/09	Mon 7/20/09	
54	**Sitework**	**60 days**	**Wed 11/4/09**	**Tue 1/26/10**	**34FS-3 days**
55	Install Fire Hydrants	5 days	Wed 11/4/09	Tue 11/10/09	34FS-3 days
56	Install Sanitary Sewer	5 days	Thu 11/5/09	Wed 11/11/09	55SS+1 day



Project: Detailed Project Schedule.mp
Date: Tue 10/27/09

Task — Progress — Summary — External Tasks — Deadline
Split — Milestone — Project Summary — External Milestone

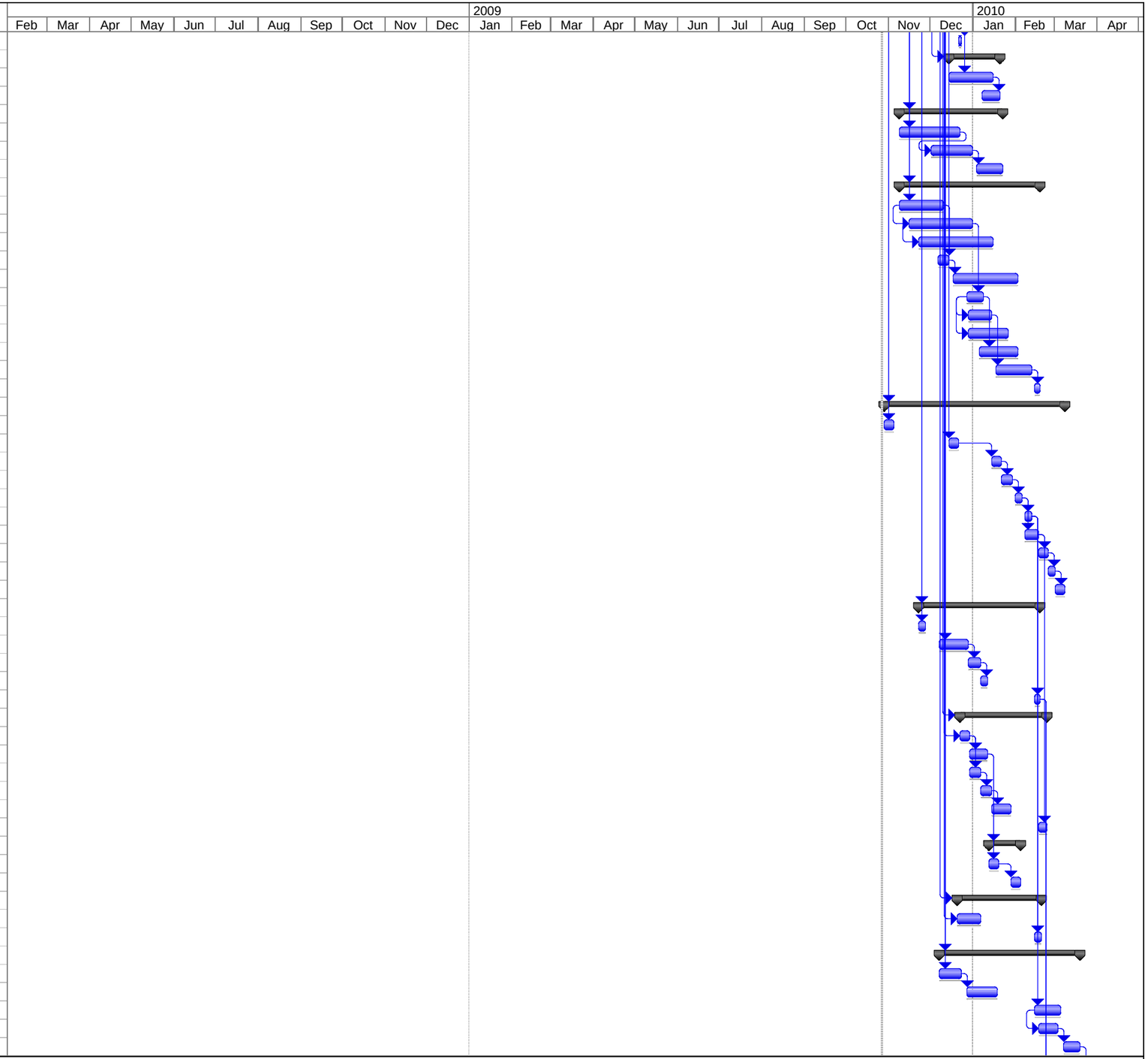
ID	Task Name	Duration	Start	Finish	Predecessors
57	Apron Subdrain	3 days	Thu 11/5/09	Mon 11/9/09	55SS+1 day
58	Oil/Water Separator	6 days	Mon 11/9/09	Mon 11/16/09	57FS-1 day
59	Grade/Stone Base for Apron	5 days	Tue 11/10/09	Mon 11/16/09	58SS+1 day
60	Domestic Water Installation	5 days	Tue 11/17/09	Mon 11/23/09	59
61	Prep/Pour Apron	5 days	Tue 11/17/09	Mon 11/23/09	59
62	Install HEF Line	7 days	Tue 11/24/09	Wed 12/2/09	61
63	Install Gas Line	5 days	Thu 12/3/09	Wed 12/9/09	62
64	Electrical Ductbank & Transformer	6 days	Thu 12/10/09	Thu 12/17/09	63
65	Install Storm Drain	6 days	Thu 12/10/09	Thu 12/17/09	63
66	Communication Ductbank	4 days	Fri 12/18/09	Wed 12/23/09	65
67	Install Roof Leader Pipe	8 days	Fri 12/18/09	Tue 12/29/09	65
68	Drainage Swales	7 days	Fri 12/18/09	Mon 12/28/09	65
69	Site Lighting	10 days	Mon 12/28/09	Fri 1/8/10	68FS-1 day
70	Final Site Grading & Topsoil	13 days	Mon 1/11/10	Wed 1/27/10	69
71	Asphalt Base & Binder	10 days	Mon 1/25/10	Fri 2/5/10	70FS-3 days
72	Install Perimeter Fence	5 days	Thu 1/28/10	Wed 2/3/10	70
73	Asphalt Wearing	4 days	Mon 2/8/10	Thu 2/11/10	71
74	Landscaping	8 days	Thu 2/11/10	Mon 2/22/10	73FS-1 day
75	**Underground Mechanical**	**33 days**	**Tue 6/23/09**	**Thu 8/6/09**	**13FS+5 days**
76	Underground Sanitary Hanger	21 days	Tue 6/23/09	Tue 7/21/09	13FS+5 days
77	Underground Plumbing	12 days	Wed 7/22/09	Thu 8/6/09	76
78	**Underground Electrical**	**14 days**	**Mon 12/21/09**	**Thu 1/7/10**	**64FS+1 day**
79	Electrical Grounding in SOG	14 days	Mon 12/21/09	Thu 1/7/10	64FS+1 day
80	**Slab on Grade**	**109 days**	**Mon 9/28/09**	**Thu 2/25/10**	**23FS-2 days**
81	Stone Base Admin Area SOG	6 days	Mon 9/28/09	Mon 10/5/09	23FS-2 days
82	Prep/Pour Admin Area SOG	17 days	Tue 10/6/09	Wed 10/28/09	81
83	Form/Pour B-Line Trench Drain	7 days	Mon 11/16/09	Tue 11/24/09	82FS+12 days
84	Stone Base Hangar SOG	10 days	Thu 1/21/10	Wed 2/3/10	50FS+5 days
85	Form/Pour H-Line Trench Drain	5 days	Thu 1/28/10	Wed 2/3/10	84FS-5 days
86	Prep/Pour Jacking Points- Part 1	3 days	Tue 2/2/10	Thu 2/4/10	85FS-2 days
87	Prep/Pour SOG#1	4 days	Fri 2/5/10	Wed 2/10/10	86
88	Prep/Pour SOG #2	4 days	Mon 2/8/10	Thu 2/11/10	87FS-3 days
89	Prep/Pour SOG #3 (Jacking Points Part 2)	2 days	Fri 2/12/10	Mon 2/15/10	88
90	Prep/Pour SOG #4	4 days	Tue 2/16/10	Fri 2/19/10	89
91	Prep/Pour SOG #5	4 days	Mon 2/22/10	Thu 2/25/10	90
92	**Building Finishes- Hangar**	**81 days**	**Mon 12/7/09**	**Mon 3/29/10**	**48FS-1 day**
93	Overhead Doors	5 days	Mon 12/7/09	Fri 12/11/09	48FS-1 day
94	MegaDoor Installation	33 days	Wed 12/9/09	Fri 1/22/10	93FS-3 days
95	GWB/Plywood Roof Sheathing	10 days	Mon 1/4/10	Fri 1/15/10	94FS-15 days
96	Paint GWB/CMU	5 days	Mon 1/18/10	Fri 1/22/10	95
97	Misc. Metals	5 days	Mon 1/25/10	Fri 1/29/10	96
98	Paint Structure	20 days	Mon 2/1/10	Fri 2/26/10	97
99	Paint Pipe Systems	20 days	Mon 2/8/10	Fri 3/5/10	98SS+5 days
100	Hangar Floor Striping	2 days	Fri 3/26/10	Mon 3/29/10	91FS+20 days
101	**Mechanical- Hangar**	**48 days**	**Mon 11/16/09**	**Wed 1/20/10**	**35FS+1 day**
102	Spiral Duct	12 days	Mon 11/16/09	Tue 12/1/09	35FS+1 day
103	Louvers	11 days	Tue 12/1/09	Tue 12/15/09	102FS-1 day
104	Exhaust Fans	11 days	Mon 12/14/09	Mon 12/28/09	103FS-2 days
105	Exhaust System	12 days	Mon 1/4/10	Tue 1/19/10	104FS+4 days
106	Ductwork	13 days	Mon 1/4/10	Wed 1/20/10	104FS+4 days
107	**Plumbing- Hangar**	**40 days**	**Wed 11/25/09**	**Tue 1/19/10**	**83**
108	Trench Exhaust	9 days	Wed 11/25/09	Mon 12/7/09	83
109	Compressed Air Lines	12 days	Tue 12/8/09	Wed 12/23/09	108
110	Breathable Air	19 days	Tue 12/15/09	Fri 1/8/10	109SS+5 days
111	Vent Risers	3 days	Thu 12/17/09	Mon 12/21/09	110SS+2 days
112	Domestic Water Piping	21 days	Tue 12/22/09	Tue 1/19/10	111



Project: Detailed Project Schedule.mp
Date: Tue 10/27/09

Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone

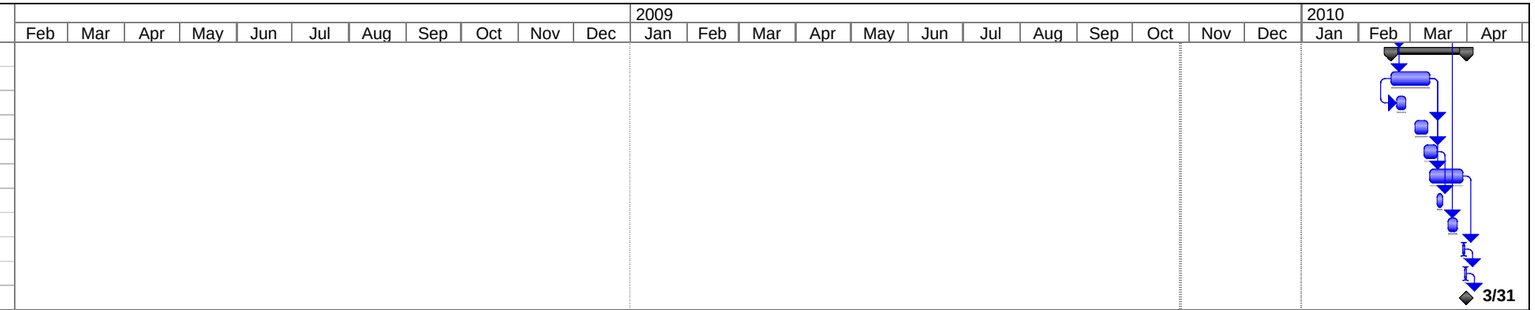
ID	Task Name	Duration	Start	Finish	Predecessors
113	Hose Reels	2 days	Tue 12/22/09	Wed 12/23/09	111
114	**Heating- Hangar**	**27 days**	**Tue 12/15/09**	**Wed 1/20/10**	**111FS-5 days**
115	Infrared Heater Piping	24 days	Tue 12/15/09	Fri 1/15/10	111FS-5 days
116	Infrared Heaters	9 days	Fri 1/8/10	Wed 1/20/10	115FS-6 days
117	**Fire Protection- Hangar**	**55 days**	**Mon 11/9/09**	**Fri 1/22/10**	**44FS-3 days**
118	Wet Sprinkler System	32 days	Mon 11/9/09	Tue 12/22/09	44FS-3 days
119	HEF System Piping	22 days	Wed 12/2/09	Thu 12/31/09	118FS-15 days
120	Install Foam Generators	15 days	Mon 1/4/10	Fri 1/22/10	119FS+1 day
121	**Electrical- Hangar**	**74 days**	**Mon 11/9/09**	**Thu 2/18/10**	**44FS-3 days**
122	Megadoor Power	24 days	Mon 11/9/09	Thu 12/10/09	44FS-3 days
123	HEF and Fire Alarm System	34 days	Mon 11/16/09	Thu 12/31/09	122SS+5 days
124	Lighting & Emergency Lighting	40 days	Mon 11/23/09	Fri 1/15/10	123SS+5 days
125	Wire Overhead Doors	6 days	Mon 12/7/09	Mon 12/14/09	122FS-4 days
126	Electric Cable	33 days	Fri 12/18/09	Tue 2/2/10	125FS+3 days
127	Wire HVAC Hose Reels	10 days	Mon 12/28/09	Fri 1/8/10	123FS-4 days
128	Wire HVAC Purge System	13 days	Tue 12/29/09	Thu 1/14/10	127SS+1 day
129	HVAC Equipment Wiring	21 days	Tue 12/29/09	Tue 1/26/10	127SS+1 day
130	Motorized Hose & Cable Reels	20 days	Wed 1/6/10	Tue 2/2/10	127FS-3 days
131	Cable Trays & Telecomm Wiring	20 days	Mon 1/18/10	Fri 2/12/10	128FS+1 day
132	Switches, Plugs, etc.	4 days	Mon 2/15/10	Thu 2/18/10	131
133	**Building Finishes- Admin Area**	**93 days**	**Thu 10/29/09**	**Mon 3/8/10**	**38FS+1 day**
134	HM Frames	5 days	Thu 10/29/09	Wed 11/4/09	38FS+1 day
135	Aluminum Frames/Glass	5 days	Tue 12/15/09	Mon 12/21/09	48FS+5 days
136	Aluminum Storefront	5 days	Fri 1/15/10	Thu 1/21/10	135FS+18 days
137	GWB Ceilings	6 days	Fri 1/22/10	Fri 1/29/10	136
138	Paint CMU Walls/GWB Ceilings	5 days	Mon 2/1/10	Fri 2/5/10	137
139	Acoustical Grid	5 days	Mon 2/8/10	Fri 2/12/10	138
140	Ceramic Tile	8 days	Mon 2/8/10	Wed 2/17/10	138
141	Lockers	5 days	Thu 2/18/10	Wed 2/24/10	140
142	Toilet Partitions/Specialties	3 days	Thu 2/25/10	Mon 3/1/10	141
143	Doors & Hardware	5 days	Tue 3/2/10	Mon 3/8/10	142
144	**Mechanical- Admin Area**	**64 days**	**Mon 11/23/09**	**Thu 2/18/10**	**43**
145	Louvers	5 days	Mon 11/23/09	Fri 11/27/09	43
146	Ductwork	15 days	Tue 12/8/09	Mon 12/28/09	48
147	Exhaust System	7 days	Tue 12/29/09	Wed 1/6/10	146
148	Exhaust Fans	3 days	Thu 1/7/10	Mon 1/11/10	147
149	Registers/Grilles/Diffusers	4 days	Mon 2/15/10	Thu 2/18/10	139
150	**Plumbing- Admin Area**	**45 days**	**Wed 12/23/09**	**Tue 2/23/10**	**49SS+5 days**
151	Vent Risers	5 days	Wed 12/23/09	Tue 12/29/09	49SS+5 days
152	Domestic Water Piping	9 days	Wed 12/30/09	Mon 1/11/10	151
153	Gas Lines	6 days	Wed 12/30/09	Wed 1/6/10	151
154	Compressed Air Lines	6 days	Thu 1/7/10	Thu 1/14/10	153
155	Pipe Insulation	10 days	Fri 1/15/10	Thu 1/28/10	154
156	Plumbing Fixtures	4 days	Thu 2/18/10	Tue 2/23/10	140
157	**Heating- Admin Area**	**17 days**	**Wed 1/13/10**	**Thu 2/4/10**	**152FS+1 day**
158	Heat Piping	5 days	Wed 1/13/10	Tue 1/19/10	152FS+1 day
159	Pipe Insulation	5 days	Fri 1/29/10	Thu 2/4/10	158FS+7 days
160	**Fire Protection- Admin Area**	**45 days**	**Mon 12/21/09**	**Fri 2/19/10**	**49SS+3 days**
161	Sprinkler Piping	13 days	Mon 12/21/09	Wed 1/6/10	49SS+3 days
162	Sprinkler Heads	5 days	Mon 2/15/10	Fri 2/19/10	139
163	**Electrical- Admin Area**	**74 days**	**Tue 12/8/09**	**Fri 3/19/10**	**48**
164	Conduit Rough-In	12 days	Tue 12/8/09	Wed 12/23/09	48
165	Cable- Conductors	16 days	Mon 12/28/09	Mon 1/18/10	164FS+2 days
166	Lighting & Emergency Lighting	15 days	Mon 2/15/10	Fri 3/5/10	139
167	Lavatory Low Voltage Control	10 days	Thu 2/18/10	Wed 3/3/10	166SS+3 days
168	Switches & Plugs	10 days	Mon 3/8/10	Fri 3/19/10	167FS+2 days



Project: Detailed Project Schedule.mp
Date: Tue 10/27/09

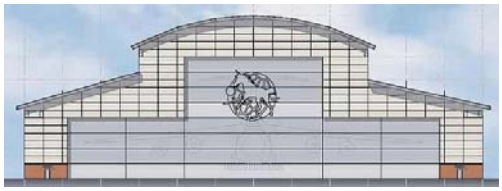
Task Progress Summary External Tasks Deadline
Split Milestone Project Summary External Milestone

ID	Task Name	Duration	Start	Finish	Predecessors
169	**Testing & Close-out**	**29 days**	**Fri 2/19/10**	**Wed 3/31/10**	**149**
170	Test, Adjust, & Balance	15 days	Fri 2/19/10	Thu 3/11/10	149
171	Sprinkler System Testing	5 days	Mon 2/22/10	Fri 2/26/10	170SS+1 day
172	Plumbing Testing	5 days	Thu 3/4/10	Wed 3/10/10	170FS-6 days
173	HEF System Testing	5 days	Tue 3/9/10	Mon 3/15/10	170FS-3 days
174	PVT- HVAC	12 days	Fri 3/12/10	Mon 3/29/10	170
175	Fire Alarm Testing	3 days	Tue 3/16/10	Thu 3/18/10	173
176	Electrical Systems Testing	5 days	Mon 3/22/10	Fri 3/26/10	168
177	Final Inspection	1 day	Tue 3/30/10	Tue 3/30/10	174
178	Building Acceptance/Occupancy	1 day	Wed 3/31/10	Wed 3/31/10	177
179	**Project Complete**	**0 days**	**Wed 3/31/10**	**Wed 3/31/10**	**178**



Project: Detailed Project Schedule.mp
Date: Tue 10/27/09

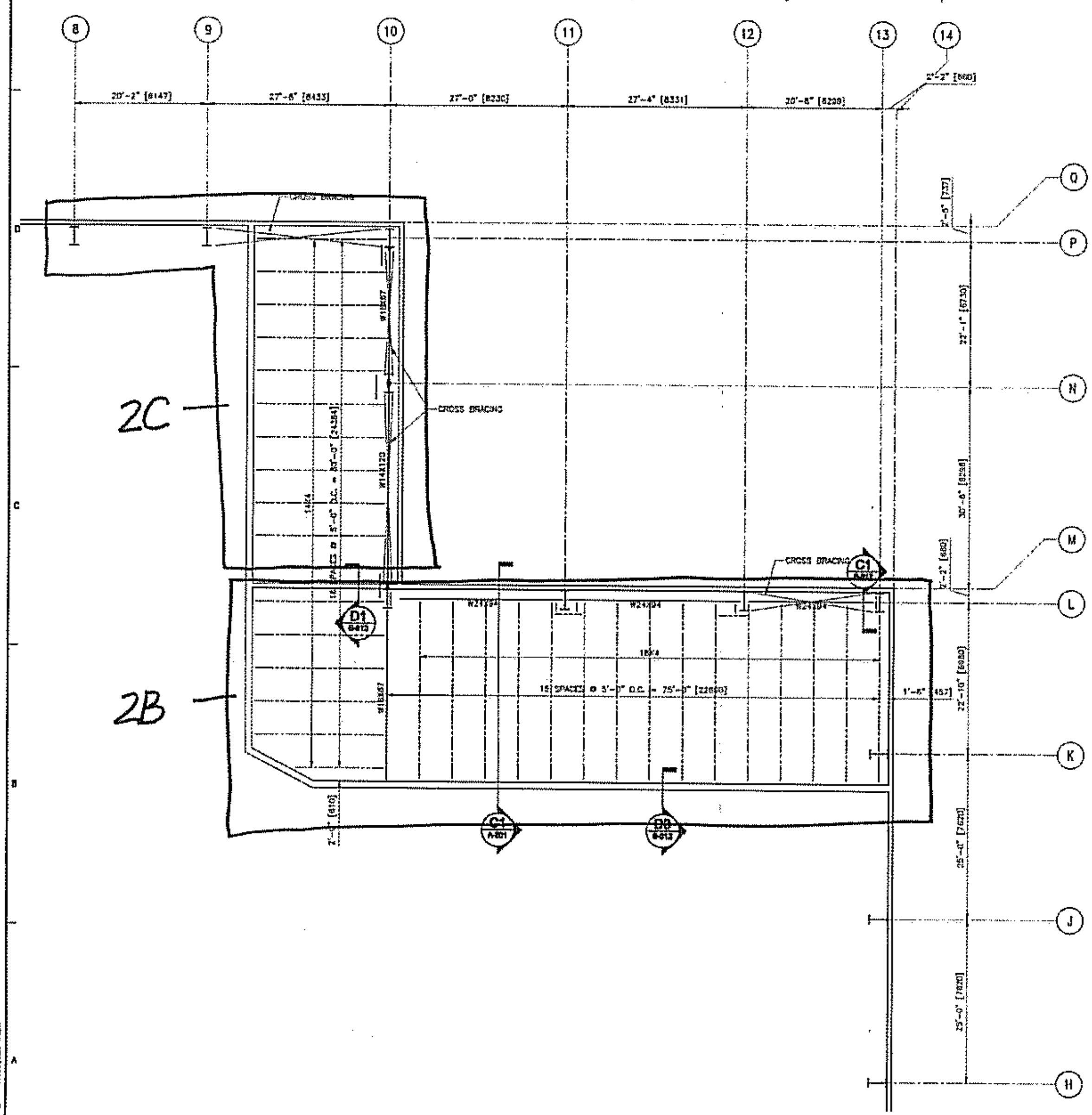
Task | Progress | Summary | External Tasks | Deadline
Split | Milestone | Project Summary | External Milestone



Appendix D

C-5 Fuel Cell Facility

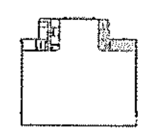
Steel Erection Sequencing



A3 ENLARGED LOWER ROOF FRAMING PLAN

SCALE: 1/8" = 1'-0"

MOMENT CONNECTION



A KEY PLAN

NO SCALE

PRELIMINARY SUBMITTAL

NOT FOR CONSTRUCTION OR PERMIT

TranSystems
220 ST. CHARLES WAY
SUITE 150
YORK, PA 17402
PHONE: 717.854.3861
FAX: 717.845.7289

lscdesign
architects engineers
1110 EAST PRINCESS STREET
YORK, PA 17403
PHONE: 717-845-6383

KINSLEY CONSTRUCTION
2700 WATER STREET
YORK, PA 17403
PHONE: 717-741-3841

C-5 FUEL CELL FACILITY
167th AIRLIFT WING
Project No. PJVY007074
Contract No. W912L8-09-C-0015
MARTINSBURG, WEST VIRGINIA
BERKELEY COUNTY
WEST VIRGINIA

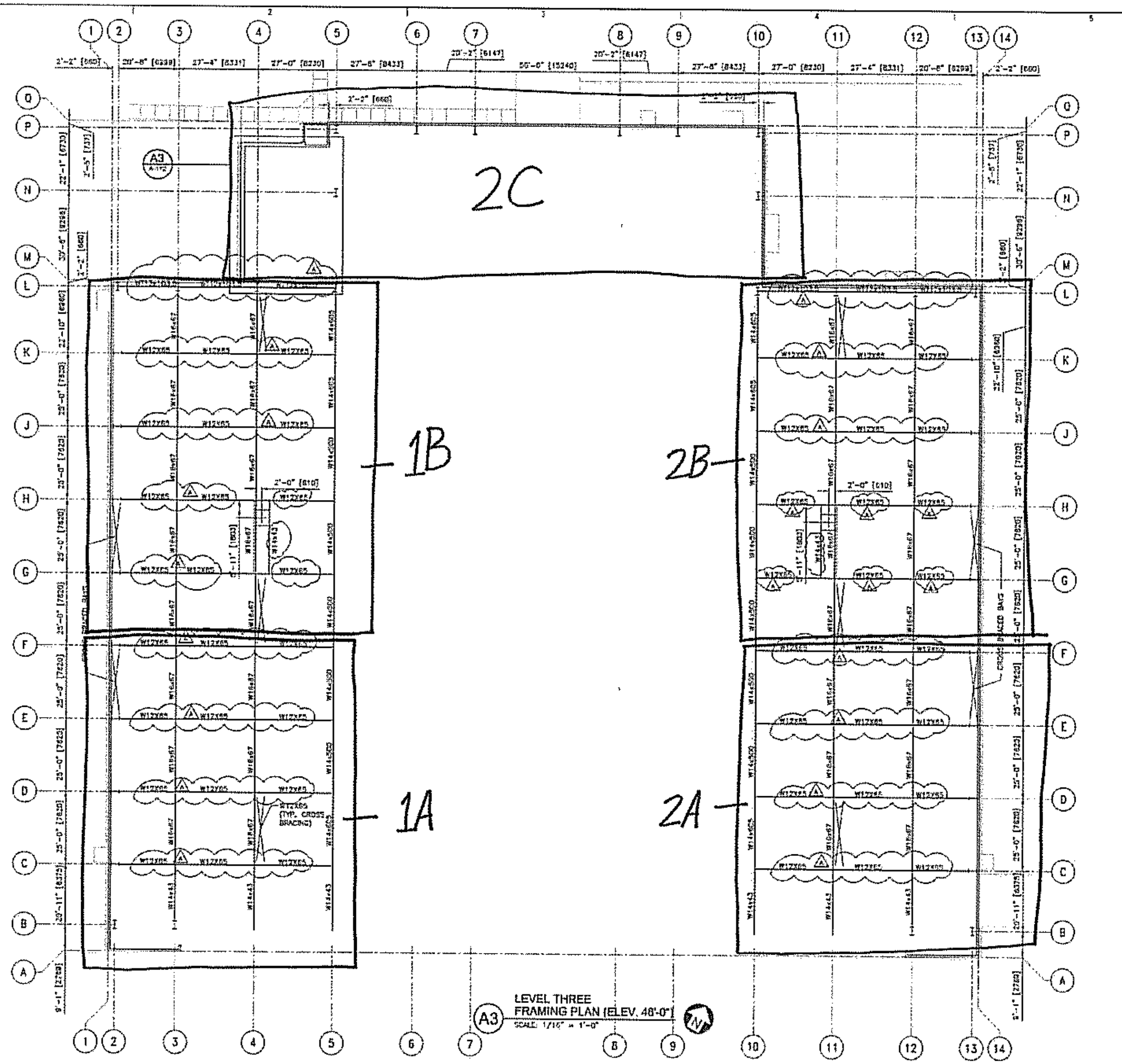
REVISIONS:

MARK	DATE	DESCRIPTION
-	12/31/08	ISSUED FOR 95% COMPLETED
-	11/20/08	ISSUED FOR 35% COMPLETE DD

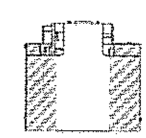
PROJ NO.: PTW080039
SCALE: AS NOTED
DATE: 11/20/08
DESIGNED BY: TWK
DRAWN BY: EAK
CHECKED BY:

SHEET TITLE:
ENLARGED LEVEL TWO FRAMING PLAN 'B'

SHEET NO.
S112



A3 LEVEL THREE FRAMING PLAN (ELEV. 48'-0")
SCALE: 1/16" = 1'-0"



A KEY PLAN
NO SCALE

PRELIMINARY SUBMITTAL
NOT FOR CONSTRUCTION OR PERMIT

TranSystems

lscdesign architects engineers

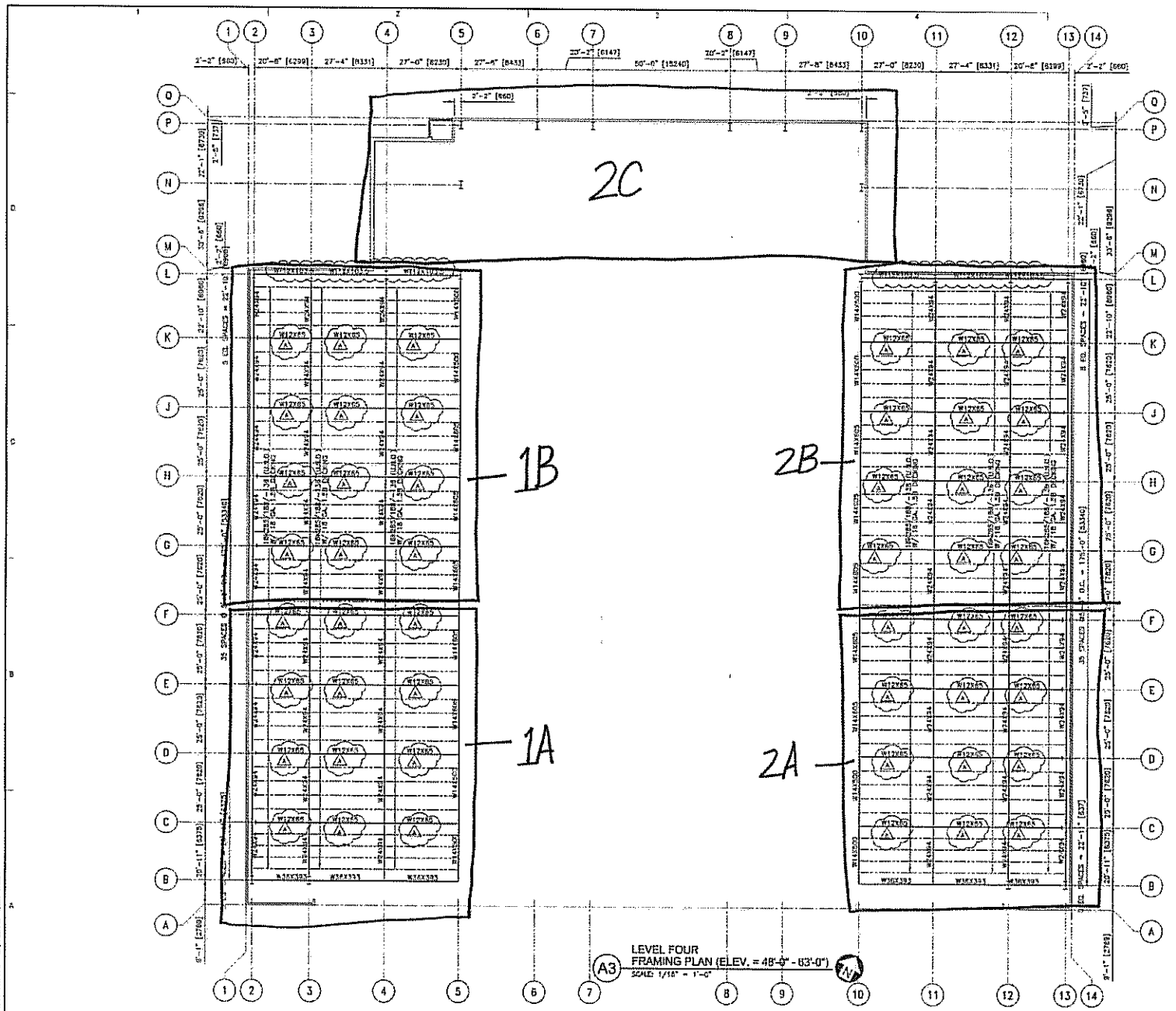
KINSLEY CONSTRUCTION

C-5 FUEL CELL FACILITY
167th AIRLIFT WING
MARTINSBURG, WEST VIRGINIA
BERKELEY COUNTY
WEST VIRGINIA

REVISIONS

SHEET TITLE:
LEVEL THREE FRAMING PLAN

SHEET NO
S113



A3 LEVEL FOUR FRAMING PLAN (ELEV. = 48'-0" - 63'-0")
SCALE: 1/16" = 1'-0"

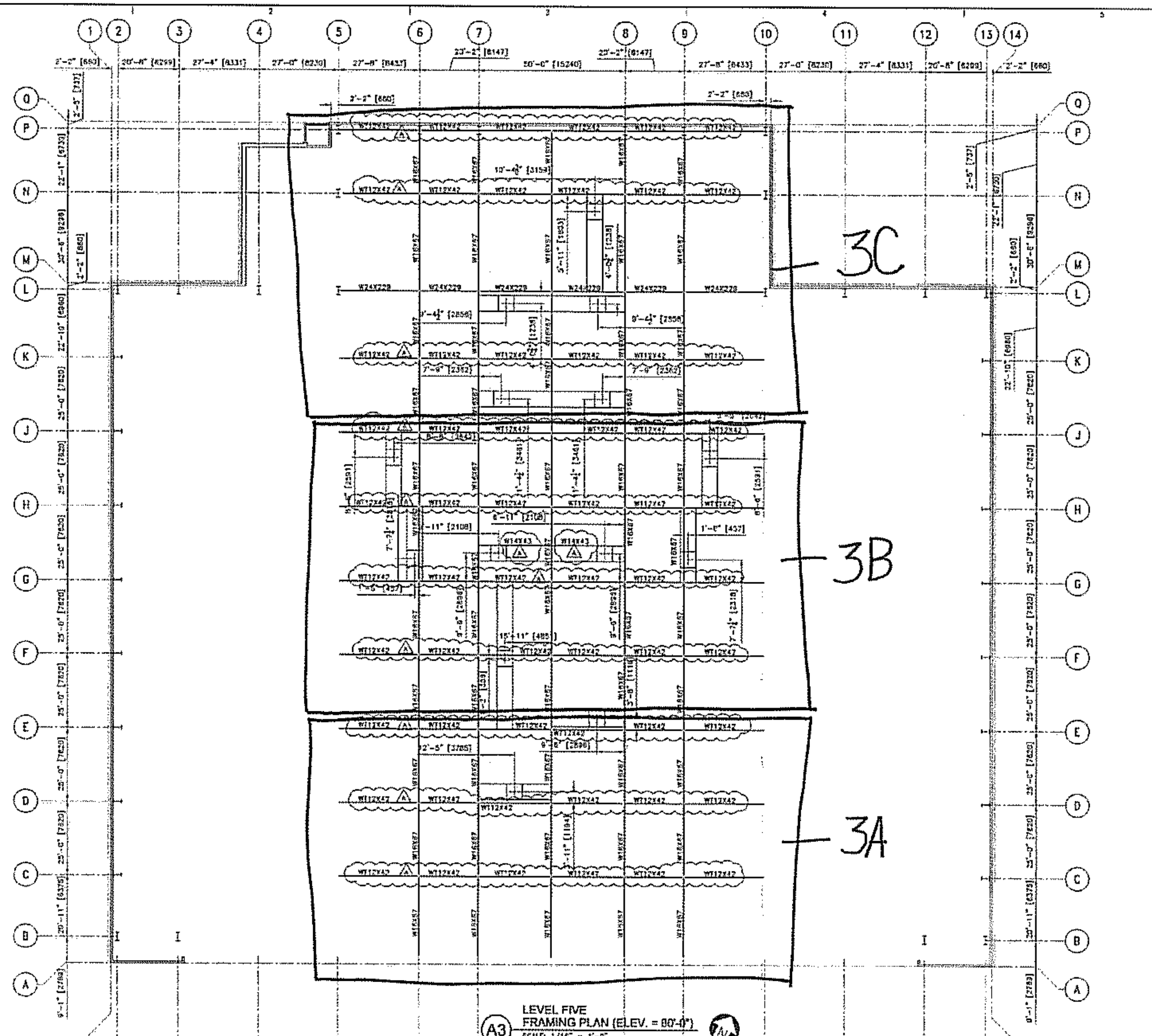
A KEY PLAN
NO SCALE

PRELIMINARY SUBMITTAL
NOT FOR CONSTRUCTION OR PERMIT

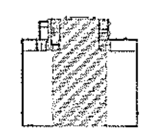
C-5 FUEL CELL FACILITY
167TH AIRLIFT WING
MARTINSBURG WEST VIRGINIA
BERKELEY COUNTY
WEST VIRGINIA

SHEET TITLE:
LEVEL FOUR FRAMING PLAN

SHEET NO.
S114



A3 LEVEL FIVE FRAMING PLAN (ELEV. = 80'-0")
SCALE: 1/16" = 1'-0"



A KEY PLAN
NO SCALE

TranSystems
220 ST. CHARLES WAY
SUITE 100
YORK, PA 17402
PHONE: 717.854.2391
FAX: 717.8457264

PRELIMINARY SUBMITTAL
NOT FOR CONSTRUCTION OR PERMIT

lscdesign
architects engineers
1113 EAST PRINCESS STREET
YORK, PA 17403
PHONE: 717.845.6333

KINSLEY CONSTRUCTION
2700 WATER STREET
YORK, PA 17405
PHONE: 717-741-3841

C-5 FUEL CELL FACILITY
167th AIRLIFT WING
Project No. RJVY099074
Contract No. W9112S-09-C-0016
MARTINSBURG, WEST VIRGINIA
BERKELEY COUNTY
WEST VIRGINIA

REVISIONS:

MARK	DATE	DESCRIPTION
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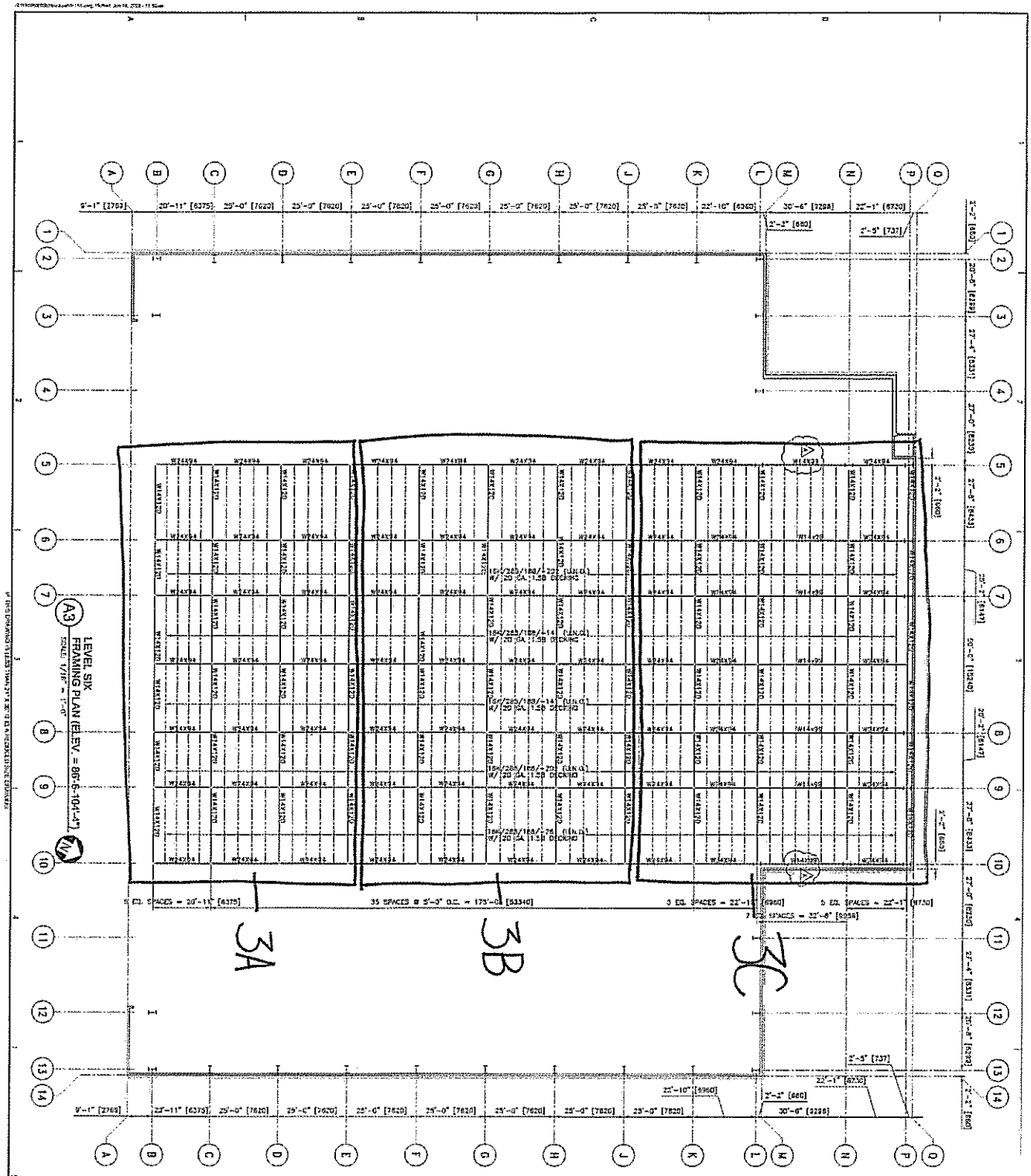
SHEET TITLE:
LEVEL FIVE FRAMING PLAN

SHEET NO.
S115



SHEET NO.	S116
SHEET TITLE	LEVEL SIX FRAMING PLAN

REVISIONS

MARK	DATE	DESCRIPTION
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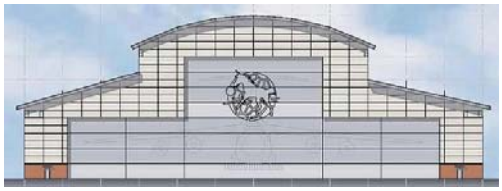
C-5 FUEL CELL FACILITY
167th AIRLIFT WING
Project No. PJWV00074
Contract No. W912BV-08-C-0016
MARTINSBURG, WEST VIRGINIA
BERKELEY COUNTY
WEST VIRGINIA

KINSLEY CONSTRUCTION
2700 WATER STREET
YORK, PA 17405
PHONE: 717-741-3161

Iscdesign architects engineers
113 EAST PRINCESS STREET
YORK, PA 17403
PHONE: 717 845-8233

PRELIMINARY SUBMITTAL
NOT FOR CONSTRUCTION OR PERMIT

TranSystems
221 ST. CHARLES WAY
SUITE 150
YORK, PA 17402
PHONE: 717.854.3821
FAX: 717.845.7884



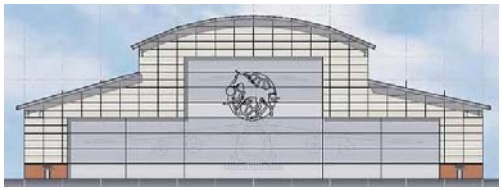
Appendix E

C-5 Fuel Cell Facility

General Conditions Estimate

Description	Quantity	Units	Unit Cost	Total Cost
Project Supervision				
Superintendent	60	WKS	$2,975	$178,500
Asst. Superintendent	60	WKS	$2,750	$165,000
Job Engineer	60	WKS	$1,800	$108,000
Quality Control Supervisor	60	WKS	$1,800	$108,000
Mechanical QC Manager	52	WKS	$1,800	$93,600
Electrical QC Manager	52	WKS	$1,800	$93,600
				$746,700
Office Trailer-Double Wide	5	EA	$5,915	$29,575
Office Phones (5 trailers)	13	MOS	$440	$5,720
Office Equipment (5 trailers)	13	MOS	$1,323	$17,193
Job Photos	7	DAY	$1,525	$10,675
				$63,163
Mobilization				
Initial	30	CD	$610	$18,300
Equipment	20	WKS	$810	$16,200
Concrete Equipment	16	WKS	$2,100	$33,600
Material	52	WKS	$200	$10,400
				$78,500
Equipment Maintenance				
Equipment Maintenance	52	WKS	$140	$7,280
Concrete Equipment	16	WKS	$380	$6,080
				$13,360
Misc. Job Support Allowance	1	LS	$5,500	**$5,500**
Scheduling	1	LS	$10,704	**$10,704**
Layout				
Building Layout	70	MSF	$120	$8,400
Field Survey	87	MSF	$250	$21,750
Layout Sub	1	LS	$6,000	$6,000
				$36,150
Temp Toilets	13	MOS	$550	**$7,150**
Temp Utilities				
Temp Electric	13	MOS	$100	$1,300
Temp Water	13	MOS	$10	$130
				$1,430

Winter Protection/Heat				
Temp Heat	4	MOS	$8,700	$34,800
Snow & Ice Removal	3	MOS	$5,500	$16,500
Concrete Protection	4	MOS	$4,700	$18,800
Masonry Heating	3	MOS	$3,800	$11,400
				$81,500
Temp Floor Protection	864	CSF	$25	**$21,600**
Temp Storage Trailers- Owned	6	EA	$130	**$780**
Temp Roads	500	SY	$15	**$7,500**
Temp Fencing	2,000	LF	$6	**$12,000**
Dewatering/Pumping	5	MOS	$1,500	**$7,500**
Permits	1	LS	$6,690	**$6,690**
Bonds				
Payment Bond	1	LS	$80,274	$80,274
Performance Bond	1	LS	$160,547	$160,547
				$240,821
Builder's Risk Insurance	1	LS	$64,219	**$64,219**
Testing	1	LS	$106,000	**$106,000**
Cleanup				
Weekly Cleanup	80	MSF	$600	$48,000
Final Cleanup	80	MSF	$100	$8,000
				$56,000
Dumpster/Trash Removal	13	MOS	$650	**$8,450**
Safety				
General Building Safety	58	WKS	$275	$15,950
Safety Supervisor	58	WKS	$2,475	$143,550
				$159,500
As-Built Drawings	1	LS	$6,000	**$6,000**
Punch-out	1	LS	$5,500	**$5,500**
		GRAND TOTAL		**$1,746,717**



Appendix F

C-5 Fuel Cell Facility

Structural Systems Estimate

STRUCTURAL SYSTEM ESTIMATE

C-5 Fuel Cell Facility

CONCRETE

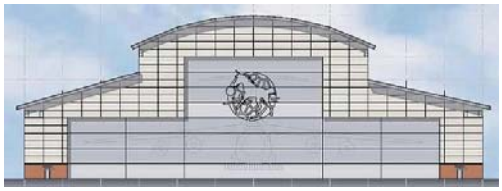
		Quantity	Unit	Unit Cost	Total Cost
	3' dia. Caisson	340	VLF	$ 75.23	$ 25,578.20
	6' dia. Caisson	386	VLF	$ 210.31	$ 81,179.66
	Pier Caps	426	CY	$ 237.43	$ 101,145.18
	Grade Beams	104	CY	$ 250.34	$ 26,035.36
	Strip Footing	10	CY	$ 250.34	$ 2,503.40
	6" Slab on Grade	197	CY	$ 217.14	$ 42,776.58
	8" Slab on Grade	1109	CY	$ 217.14	$ 240,808.26
	14" Slab on Grade	875	CY	$ 217.14	$ 189,997.50
	Jacking Points Slab	53	CY	$ 217.14	$ 11,508.42
	Trench Drain Slab	489	CY	$ 217.14	$ 106,181.46
			Concrete Total		**$ 827,714.02**

MASONRY

		Quantity	Unit	Unit Cost	Total Cost
	8" CMU bearing wall	2998	SF	$ 7.65	$ 22,934.70
	12" CMU bearing wall	2880	SF	$ 11.15	$ 32,112.00
			Masonry Total		**$ 55,046.70**

STEEL

		Quantity	Unit	Unit Cost	Total Cost
	Columns	334.48	Ton	$ 4,330.66	$ 1,448,519.16
	Support Areas	62.15	Ton	$ 4,330.66	$ 269,150.52
	Wind Girts	127.96	Ton	$ 4,330.66	$ 554,151.25
	Truss Structure	1348.19	Ton	$ 4,330.66	$ 5,838,552.51
	24LH Joists	1792	LF	$ 31.65	$ 56,716.80
	14K Joists	1260	LF	$ 10.60	$ 13,356.00
	16K Joists	12,888	LF	$ 10.20	$ 131,457.60
	18K Joists	1456	LF	$ 11.38	$ 16,569.28
	18 Ga. Metal Roof Deck	37,320	SF	$ 3.42	$ 127,634.40
	20 Ga. Metal Roof Deck	42,032	SF	$ 2.75	$ 115,588.00
			Steel Total		**$ 8,571,695.51**
			Structural Total		**$ 9,454,456.23**



Appendix G

C-5 Fuel Cell Facility

Solyndra Specifications

Product Specifications

Electrical Data

Measured at Standard Test Conditions (STC) irradiance of 1000 W/m^2, air mass 1.5, and cell temperature 25° C

Model Number		SL-001-150	SL-001-157	SL-001-165	SL-001-173	SL-001-182	SL-001-191	SL-001-200 Release Date TBD
PowerRating (P_{mp})	Wp	150 Wp	157 Wp	165 Wp	173 Wp	182 Wp	191 Wp	200 Wp
Power Tolerance (%)	%/Wp	+4, -5	+/-4	+/-4	+/-4	+/-4	+/-4	+/-4
V_{mp} (Voltage at Maximum Power)	Volts	65.7 V	67.5 V	69.6 V	71.7 V	73.9 V	76.1 V	78.3 V
I_{mp} (Current at Maximum Power)	Amps	2.28 A	2.33 A	2.37 A	2.41 A	2.46 A	2.51 A	2.55 A
V_{oc} (Open Circuit Voltage)	Volts	91.4 V	92.5 V	93.9 V	95.2 V	96.7 V	98.2 V	99.7 V
I_{sc} (Short Ciruit Current)	Amps	2.72 A	2.73 A	2.74 A	2.75 A	2.76 A	2.77 A	2.78 A
Temp. Coefficient of V_{oc}	%/°C	-.24						
Temp. Coefficient of I_{sc}	%/°C	-.02						
Temp. Coefficient of Power	%/°C	-.26						

System Information

Cell type	Cylindrical CIGS
Maximum System Voltage	Universal design: 1000V (IEC) & 600V (UL) systems
Dimensions	Panel: 1.82 m x 1.08 m x 0.05 m Height: 0.3 m to top of panel on mounts
Mounts	Non-penetrating, powder-coated Aluminum Up to 2.17 mounts per panel
Connectors	4 Tyco Solarlok; 0.20 m cable
Series Fuse Rating	23 Amps
Roof Load	16 kg/m^2 (3.3 lb/ft^2) panel and mounts
Panel Weight	31 kg (68 lb) without mounts
Snow Load Maximum	2800 Pa (58.5 lb/ft^2)
Wind Performance	208 km/h (130 mph) maximum Self-ballasting with no attachments
Operating and Storage Temp	-40˚C to +85˚C
Normal Operating Cell Temperature (NOCT)	41.7˚C at 800 W/m^2, Temp = 20˚C, Wind = 1m/s
Certifications/Listings	UL1703, IEC 61646, CEC listing IEC 61730, IEC 61646, CE Mark Application Class A per IEC 61730-2 Fire Class C
Warranty	25 year limited power warranty 5 year limited product warranty

Solyndra's panels come with all of the mounts, grounding connectors, lateral clips, and fasteners required to build a standard array.

Specifications subject to change without notice.

SOLYNDRA™
The new shape of solar™

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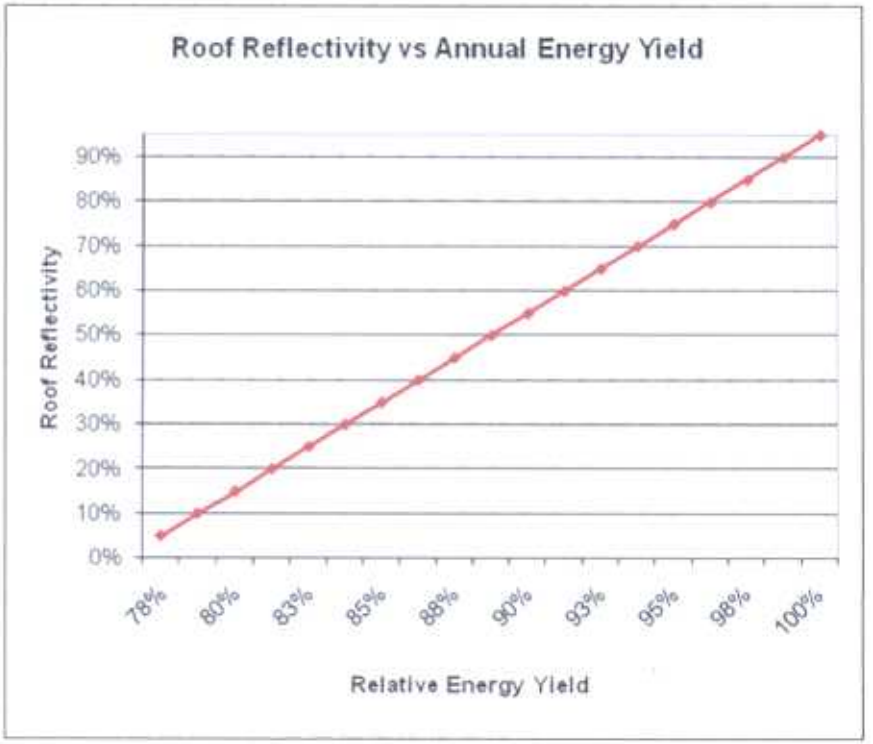
Revision: 3 / Released: 3/11/09

Albedo Reflectivity vs. Annual Energy Yield

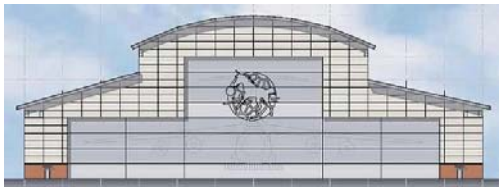
- Energy with White Membrane: 80% Top / 20% Bottom
- Rule of thumb: 4% drop in reflectivity = 1% annual energy yield loss

Example Roof Types	Roof Reflectivity	Annual Energy Yield
White "Cool Roof" Membrane or Reflective Field Applied Coatings	95%	100%
	90%	99%
	85%	98%
	80%	96%
	75%	95%
	70%	94%
Tan Membrane	65%	93%
	60%	91%
Light Grey Membrane	55%	90%
Light Green Membrane	50%	89%
Metal	45%	88%
	40%	86%
Dark Green Membrane	35%	85%
Grey Membrane	30%	84%
Dark Grey Bitumen	25%	83%
	20%	81%
	15%	80%
Tar / Black EPDM	10%	79%
	5%	78%
	1%	77%



Graph is for demonstration purposes, not actual data

SOLYNDRA



Appendix H

C-5 Fuel Cell Facility

Solyndra Calculations

1 foot = 0.3048 m

Roof Dimensions

Panel Dimensions: 1.82m × 1.08m

2 sections 286' × 24'
→ 87.17m × 7.32m

NTS

7.32m / 1.82m/panel = 4.02 → 4 panels

2 sections 286' × 20'
→ 87.17m × 6.10m

6.10m / 1.82m/panel = 3.35 → 3 panels

2 sections 286' × 38'
→ 87.17m × 11.58m

11.58m / 1.82m/panel = 6.36 → 6 panels

For 87.17m directron break into 3 sections with space between for maintenance

- (2) 1 meter strips dividing into 3 equal sections
- ~.5 meter strips at edges → precisely 0.46m for exactly 26 panels to fit

87.17m − 3m = 84.17m

84.17m / 3 sections = 28.06m/section

28.06m/section ÷ 1.08m/panel ≈ 26 panels/section across

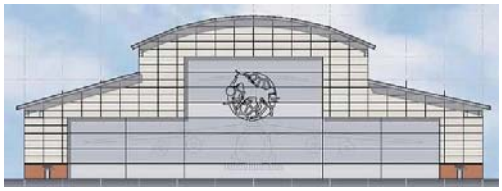
26 panels/section × 3 = 78 panels across

2 × 78 panels × 4 panels = 624 panels

2 × 78 panels × 3 panels = 468 panels

2 × 78 panels × 6 panels = 936 panels

2028 panels total — only use 1 side due to orientation of building — **1014 panels**

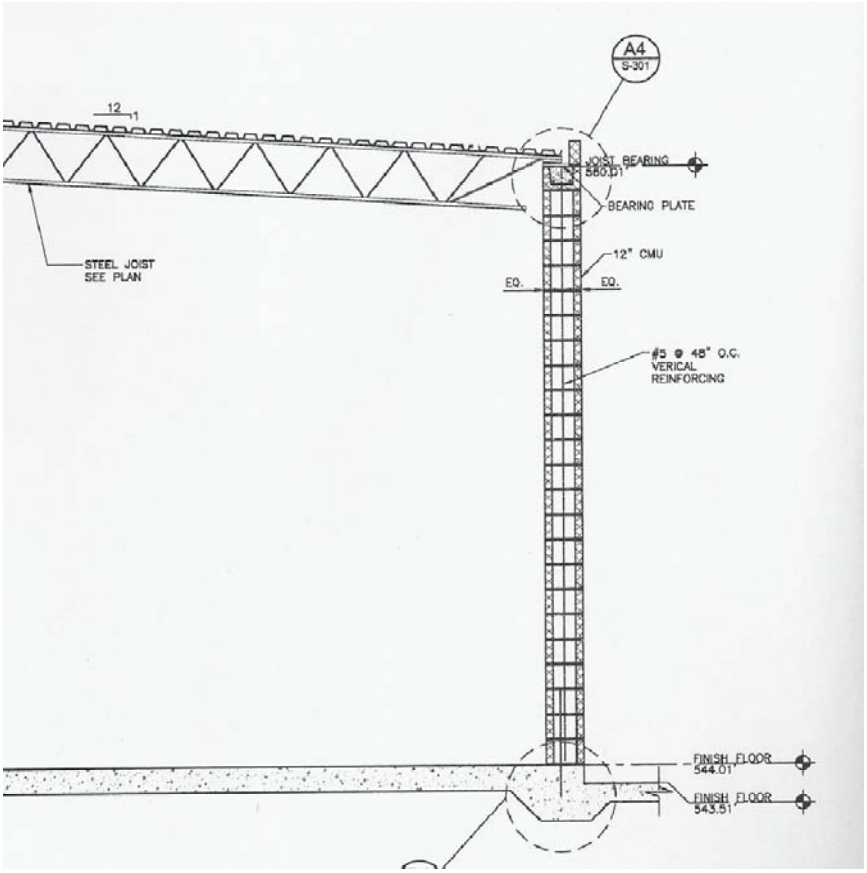


Appendix I

C-5 Fuel Cell Facility

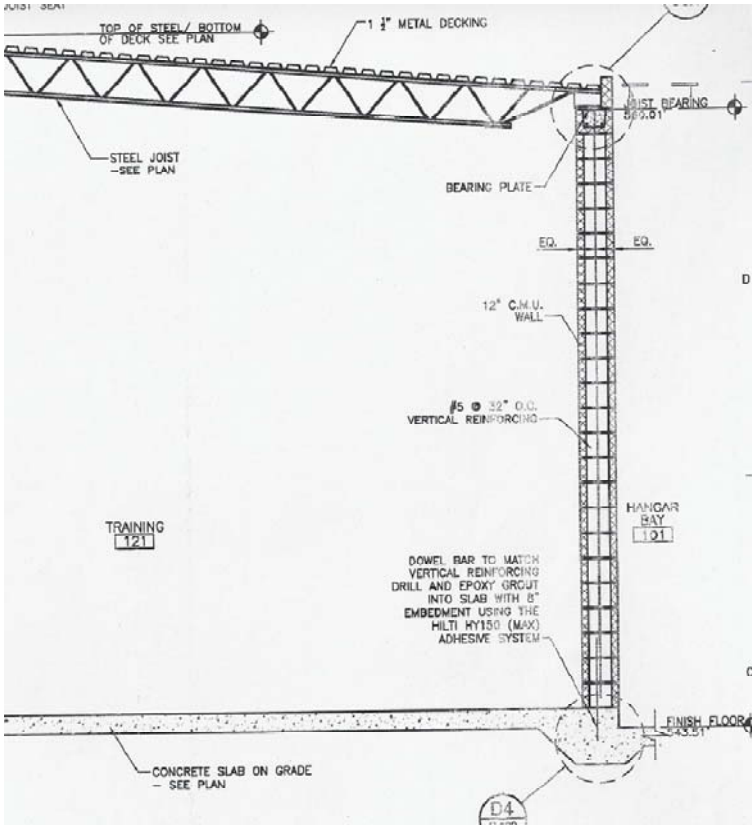
Structural Drawings

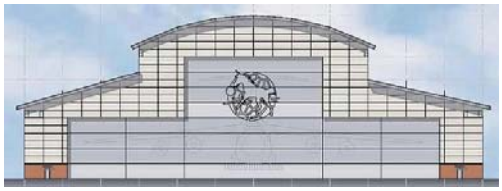
STRUCTURAL DRAWINGS



Condition #1

Condition #2





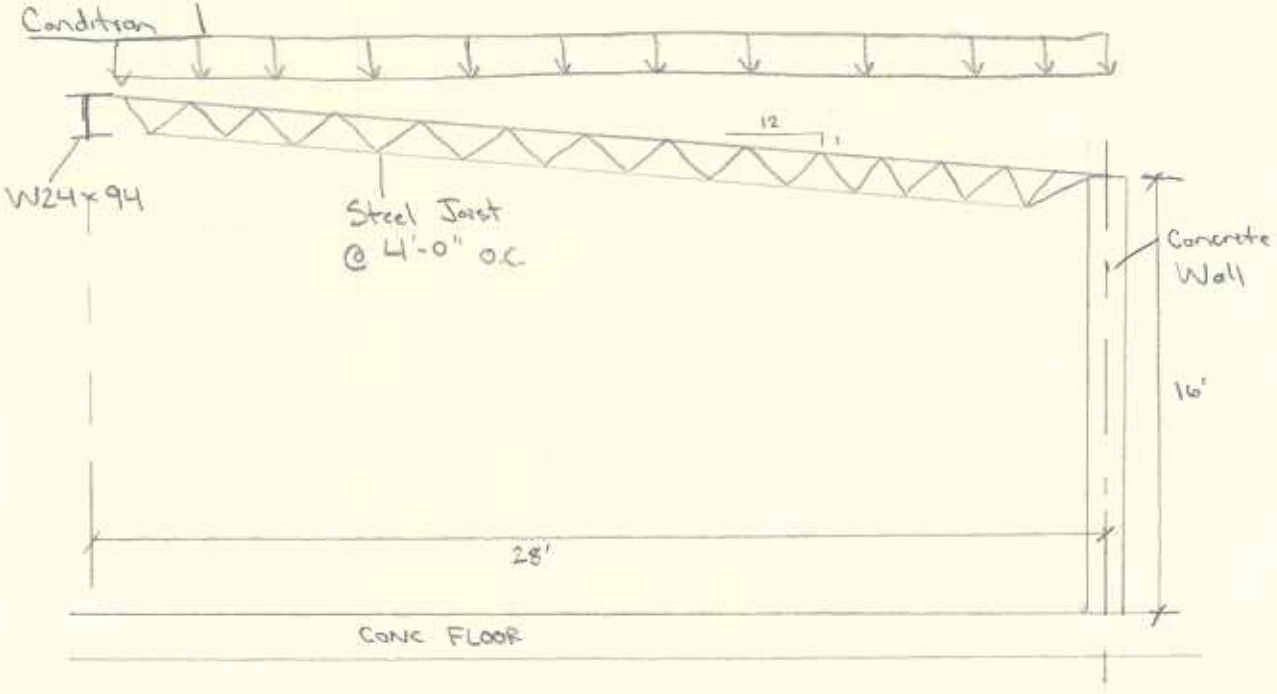
Appendix J

C-5 Fuel Cell Facility

Structural Calculations

Interior Load Bearing Wall

- 2 Conditions to examine
  1) C1 - S-301 → 28' from wall to beam } Loading per SF is same for both
  2) C3 - S-302 → 21' from wall to beam }



Assumptions: Concrete Wall is concentrically loaded → axial load only; horizontal load is carried by W24x94

Pinned - Pinned connection → K = 1.0

f'_c = 3000 psi
f'_y = 60 ksi
Loading as follows:
Dead = 21.3 psf from joists and ceiling materials
Live = 20 psf construction load (Roof Live)

- Using strength design load combination 1.2D + 1.6Lr

- Solve both conditions for bearing and axial load capacity, then use more stringent condition for the reinforcement design.

Tributary area for a single joist onto the wall:

$4' \times 14' = 56 ft^2$

Load for each joist onto wall

$P_D = 21.3 psf \times 56 ft^2 = 1193 lb$

$P_L = 20 psf \times 56 ft^2 = 1120 lb$

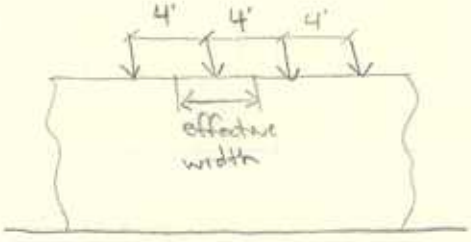
$P_u = 1.2(1193) + 1.6(1120) = 3223 lb = 3.22 k$

Select wall thickness, h

$h \geq \frac{l_u}{25} = \frac{16' \times 12''}{25} = 7.68'' \rightarrow$ use 8" thickness

or

$\geq 4''$



Bearing Plates: $6\frac{3}{4}'' \times 10'' = 67.5 in^2$

Effective Width $\leq 4' \times 12'' = 48''$

$\leq 6\frac{3}{4}'' + 4 \times 8'' = \underline{38.75''}$ ← governs

Bearing Capacity: $P_u \leq \phi .85 f'_c A_b$; $\phi = 0.65$

$\phi (.85 f'_c A_b) = 0.65(.85)(3)(67.5) = 112k \gg 3.22k = P_u$ ✓ OK

Axial Load Capacity: $P_u \leq \phi P_n$

$\phi P_n = \phi .55 f'_c A_g \left[1 - \left(\frac{k l_u}{32h}\right)^2\right]$; A_g = effective width $\times h = 38.75'' \times 8'' = 310 in^2$

$\phi = 0.70$

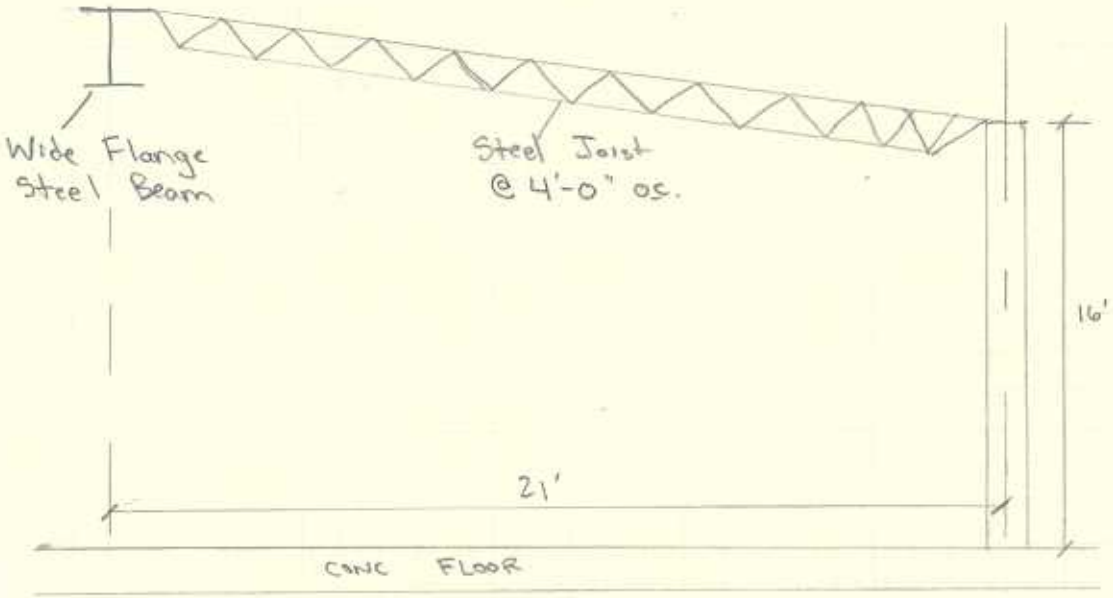
$\phi P_n = 0.70(.55)(3)(310)\left[1 - \left(\frac{1 \times 16 \times 12}{32 \times 8}\right)^2\right]$

$= 358 [.4375]$

$\phi P_n = 157 k \gg 3.22k = P_u$ OK

Thickness of 8" is OK

Condition 2



Assumptions: Same as Condition 1

Strength Design Load Combination: $1.2D + 1.6L_r$

Tributary Area for a single joist onto the wall:

$4' \times 10.5' = 42ft^2$

Load for each joist onto wall:

$P_D = 21.3\,psf \times 42ft^2 = 895\,lb$

$P_L = 20\,psf \times 42ft^2 = 840\,lb$

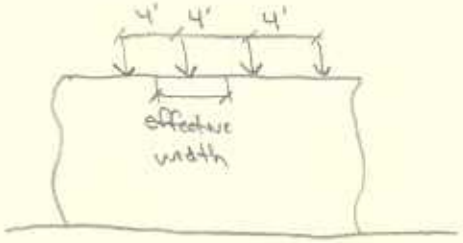
$P_U = 1.2(895) + 1.6(840) = 2418\,lb = 2.42k$

Select wall thickness, h

$h \geq \frac{\ell}{25} = \frac{10' \times 12''}{25} = 7.68'' \rightarrow$ use 8" thickness

or

$\geq 4''$



Bearing Plates: $6\frac{3}{4}'' \times 10'' = 67.5\,in^2$

Effective Width $\leq 4' \times 12'' = 48''$

$\leq 6\frac{3}{4}'' + 4 \times 8'' = \underline{38.75''}$ governs

Bearing Capacity: $P_u \leq \phi\, 0.85 f'_c A_b$; $\phi = 0.65$

$\phi(.85 f'_c A_b) = 0.65(.85)(3)(67.5\,in^2) = 112k \gg 2.42k = P_u$ ✓ OK

Axial Load Capacity: $P_u \leq \phi P_n$

$\phi P_n = \phi .55 f'_c A_g \left[1 - \left(\frac{k\ell_c}{32h}\right)^2\right]$; $\phi = 0.70$

$= 0.70(.55)(3)(38.75" \times 8")\left[1 - \left(\frac{1.0 \times 16 \times 12}{32 \times 8}\right)^2\right]$

$\phi P_n = 157k \gg 2.42k = P_u$ OK

8" thickness is OK

Reinforcement

Vertical: $A_v = .0012 \times 12" \times 8" = .115\ in^2$

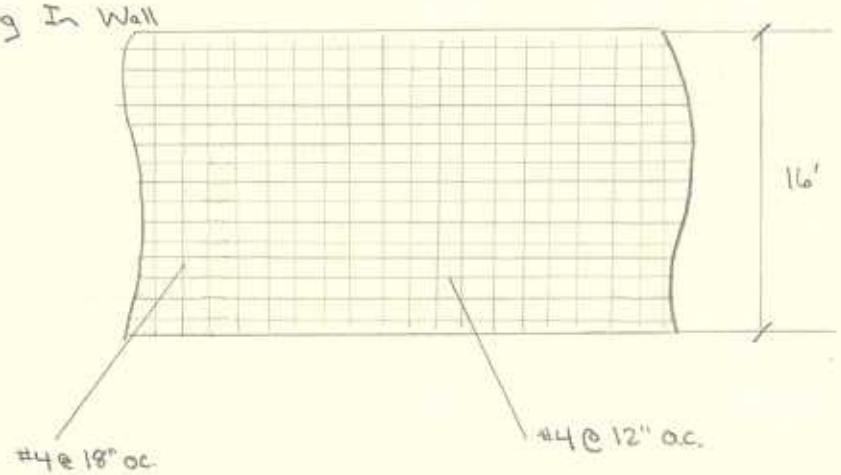
Horizontal: $A_v = .0020 \times 12" \times 8" = .192\ in^2$

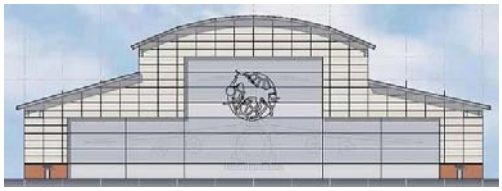
Spacing: $S \leq 3h = 3(8") = 24"$
$\leq 18"$ – governs

Use #4 @ 18" oc. for vertical → $.133\ in^2/ft > .115\ in^2/ft$ OK

Use #4 @ 12" o.c. for horizontal → $.200\ in^2/ft > .192\ in^2/ft$ OK

Reinforcing In Wall





Appendix K

C-5 Fuel Cell Facility

Masonry Schedule of Values

TO (OWNER): 2700 Water St.
York, PA 17403-9306

PROJECT: C-5 Hanger
2700 Water St.
York, PA 17403-9306

APPLICATION NO: 5
PERIOD TO: 1/31/2010

DISTRIBUTION TO:
_ OWNER
_ ARCHITECT
_ CONTRACTOR

FROM (CONTRACTOR): RALPH E. TOLBERT MASONRY, INC.
950 Hollywell Ave
Chambersburg, PA 17201

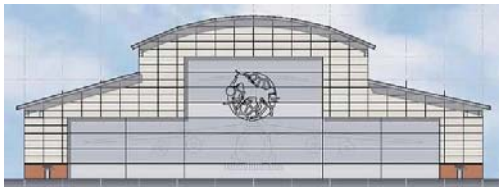
VIA (ARCHITECT):

ARCHITECT'S PROJECT NO:

CONTRACT FOR:

CONTRACT DATE:

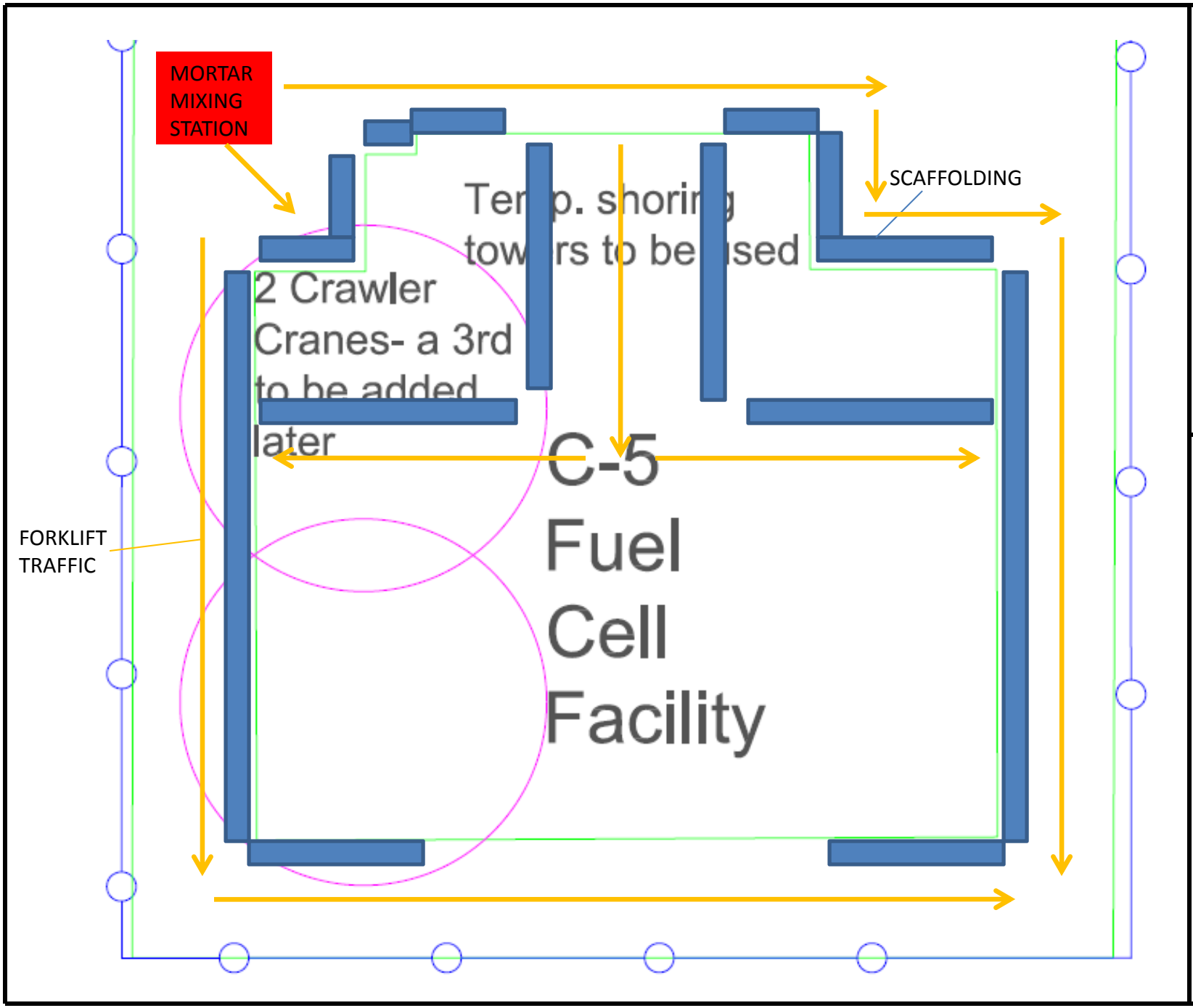
ITEM	DESCRIPTION	SCHEDULE VALUE	PREVIOUS APPLICATIONS	COMPLETED THIS PERIOD	STORED MATERIAL	COMPLETED STORED	%	BALANCE	RETAINAGE
1	Foundation CMU Labor	1,700.00	1,700.00	0.00	0.00	1,700.00	100.00	0.00	170.00
2	Foundation CMU Material	1,500.00	1,500.00	0.00	0.00	1,500.00	100.00	0.00	150.00
3	Exterior CMU Labor	2,900.00	2,900.00	0.00	0.00	2,900.00	100.00	0.00	290.00
4	Exterior CMU Material	3,200.00	3,200.00	0.00	0.00	3,200.00	100.00	0.00	320.00
5	Interior CMU Labor	67,000.00	43,550.00	23,450.00	0.00	67,000.00	100.00	0.00	6,700.00
6	Interior CMU Material	23,100.00	20,790.00	2,310.00	0.00	23,100.00	100.00	0.00	2,310.00
7	Splitface Labor	36,500.00	36,500.00	0.00	0.00	36,500.00	100.00	0.00	3,650.00
8	Splitface Material	36,300.00	36,300.00	0.00	0.00	36,300.00	100.00	0.00	3,630.00
9	Grout Labor	20,000.00	19,000.00	1,000.00	0.00	20,000.00	100.00	0.00	2,000.00
10	Grout Material	7,000.00	7,000.00	0.00	0.00	7,000.00	100.00	0.00	700.00
11	Miscellaneous	19,800.00	19,800.00	0.00	0.00	19,800.00	100.00	0.00	1,980.00
12	C/O#1 Addtl Foundation Work	11,011.00	11,011.00	0.00	0.00	11,011.00	100.00	0.00	1,101.10
	REPORT TOTALS	$230,011.00	$203,251.00	$26,760.00	$0.00	$230,011.00	100.00	$0.00	$23,001.10



Appendix L

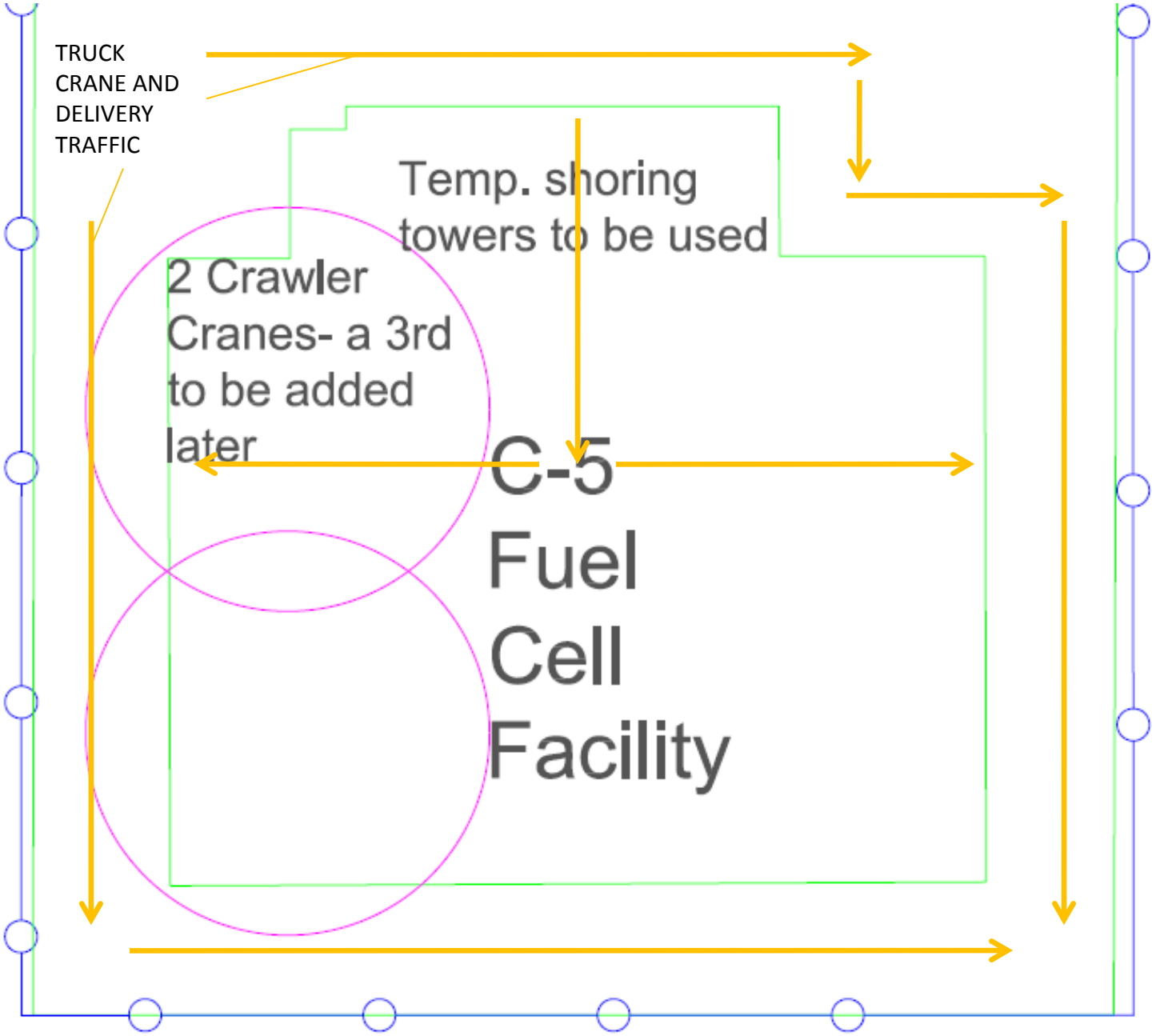
C-5 Fuel Cell Facility

Site Logistics Plans



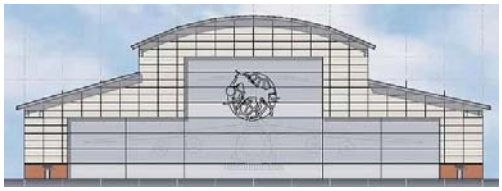
C-5 FUEL CELL FACILITY
Martinsburg, WV

MASONRY CONSTRUCTION DURING STEEL ERECTION
SITE LOGISTICS PLAN



C-5 FUEL CELL FACILITY
Martinsburg, WV

PRECAST ERECTION DURING STEEL ERECTION
SITE LOGISTICS PLAN



Appendix M

C-5 Fuel Cell Facility

Slab Sequence Estimates

HANGAR SLAB SEQUENCE COMPARISON

	Daily Output	Quantity	Unit	Material Cost	Labor Cost	Equip. Cost	Total Cost	Total Incl. O&P	Estimated Cost	Duration (hours)
As-Built Hangar Slab Sequence										
80', 75', 43', 42', 42'										
031113 Forms- 8" high steel forms	960	1,200.00	LF	4.26	1.26	0	5.52	6.65	$ 7,980.00	10.00
032110 Reinforcing- #4 @14"oc										
80' Pour	2.3	13.71	Ton	1475	620	0	2095	2650.00	$ 36,331.50	47.69
75' Pour	2.3	12.88	Ton	1475	620	0	2095	2650.00	$ 34,132.00	44.80
43' Pour	2.3	7.36	Ton	1475	620	0	2095	2650.00	$ 19,504.00	25.60
42' Pour	2.3	2.46	Ton	1475	620	0	2095	2650.00	$ 6,519.00	8.56
42' Pour	2.3	2.46	Ton	1475	620	0	2095	2650.00	$ 6,519.00	8.56
032110 Dowels- #1, 18" long	110	800	EA	2.62	6.5	0	9.12	13.50	$ 10,800.00	58.18
req. at all constr. joints (12"oc)										
3 day wait before adjacent pour										
033053 Slab- 8" w/textured finish										
80' Pour	2500	23,840.00	SF	2.68	0.86	0.01	3.55	4.24	$ 101,081.60	76.29
75' Pour	2400	22,350.00	SF	2.68	0.86	0.01	3.55	4.24	$ 94,764.00	74.50
43' Pour	2320	12,814.00	SF	2.68	0.86	0.01	3.55	4.24	$ 54,331.36	44.19
42' Pour	2320	4,284.00	SF	2.68	0.86	0.01	3.55	4.24	$ 18,164.16	14.77
42' Pour	2320	4,284.00	SF	2.68	0.86	0.01	3.55	4.24	$ 18,164.16	14.77

TOTAL COST/HOURS	$ 408,290.78	427.90

Assumptions: daily ouput for placement of concrete increases with width of pour (based on survey results from industry members)

HANGAR SLAB SEQUENCE COMPARISON

	Daily Output	Quantity	Unit	Material Cost	Labor Cost	Equip. Cost	Total Cost	Total Incl. O&P	Estimated Cost	Duration (hours)
Proposed Sequence #1										
(4) 49.5', (2) 42'										
031113 Forms- 8" high steel forms	960	1,498.00	LF	4.26	1.26	0	5.52	6.65	$ 9,961.70	12.48
032110 Reinforcing- #4 @14"oc										
49.5' Pour	2.3	8.51	Ton	1475	620	0	2095	2650.00	$ 22,551.50	29.60
49.5' Pour	2.3	8.51	Ton	1475	620	0	2095	2650.00	$ 22,551.50	29.60
49.5' Pour	2.3	8.51	Ton	1475	620	0	2095	2650.00	$ 22,551.50	29.60
49.5' Pour	2.3	8.51	Ton	1475	620	0	2095	2650.00	$ 22,551.50	29.60
42' Pour	2.3	2.46	Ton	1475	620	0	2095	2650.00	$ 6,519.00	8.56
42' Pour	2.3	2.46	Ton	1475	620	0	2095	2650.00	$ 6,519.00	8.56
032110 Dowels- #1, 18" long	110	1,098	EA	2.62	6.5	0	9.12	13.50	$ 14,823.00	79.85
req. at all constr. joints (12"oc)										
3 day wait before adjacent pour										
033053 Slab- 8" w/textured finish										
49.5' Pour	2350	14,751.00	SF	2.68	0.86	0.01	3.55	4.24	$ 62,544.24	50.22
49.5' Pour	2350	14,751.00	SF	2.68	0.86	0.01	3.55	4.24	$ 62,544.24	50.22
49.5' Pour	2350	14,751.00	SF	2.68	0.86	0.01	3.55	4.24	$ 62,544.24	50.22
49.5' Pour	2350	14,751.00	SF	2.68	0.86	0.01	3.55	4.24	$ 62,544.24	50.22
42' Pour	2320	4,284.00	SF	2.68	0.86	0.01	3.55	4.24	$ 18,164.16	14.77
42' Pour	2320	4,284.00	SF	2.68	0.86	0.01	3.55	4.24	$ 18,164.16	14.77

TOTAL COST/HOURS	$ 414,533.98	458.26

Assumptions: daily ouput for placement of concrete increases with width of pour (based on survey results from industry members)

HANGAR SLAB SEQUENCE COMPARISON										
	Daily Output	Quantity	Unit	Material Cost	Labor Cost	Equip. Cost	Total Cost	Total Incl. O&P	Estimated Cost	Duration (hours)
Proposed Sequence #2										
(2) 99', 84'										
031113 Forms- 8" high steel forms	960	800.00	LF	4.26	1.26	0	5.52	6.65	$ 5,320.00	6.67
032110 Reinforcing- #4 @14"oc										
99' Pour	2.3	16.93	Ton	1475	620	0	2095	2650.00	$ 44,864.50	58.89
99' Pour	2.3	16.93	Ton	1475	620	0	2095	2650.00	$ 44,864.50	58.89
84' Pour	2.3	5.31	Ton	1475	620	0	2095	2650.00	$ 14,071.50	18.47
032110 Dowels- #1, 18" long	110	400	EA	2.62	6.5	0	9.12	13.50	$ 5,400.00	29.09
req. at all constr. joints (12"oc)										
3 day wait before adjacent pour										
033053 Slab- 8" w/textured finish										
99' Pour	2550	29,502.00	SF	2.68	0.86	0.01	3.55	4.24	$ 125,088.48	92.56
99' Pour	2550	29,502.00	SF	2.68	0.86	0.01	3.55	4.24	$ 125,088.48	92.56
84' Pour	2500	8,568.00	SF	2.68	0.86	0.01	3.55	4.24	$ 36,328.32	27.42

TOTAL COST/HOURS	$ 401,025.78	384.53

Assumptions: daily ouput for placement of concrete increases with width of pour (based on survey results from industry members)