University of Kentucky
Procurement Services

INVITATION FOR BIDS

CCK-2564.0-16-25 HEB BP-05 Interiors
ADDENDUM #3
01/17/2025

IMPORTANT: BID AND ADDENDUM MUST BE RECEIVED BY: 01/29/2025 @ 3:00 P.M. LEXINGTON, KY TIME

Bidder must acknowledge receipt of this and any addendum as stated in the Invitation for Bids.

ITEM #1: UPDATES & REVISIONS TO ORIGINAL BID DOCUMENTS

- Please refer to and incorporate into your bid the enclosed additional information from the project team.

OFFICIAL APPROVAL
UNIVERSITY OF KENTUCKY

01/17/2025

Ken Scott
_____

Ken Scott / (859) 257-9102

SIGNATURE

_____

_____
Typed or Printed Name

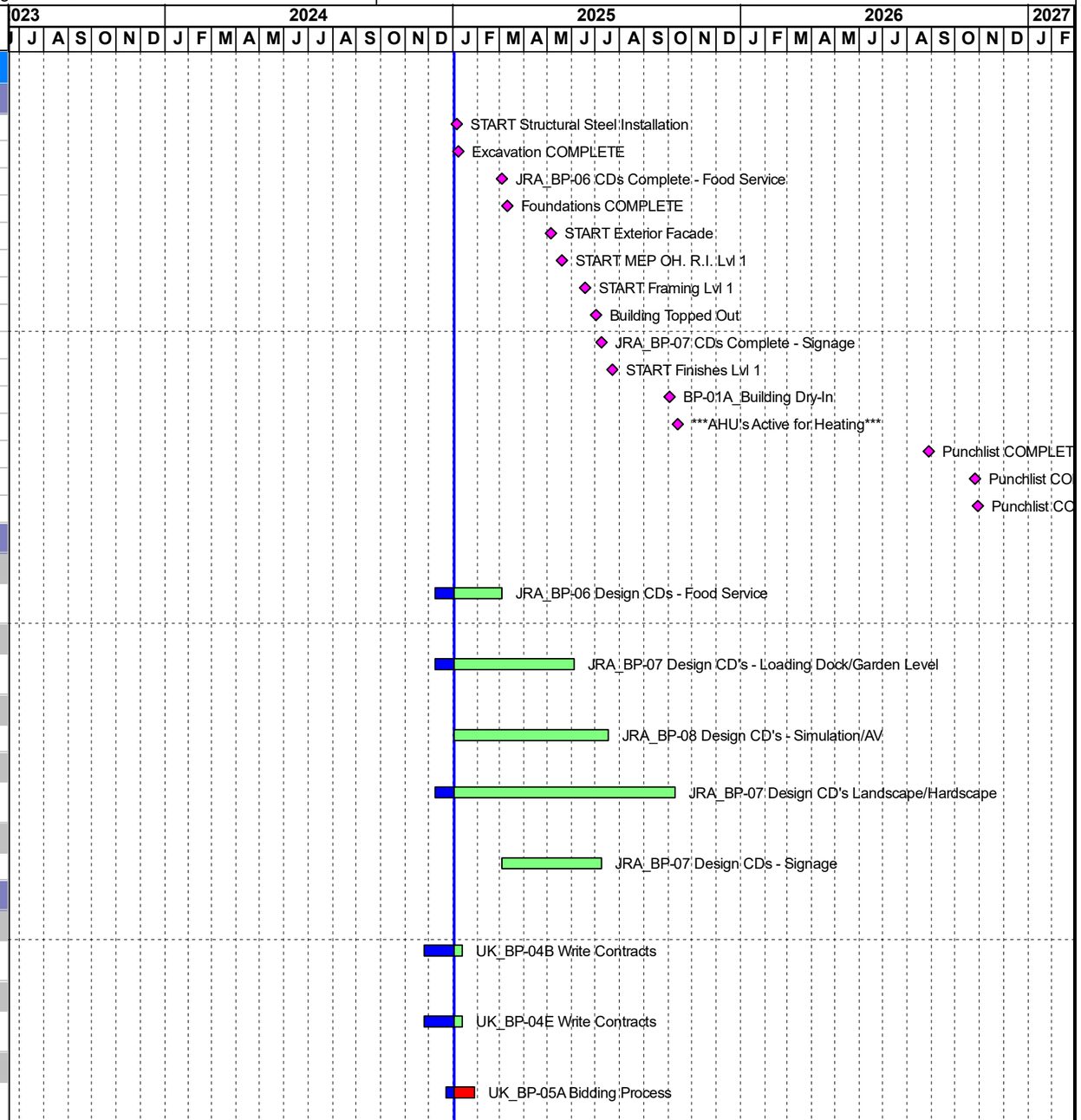
University of Kentucky
Procurement Services
322 Peterson Service Building
Lexington, KY 40506-0005

UK Construct Health Education Building
ADDENDUM No. 3
UK-2564.0-16-25
01/17/2025

Item No. 01 See updated Attachment G – Bid Schedule.

Item No. 02 JRA Addendum No.03 - include all work scope items, clarifications, etc. as detailed consistent with your trade contract work scope document.

Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
Attachment G BP-05 Bid Schedule (ADD #3)		688	505		12-Apr-24 A	29-Dec-26
Milestones		464	464		06-Jan-25	29-Oct-26
CTR1780	START Structural Steel Installation	0	0	0%	06-Jan-25	
CTR2260	Excavation COMPLETE	0	0	0%		08-Jan-25
CTR520	JRA_BP-06 CDs Complete - Food Service	0	0	0%		03-Mar-25
CTR2470	Foundations COMPLETE	0	0	0%		10-Mar-25
01A1430	START Exterior Facade	0	0	0%	05-May-25	
CTR1850	START MEP OH. R.I. Lvl 1	0	0	0%	19-May-25	
CTR1920	START Framing Lvl 1	0	0	0%	17-Jun-25	
CTR1070	Building Topped Out	0	0	0%		01-Jul-25
CTR580	JRA_BP-07 CDs Complete - Signage	0	0	0%		09-Jul-25
CTR1990	START Finishes Lvl 1	0	0	0%	23-Jul-25	
01A1260	BP-01A_Building Dry-In	0	0	0%		02-Oct-25
CTR2720	***AHU's Active for Heating***	0	0	0%	13-Oct-25	
CTR2460	Punchlist COMPLETE - Area A	0	0	0%		27-Aug-26
CTR2210	Punchlist COMPLETE - Area C	0	0	0%		26-Oct-26
CTR2515	Punchlist COMPLETE - Area B	0	0	0%		29-Oct-26
Pre-Construction/Design		215	198		09-Dec-24 A	10-Oct-25
BP-06-Food Service		59	42		09-Dec-24 A	03-Mar-25
CTR560	JRA_BP-06 Design CDs - Food Service	59	42	28.81%	09-Dec-24 A	03-Mar-25
BP-07-Loading Dock/Garden Level		125	108		09-Dec-24 A	04-Jun-25
A1330	JRA_BP-07 Design CD's - Loading Dock/Garden Level	125	108	13.6%	09-Dec-24 A	04-Jun-25
BP-08-Simulation/AV		138	138		03-Jan-25	17-Jul-25
A1340	JRA_BP-08 Design CD's - Simulation/AV	138	138	0%	03-Jan-25	17-Jul-25
BP-09-Landscape/Hardscape		215	198		09-Dec-24 A	10-Oct-25
A1350	JRA_BP-07 Design CD's Landscape/Hardscape	215	198	7.91%	09-Dec-24 A	10-Oct-25
BP-10-Signage		90	90		04-Mar-25	09-Jul-25
CTR570	JRA_BP-07 Design CDs - Signage	90	90	0%	04-Mar-25	09-Jul-25
Contracting		290	255		26-Nov-24 A	06-Jan-26
BP-04B-AHU's		5	7		26-Nov-24 A	13-Jan-25
A870	UK_BP-04B Write Contracts	5	7	0%	26-Nov-24 A	13-Jan-25
BP-04E-Generators & ATS		5	7		26-Nov-24 A	13-Jan-25
A1030	UK_BP-04E Write Contracts	5	7	0%	26-Nov-24 A	13-Jan-25
BP-05A-Arch., Interior Finishes, MEP systems		34	27		23-Dec-24 A	11-Feb-25
PRE370	UK_BP-05A Bidding Process	26	19	26.92%	23-Dec-24 A	29-Jan-25



Remaining Level of Effort
Actual Level of Effort
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Completed Milestone

Attachment G BP-05 Bid Schedule (ADD #3)
Data Date 03-Jan-25

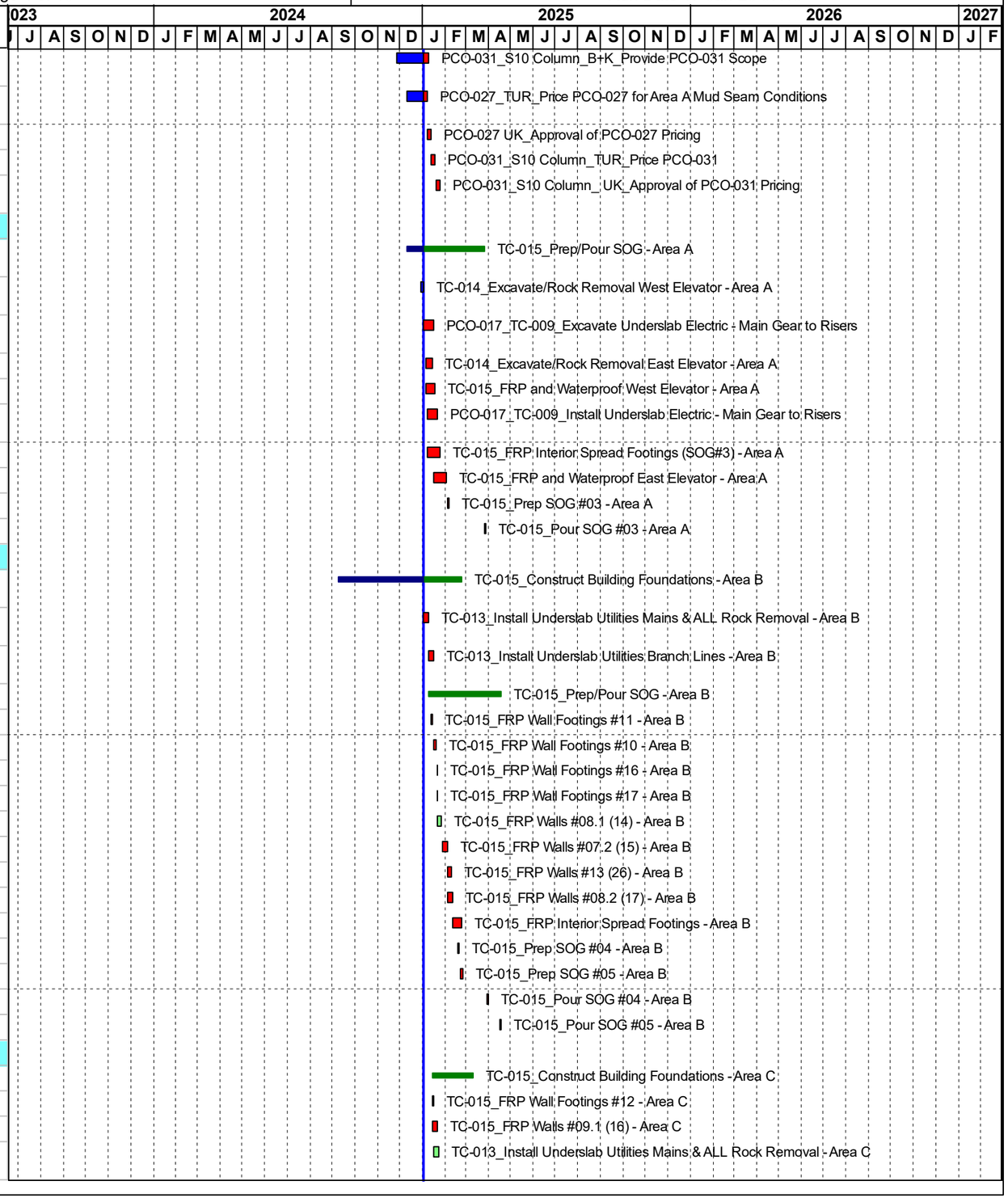
Turner

Start Date 29-Jun-23
Finish Date 29-Dec-26
Data Date 03-Jan-25

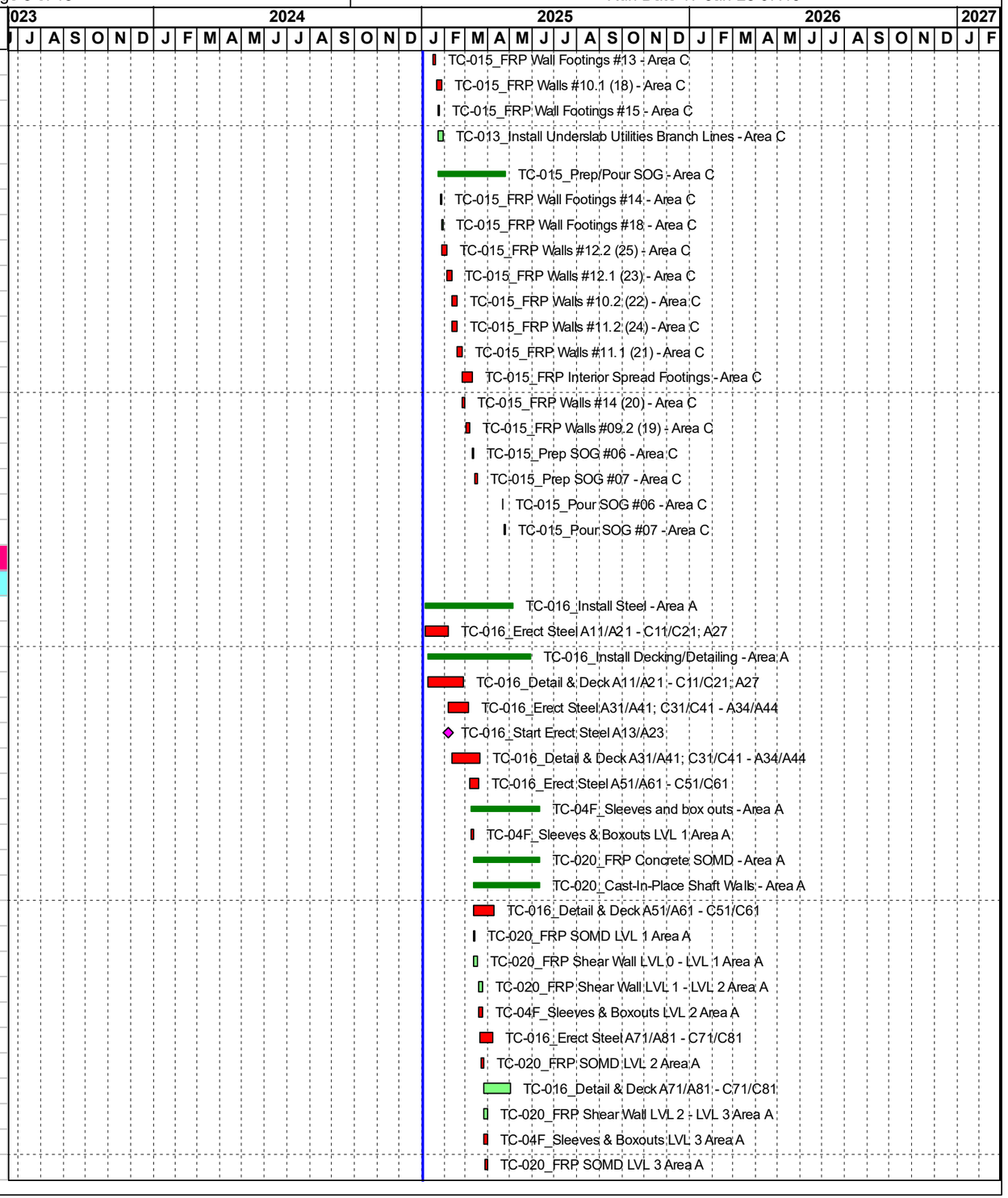
Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
PRE380	UK_BP-05A Bid Day	0	0	0%		29-Jan-25
CTR480	TCCO_BP-05A Post Bid Reviews	4	4	0%	30-Jan-25	04-Feb-25
CTR490	TCCO_BP-05A Write Contracts	4	4	0%	05-Feb-25	10-Feb-25
CTR500	TCCO_BP-05A Award - Interiors	0	0	0%	11-Feb-25	
BP-06-Food Service		96	96		04-Mar-25	18-Jul-25
PRE390	TCCO_BP-06 Compile Bidding Documents	56	56	0%	04-Mar-25	20-May-25
PRE400	UK_BP-06 Package and Submit	5	5	0%	21-May-25	28-May-25
PRE410	UK_BP-06 Out For Bid	0	0	0%		28-May-25
PRE420	UK_BP-06 Bidding Process	20	20	0%	29-May-25	25-Jun-25
PRE430	**UK_BP-06 Bid Day**	0	0	0%		25-Jun-25
CTR530	TCCO_BP-06 Post Bid Reviews	5	5	0%	26-Jun-25	02-Jul-25
CTR540	TCCO_BP-06 Write Contracts	10	10	0%	03-Jul-25	17-Jul-25
CTR550	TCCO_BP-06 Award - Food Services	0	0	0%	18-Jul-25	
BP-07-Loading Dock/Garden Level		59	59		05-Jun-25	28-Aug-25
A1050	TCCO_BP-07 Compile Bidding Documents	10	10	0%	05-Jun-25	18-Jun-25
A1060	UK_BP-07 Package and Submit	5	5	0%	19-Jun-25	25-Jun-25
A1070	UK_BP-07 Out For Bid	0	0	0%		25-Jun-25
A1080	UK_BP-07 Bidding Process	30	30	0%	26-Jun-25	07-Aug-25
A1090	UK_BP-07 Bid Day	0	0	0%		07-Aug-25
A1100	TCCO_BP-07 Post Bid Reviews	7	7	0%	08-Aug-25	18-Aug-25
A1110	TCCO_BP-07 Write Contracts	7	7	0%	19-Aug-25	27-Aug-25
A1120	TCCO_BP-07 Award - Loading Dock	0	0	0%	28-Aug-25	
BP-07-Landscape/Hardscapes		57	57		13-Oct-25	06-Jan-26
A1210	TCCO_BP-07 Compile Bidding Documents	3	3	0%	13-Oct-25	15-Oct-25
A1220	UK_BP-07 Package and Submit	4	4	0%	16-Oct-25	21-Oct-25
A1230	UK_BP-07 Out For Bid	0	0	0%		21-Oct-25
A1240	UK_BP-07 Bidding Process	29	29	0%	22-Oct-25	03-Dec-25
A1250	UK_BP-07 Bid Day	0	0	0%		03-Dec-25
A1260	TCCO_BP-07 Post Bid Reviews	11	11	0%	04-Dec-25	18-Dec-25
A1270	TCCO_BP-07 Write Contracts	10	10	0%	19-Dec-25	05-Jan-26
A1280	TCCO_BP-07 Award - Landscape/Hardscapes	0	0	0%	06-Jan-26	
BP-08-Simulation/AV		56	56		18-Jul-25	07-Oct-25
A1130	TCCO_BP-08 Compile Bidding Documents	10	10	0%	18-Jul-25	31-Jul-25
A1140	UK_BP-08 Package and Submit	5	5	0%	01-Aug-25	07-Aug-25
A1150	UK_BP-08 Out For Bid	0	0	0%		07-Aug-25
A1160	UK_BP-08 Bidding Process	25	25	0%	08-Aug-25	12-Sep-25
A1170	UK_BP-08 Bid Day	0	0	0%		12-Sep-25
A1180	TCCO_BP-08 Post Bid Reviews	8	8	0%	15-Sep-25	24-Sep-25
A1190	TCCO_BP-08 Write Contracts	8	8	0%	25-Sep-25	06-Oct-25
A1200	TCCO_BP-08 Award - Simulation/AV	0	0	0%	07-Oct-25	
BP-08-Signage		65	65		10-Jul-25	10-Oct-25
PRE440	TCCO_BP-10 Compile Bidding Documents - Signage	10	10	0%	10-Jul-25	23-Jul-25
PRE450	UK_BP-08 Package and Submit - Signage	5	5	0%	24-Jul-25	30-Jul-25
PRE460	UK_BP-08 Out For Bid - Signage	0	0	0%		30-Jul-25

Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
PRE470	UK_BP-08 Bidding Process - Signage	30	30	0%	31-Jul-25	11-Sep-25
PRE480	UK_BP-08 Bid Day - Signage	0	0	0%		11-Sep-25
CTR590	TCCO_BP-08 Post Bid Reviews - Signage	10	10	0%	12-Sep-25	25-Sep-25
CTR600	TCCO_BP-08 Write Contracts -Signage	10	10	0%	26-Sep-25	09-Oct-25
CTR610	TCCO_BP-08 Award - Signage	0	0	0%	10-Oct-25	
Submittals		228	45		12-Apr-24 A	06-Mar-25
01A1110	TC-002_Curtain Wall Design/Shop Drawings	80	11	86.25%	12-Apr-24 A	17-Jan-25
CTR630	TC-016_Steel Shop Drawings	105	1	99.05%	16-Jul-24 A	03-Jan-25
CTR2490	BP-04B_AHU Shop Dwgs and Approvals	30	30	0%	14-Jan-25	24-Feb-25
CTR2510	BP-04E_Generator and ATS Shop Dwgs and Approvals	20	20	0%	14-Jan-25	10-Feb-25
CTR720	BP-04F_MEP Riser Shop Drawings and Approvals	20	20	0%	07-Feb-25	06-Mar-25
Fabrication & Delivery		344	260		10-Sep-24 A	12-Jan-26
CTR640	TC-016_Fabricate and Deliver Steel	100	82	18%	10-Sep-24 A	28-Apr-25
01A1130	TC-001_Fabricate and Deliver Precast Exterior	90	68	24.44%	02-Dec-24 A	08-Apr-25
CTR760	TC-004_Fabricate and Deliver Elevators	60	38	36.67%	02-Dec-24 A	25-Feb-25
CTR2480	BP-04A_Fabricate and Deliver Electrical Equipment	260	260	0%	03-Jan-25	12-Jan-26
01A1140	TC-002_Fabricate and Deliver Curtain Wall	90	90	0%	20-Jan-25	23-May-25
CTR2520	BP-04E_Fabricate & Deliver Generator and ATS	200	200	0%	11-Feb-25	20-Nov-25
CTR2500	BP-04B_Fabricate and Deliver AHU's	100	100	0%	25-Feb-25	16-Jul-25
CTR750	BP-04F_Fabricate and Deliver MEP Risers	20	20	0%	07-Mar-25	03-Apr-25
VDC / BIM		180	158		25-Nov-24 A	14-Aug-25
CTR710	BP-04F_BIM Coordination - Risers and SOMD sleeves	105	80	23.81%	25-Nov-24 A	24-Apr-25
A2650	BP-05_Set Up/Obtain Model information	5	5	0%	05-Feb-25	11-Feb-25
CTR2530	BP-05_BIM Coordination - Area A (Fit-0ut)	100	100	0%	12-Feb-25	02-Jul-25
CTR2540	BP-05_BIM Coordination - Area B (Fit-Out)	70	70	0%	02-Apr-25	10-Jul-25
CTR2550	BP-05_BIM Coordination - Area C (Fit-Out)	70	70	0%	07-May-25	14-Aug-25
Construction		668	485		09-Sep-24 A	30-Nov-26
Sitework		96	46		30-Oct-24 A	07-Mar-25
Site Ex., UG Utilities Phase II		96	46		30-Oct-24 A	07-Mar-25
Site Area A		71	46		01-Nov-24 A	07-Mar-25
CTR380	TC-013_Install New Site Utilites - Area A	15	32	0%	01-Nov-24 A	17-Feb-25
CTR3715	PCO-031_TC-015_Added Foundation at S10 per PCO-031	2	2	0%	13-Jan-25	14-Jan-25
CTR3705	PCO-031_TC-016_Fabricate and Deliver Transfer Beam for S10 per PCO-031	30	30	0%	27-Jan-25	07-Mar-25
Site Area B		92	42		30-Oct-24 A	03-Mar-25
CTR1090	TC-014_Excavate/Rock Removal & Shore Ductbank - Area B	25	4	84%	30-Oct-24 A	08-Jan-25
CTR430	TC-013_Install New Site Utilities - Area B	10	10	0%	18-Feb-25	03-Mar-25
Building		668	485		09-Sep-24 A	30-Nov-26
STRUCTURE		331	148		09-Sep-24 A	31-Jul-25
Foundations		264	81		09-Sep-24 A	25-Apr-25

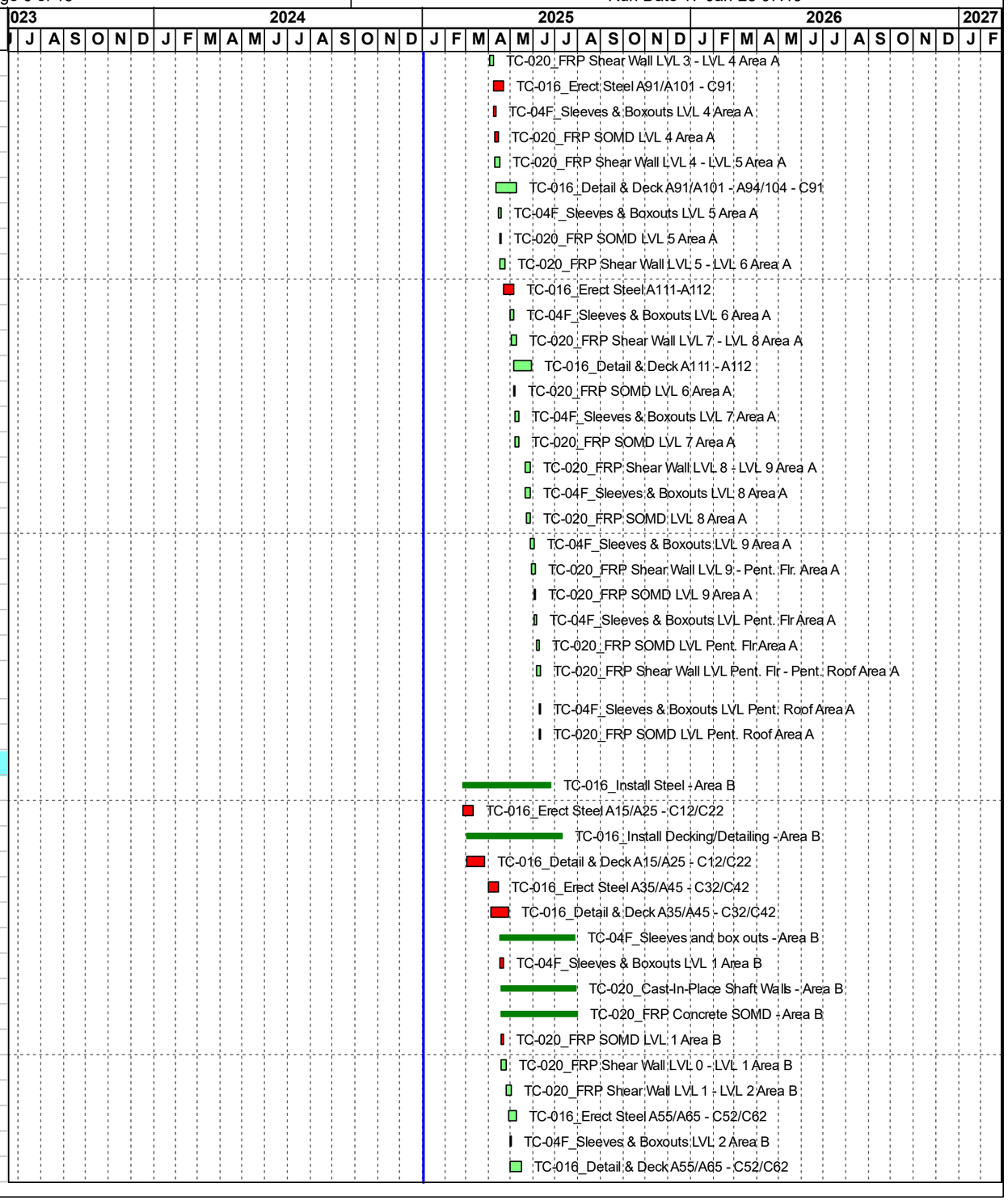
Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
CTR3695	PCO-031_S10 Column_B+K_Provide PCO-031 Scope	5	6	0%	27-Nov-24 A	10-Jan-25
CTR3545	PCO-027_TUR_Price PCO-027 for Area A Mud Seam Conditions	5	3	40%	11-Dec-24 A	07-Jan-25
CTR3455	PCO-027 UK_Approval of PCO-027 Pricing	4	4	0%	08-Jan-25	13-Jan-25
CTR3755	PCO-031_S10 Column_TUR_Price PCO-031	5	5	0%	13-Jan-25	17-Jan-25
CTR3685	PCO-031_S10 Column_ UK_Approval of PCO-031 Pricing	5	5	0%	20-Jan-25	24-Jan-25
Foundations Area A		111	61		11-Dec-24 A	28-Mar-25
CTR800	TC-015_Prep/Pour SOG - Area A	17	59	0%	11-Dec-24 A	26-Mar-25
CTR3595	TC-014_Excavate/Rock Removal West Elevator - Area A	5	1	80%	31-Dec-24 A	03-Jan-25
CTR3355	PCO-017_TC-009_Excavate Underslab Electric - Main Gear to Risers	10	10	0%	03-Jan-25	16-Jan-25
CTR3605	TC-014_Excavate/Rock Removal East Elevator - Area A	8	8	0%	06-Jan-25	15-Jan-25
CTR3625	TC-015_FRP and Waterproof West Elevator - Area A	10	10	0%	06-Jan-25	17-Jan-25
CTR3375	PCO-017_TC-009_Install Underslab Electric - Main Gear to Risers	10	10	0%	08-Jan-25	21-Jan-25
CTR3385	TC-015_FRP Interior Spread Footings (SOG#3) - Area A	13	13	0%	08-Jan-25	24-Jan-25
CTR3615	TC-015_FRP and Waterproof East Elevator - Area A	13	13	0%	16-Jan-25	03-Feb-25
CTR3065	TC-015_Prep SOG #03 - Area A	3	3	0%	04-Feb-25	06-Feb-25
CTR3635	TC-015_Pour SOG #03 - Area A	2	2	0%	27-Mar-25	28-Mar-25
Foundations Area B		154	76		09-Sep-24 A	18-Apr-25
CTR940	TC-015_Construct Building Foundations - Area B	63	37	41.27%	09-Sep-24 A	24-Feb-25
CTR930	TC-013_Install Underslab Utilities Mains & ALL Rock Removal - Area B	5	5	0%	03-Jan-25	09-Jan-25
CTR950	TC-013_Install Underslab Utilities Branch Lines - Area B	5	5	0%	10-Jan-25	16-Jan-25
CTR1020	TC-015_Prep/Pour SOG - Area B	71	71	0%	10-Jan-25	18-Apr-25
CTR2725	TC-015_FRP Wall Footings #11 - Area B	2	2	0%	13-Jan-25	14-Jan-25
CTR2715	TC-015_FRP Wall Footings #10 - Area B	2	2	0%	17-Jan-25	20-Jan-25
CTR2735	TC-015_FRP Wall Footings #16 - Area B	2	2	0%	21-Jan-25	22-Jan-25
CTR2745	TC-015_FRP Wall Footings #17 - Area B	2	2	0%	21-Jan-25	22-Jan-25
CTR2945	TC-015_FRP Walls #08.1 (14) - Area B	5	5	0%	21-Jan-25	27-Jan-25
CTR3395	TC-015_FRP Walls #07.2 (15) - Area B	5	5	0%	29-Jan-25	04-Feb-25
CTR2995	TC-015_FRP Walls #13 (26) - Area B	4	4	0%	05-Feb-25	10-Feb-25
CTR3405	TC-015_FRP Walls #08.2 (17) - Area B	5	5	0%	05-Feb-25	11-Feb-25
CTR3025	TC-015_FRP Interior Spread Footings - Area B	10	10	0%	11-Feb-25	24-Feb-25
CTR3075	TC-015_Prep SOG #04 - Area B	3	3	0%	18-Feb-25	20-Feb-25
CTR3085	TC-015_Prep SOG #05 - Area B	3	3	0%	21-Feb-25	25-Feb-25
CTR3645	TC-015_Pour SOG #04 - Area B	2	2	0%	31-Mar-25	01-Apr-25
CTR3655	TC-015_Pour SOG #05 - Area B	2	2	0%	17-Apr-25	18-Apr-25
Foundations Area C		73	73		15-Jan-25	25-Apr-25
CTR1380	TC-015_Construct Building Foundations - Area C	39	39	0%	15-Jan-25	10-Mar-25
CTR2815	TC-015_FRP Wall Footings #12 - Area C	2	2	0%	15-Jan-25	16-Jan-25
CTR2955	TC-015_FRP Walls #09.1 (16) - Area C	5	5	0%	15-Jan-25	21-Jan-25
CTR1390	TC-013_Install Underslab Utilities Mains & ALL Rock Removal - Area C	5	5	0%	17-Jan-25	23-Jan-25



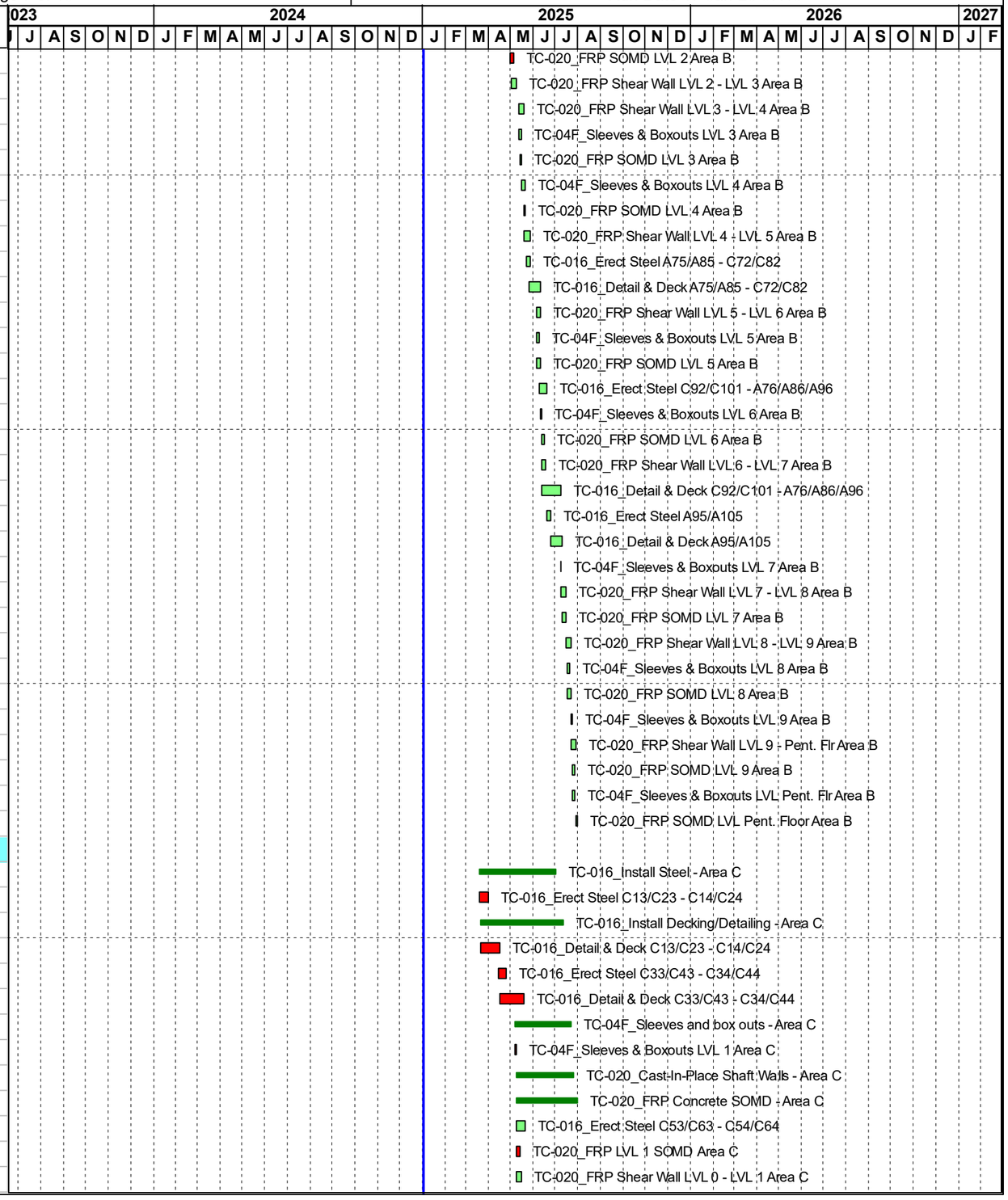
Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
CTR2825	TC-015_FRP Wall Footings #13 - Area C	2	2	0%	17-Jan-25	20-Jan-25
CTR2965	TC-015_FRP Walls #10.1 (18) - Area C	5	5	0%	22-Jan-25	28-Jan-25
CTR2845	TC-015_FRP Wall Footings #15 - Area C	2	2	0%	23-Jan-25	24-Jan-25
CTR1400	TC-013_Install Underslab Utilities Branch Lines - Area C	5	5	0%	24-Jan-25	30-Jan-25
CTR1410	TC-015_Prep/Pour SOG - Area C	66	66	0%	24-Jan-25	25-Apr-25
CTR2835	TC-015_FRP Wall Footings #14 - Area C	2	2	0%	27-Jan-25	28-Jan-25
CTR2865	TC-015_FRP Wall Footings #18 - Area C	2	2	0%	29-Jan-25	30-Jan-25
CTR3445	TC-015_FRP Walls #12.2 (25) - Area C	5	5	0%	29-Jan-25	04-Feb-25
CTR2985	TC-015_FRP Walls #12.1 (23) - Area C	5	5	0%	05-Feb-25	11-Feb-25
CTR3425	TC-015_FRP Walls #10.2 (22) - Area C	5	5	0%	12-Feb-25	18-Feb-25
CTR3435	TC-015_FRP Walls #11.2 (24) - Area C	5	5	0%	12-Feb-25	18-Feb-25
CTR2975	TC-015_FRP Walls #11.1 (21) - Area C	5	5	0%	19-Feb-25	25-Feb-25
CTR3035	TC-015_FRP Interior Spread Footings - Area C	10	10	0%	25-Feb-25	10-Mar-25
CTR3005	TC-015_FRP Walls #14 (20) - Area C	3	3	0%	26-Feb-25	28-Feb-25
CTR3415	TC-015_FRP Walls #09.2 (19) - Area C	5	5	0%	03-Mar-25	07-Mar-25
CTR3095	TC-015_Prep SOG #06 - Area C	3	3	0%	11-Mar-25	13-Mar-25
CTR3105	TC-015_Prep SOG #07 - Area C	3	3	0%	14-Mar-25	18-Mar-25
CTR3665	TC-015_Pour SOG #06 - Area C	2	2	0%	21-Apr-25	22-Apr-25
CTR3675	TC-015_Pour SOG #07 - Area C	3	3	0%	23-Apr-25	25-Apr-25
Structural Steel		147	147		06-Jan-25	31-Jul-25
Structure Area A		112	112		06-Jan-25	11-Jun-25
CTR650	TC-016_Install Steel - Area A	86	86	0%	06-Jan-25	05-May-25
A1410	TC-016_Erect Steel A11/A21 - C11/C21; A27	24	24	0%	06-Jan-25	06-Feb-25
CTR660	TC-016_Install Decking/Detailing - Area A	99	99	0%	10-Jan-25	29-May-25
A1420	TC-016_Detail & Deck A11/A21 - C11/C21; A27	34	34	0%	10-Jan-25	26-Feb-25
A1430	TC-016_Erect Steel A31/A41; C31/C41 - A34/A44	20	20	0%	07-Feb-25	06-Mar-25
A2640	TC-016_Start Erect Steel A13/A23	0	0	0%	07-Feb-25*	
A1440	TC-016_Detail & Deck A31/A41; C31/C41 - A34/A44	28	28	0%	12-Feb-25	21-Mar-25
A1450	TC-016_Erect Steel A51/A61 - C51/C61	10	10	0%	07-Mar-25	20-Mar-25
CTR1160	TC-04F_Sleeves and box outs - Area A	66	66	0%	10-Mar-25	10-Jun-25
A2340	TC-04F_Sleeves & Boxouts LVL 1 Area A	4	4	0%	10-Mar-25	13-Mar-25
CTR670	TC-020_FRP Concrete SOMD - Area A	65	65	0%	12-Mar-25	11-Jun-25
CTR770	TC-020_Cast-In-Place Shaft Walls - Area A	65	65	0%	12-Mar-25	11-Jun-25
A1460	TC-016_Detail & Deck A51/A61 - C51/C61	21	21	0%	12-Mar-25	09-Apr-25
A1750	TC-020_FRP SOMD LVL 1 Area A	3	3	0%	12-Mar-25	14-Mar-25
A2050	TC-020_FRP Shear Wall LVL 0 - LVL 1 Area A	5	5	0%	12-Mar-25	18-Mar-25
A2060	TC-020_FRP Shear Wall LVL 1 - LVL 2 Area A	5	5	0%	19-Mar-25	25-Mar-25
A2350	TC-04F_Sleeves & Boxouts LVL 2 Area A	4	4	0%	20-Mar-25	25-Mar-25
A1470	TC-016_Erect Steel A71/A81 - C71/C81	12	12	0%	21-Mar-25	07-Apr-25
A1760	TC-020_FRP SOMD LVL 2 Area A	3	3	0%	24-Mar-25	26-Mar-25
A1480	TC-016_Detail & Deck A71/A81 - C71/C81	28	28	0%	26-Mar-25	02-May-25
A2070	TC-020_FRP Shear Wall LVL 2 - LVL 3 Area A	5	5	0%	26-Mar-25	01-Apr-25
A2360	TC-04F_Sleeves & Boxouts LVL 3 Area A	4	4	0%	26-Mar-25	31-Mar-25
A1770	TC-020_FRP SOMD LVL 3 Area A	3	3	0%	28-Mar-25	01-Apr-25



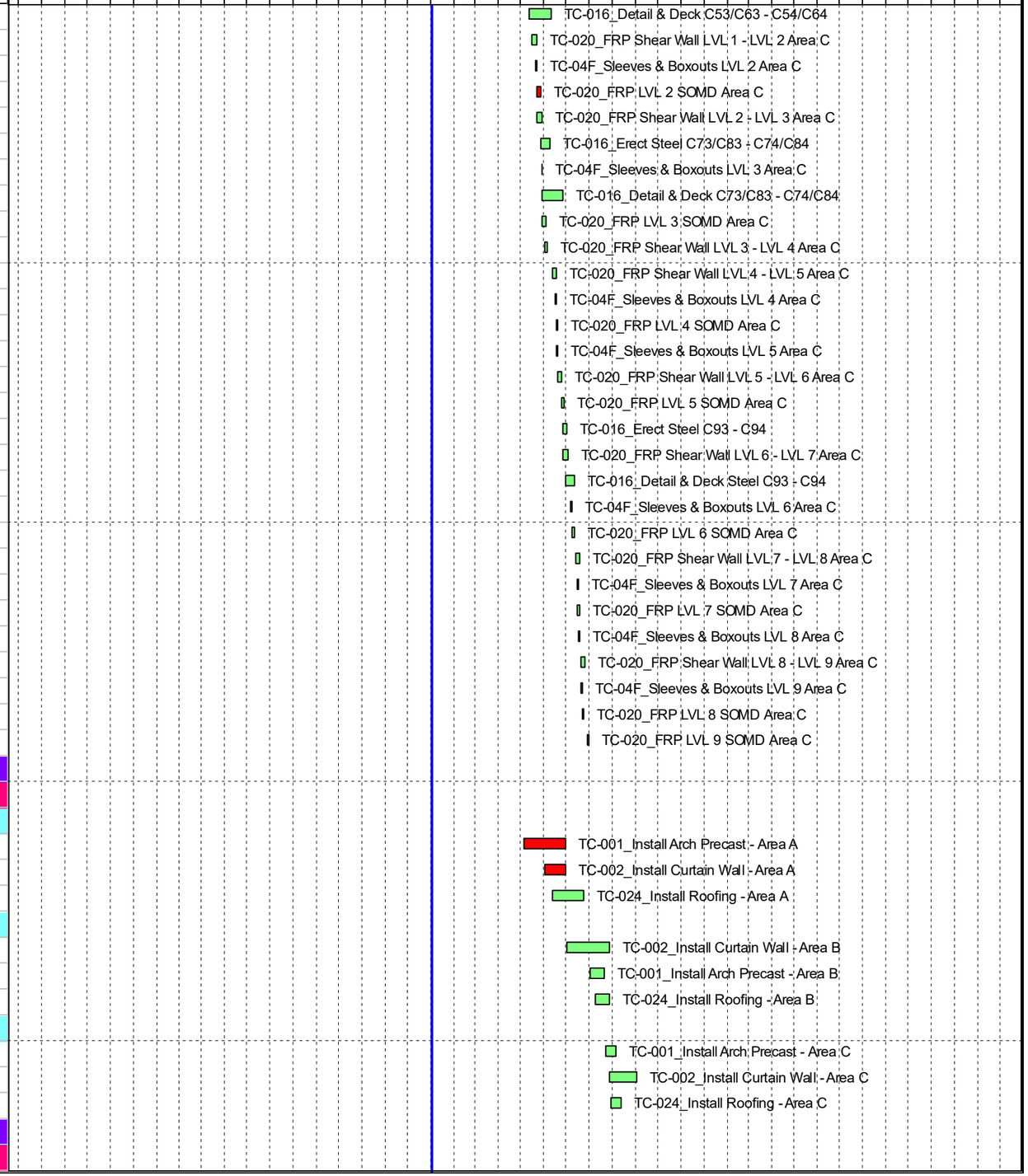
Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
A2080	TC-020_FRP Shear Wall LVL 3 - LVL 4 Area A	5	5	0%	02-Apr-25	08-Apr-25
A1490	TC-016_Erect Steel A91/A101 - C91	10	10	0%	08-Apr-25	21-Apr-25
A2370	TC-04F_Sleeves & Boxouts LVL 4 Area A	4	4	0%	08-Apr-25	11-Apr-25
A1780	TC-020_FRP SOMD LVL 4 Area A	3	3	0%	10-Apr-25	14-Apr-25
A2090	TC-020_FRP Shear Wall LVL 4 - LVL 5 Area A	5	5	0%	10-Apr-25	16-Apr-25
A1510	TC-016_Detail & Deck A91/A101 - A94/104 - C91	20	20	0%	11-Apr-25	08-May-25
A2380	TC-04F_Sleeves & Boxouts LVL 5 Area A	4	4	0%	14-Apr-25	17-Apr-25
A1790	TC-020_FRP SOMD LVL 5 Area A	3	3	0%	16-Apr-25	18-Apr-25
A2100	TC-020_FRP Shear Wall LVL 5 - LVL 6 Area A	5	5	0%	17-Apr-25	23-Apr-25
A1500	TC-016_Erect Steel A111-A112	10	10	0%	22-Apr-25	05-May-25
A2390	TC-04F_Sleeves & Boxouts LVL 6 Area A	4	4	0%	01-May-25	06-May-25
A2110	TC-020_FRP Shear Wall LVL 7 - LVL 8 Area A	5	5	0%	02-May-25	08-May-25
A1520	TC-016_Detail & Deck A111 - A112	18	18	0%	05-May-25	29-May-25
A1800	TC-020_FRP SOMD LVL 6 Area A	3	3	0%	05-May-25	07-May-25
A2400	TC-04F_Sleeves & Boxouts LVL 7 Area A	4	4	0%	07-May-25	12-May-25
A1810	TC-020_FRP SOMD LVL 7 Area A	3	3	0%	08-May-25	12-May-25
A2120	TC-020_FRP Shear Wall LVL 8 - LVL 9 Area A	5	5	0%	21-May-25	28-May-25
A2410	TC-04F_Sleeves & Boxouts LVL 8 Area A	4	4	0%	21-May-25	27-May-25
A1820	TC-020_FRP SOMD LVL 8 Area A	3	3	0%	23-May-25	28-May-25
A2420	TC-04F_Sleeves & Boxouts LVL 9 Area A	4	4	0%	28-May-25	02-Jun-25
A2130	TC-020_FRP Shear Wall LVL 9 - Pent. Flr. Area A	5	5	0%	29-May-25	04-Jun-25
A1830	TC-020_FRP SOMD LVL 9 Area A	3	3	0%	02-Jun-25	04-Jun-25
A2430	TC-04F_Sleeves & Boxouts LVL Pent. Flr Area A	4	4	0%	03-Jun-25	06-Jun-25
A1840	TC-020_FRP SOMD LVL Pent. Flr Area A	3	3	0%	05-Jun-25	09-Jun-25
A2140	TC-020_FRP Shear Wall LVL Pent. Flr - Pent. Roof Area A	5	5	0%	05-Jun-25	11-Jun-25
A2440	TC-04F_Sleeves & Boxouts LVL Pent. Roof Area A	2	2	0%	09-Jun-25	10-Jun-25
A1950	TC-020_FRP SOMD LVL Pent. Roof Area A	2	2	0%	10-Jun-25	11-Jun-25
Structure Area B		110	110		26-Feb-25	31-Jul-25
CTR1110	TC-016_Install Steel - Area B	85	85	0%	26-Feb-25	25-Jun-25
A1530	TC-016_Erect Steel A15/A25 - C12/C22	9	9	0%	26-Feb-25	10-Mar-25
CTR1120	TC-016_Install Decking/Detailing - Area B	92	92	0%	03-Mar-25	10-Jul-25
A1540	TC-016_Detail & Deck A15/A25 - C12/C22	18	18	0%	03-Mar-25	26-Mar-25
A1550	TC-016_Erect Steel A35/A45 - C32/C42	10	10	0%	01-Apr-25	14-Apr-25
A1560	TC-016_Detail & Deck A35/A45 - C32/C42	18	18	0%	04-Apr-25	29-Apr-25
CTR1170	TC-04F_Sleeves and box outs - Area B	71	71	0%	17-Apr-25	28-Jul-25
A2450	TC-04F_Sleeves & Boxouts LVL 1 Area B	3	3	0%	17-Apr-25	21-Apr-25
CTR1130	TC-020_Cast-In-Place Shaft Walls - Area B	71	71	0%	18-Apr-25	29-Jul-25
CTR1140	TC-020_FRP Concrete SOMD - Area B	73	73	0%	18-Apr-25	31-Jul-25
A1850	TC-020_FRP SOMD LVL 1 Area B	3	3	0%	18-Apr-25	22-Apr-25
A2150	TC-020_FRP Shear Wall LVL 0 - LVL 1 Area B	5	5	0%	18-Apr-25	24-Apr-25
A2160	TC-020_FRP Shear Wall LVL 1 - LVL 2 Area B	5	5	0%	25-Apr-25	01-May-25
A1570	TC-016_Erect Steel A55/A65 - C52/C62	9	9	0%	28-Apr-25	08-May-25
A2460	TC-04F_Sleeves & Boxouts LVL 2 Area B	3	3	0%	30-Apr-25	02-May-25
A1580	TC-016_Detail & Deck A55/A65 - C52/C62	12	12	0%	01-May-25	16-May-25



Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
A1860	TC-020_FRP SOMD LVL 2 Area B	3	3	0%	01-May-25	05-May-25
A2330	TC-020_FRP Shear Wall LVL 2 - LVL 3 Area B	5	5	0%	02-May-25	08-May-25
A2170	TC-020_FRP Shear Wall LVL 3 - LVL 4 Area B	5	5	0%	13-May-25	19-May-25
A2470	TC-04F_Sleeves & Boxouts LVL 3 Area B	3	3	0%	13-May-25	15-May-25
A1870	TC-020_FRP SOMD LVL 3 Area B	3	3	0%	14-May-25	16-May-25
A2480	TC-04F_Sleeves & Boxouts LVL 4 Area B	3	3	0%	16-May-25	20-May-25
A1880	TC-020_FRP SOMD LVL 4 Area B	3	3	0%	19-May-25	21-May-25
A2180	TC-020_FRP Shear Wall LVL 4 - LVL 5 Area B	5	5	0%	20-May-25	27-May-25
A1590	TC-016_Erect Steel A75/A85 - C72/C82	3	3	0%	22-May-25	27-May-25
A1600	TC-016_Detail & Deck A75/A85 - C72/C82	12	12	0%	27-May-25	11-Jun-25
A2190	TC-020_FRP Shear Wall LVL 5 - LVL 6 Area B	5	5	0%	05-Jun-25	11-Jun-25
A2490	TC-04F_Sleeves & Boxouts LVL 5 Area B	3	3	0%	05-Jun-25	09-Jun-25
A1890	TC-020_FRP SOMD LVL 5 Area B	3	3	0%	06-Jun-25	10-Jun-25
A1610	TC-016_Erect Steel C92/C101 - A76/A86/A96	8	8	0%	10-Jun-25	19-Jun-25
A2500	TC-04F_Sleeves & Boxouts LVL 6 Area B	3	3	0%	11-Jun-25	13-Jun-25
A1900	TC-020_FRP SOMD LVL 6 Area B	3	3	0%	12-Jun-25	16-Jun-25
A2200	TC-020_FRP Shear Wall LVL 6 - LVL 7 Area B	5	5	0%	12-Jun-25	18-Jun-25
A1620	TC-016_Detail & Deck C92/C101 - A76/A86/A96	17	17	0%	13-Jun-25	08-Jul-25
A1630	TC-016_Erect Steel A95/A105	4	4	0%	20-Jun-25	25-Jun-25
A1640	TC-016_Detail & Deck A95/A105	11	11	0%	25-Jun-25	10-Jul-25
A2510	TC-04F_Sleeves & Boxouts LVL 7 Area B	2	2	0%	08-Jul-25	09-Jul-25
A2210	TC-020_FRP Shear Wall LVL 7 - LVL 8 Area B	5	5	0%	09-Jul-25	15-Jul-25
A1910	TC-020_FRP SOMD LVL 7 Area B	3	3	0%	11-Jul-25	15-Jul-25
A2220	TC-020_FRP Shear Wall LVL 8 - LVL 9 Area B	5	5	0%	16-Jul-25	22-Jul-25
A2520	TC-04F_Sleeves & Boxouts LVL 8 Area B	3	3	0%	17-Jul-25	21-Jul-25
A1920	TC-020_FRP SOMD LVL 8 Area B	3	3	0%	18-Jul-25	22-Jul-25
A2530	TC-04F_Sleeves & Boxouts LVL 9 Area B	2	2	0%	22-Jul-25	23-Jul-25
A2230	TC-020_FRP Shear Wall LVL 9 - Pent. Flr Area B	5	5	0%	23-Jul-25	29-Jul-25
A1930	TC-020_FRP SOMD LVL 9 Area B	3	3	0%	24-Jul-25	28-Jul-25
A2540	TC-04F_Sleeves & Boxouts LVL Pent. Flr Area B	3	3	0%	24-Jul-25	28-Jul-25
A1940	TC-020_FRP SOMD LVL Pent. Floor Area B	3	3	0%	29-Jul-25	31-Jul-25
Structure Area C		95	95		19-Mar-25	31-Jul-25
CTR1460	TC-016_Install Steel - Area C	74	74	0%	19-Mar-25	01-Jul-25
A1650	TC-016_Erect Steel C13/C23 - C14/C24	9	9	0%	19-Mar-25	31-Mar-25
CTR1470	TC-016_Install Decking/Detailing - Area C	79	79	0%	21-Mar-25	11-Jul-25
A1660	TC-016_Detail & Deck C13/C23 - C14/C24	19	19	0%	21-Mar-25	16-Apr-25
A1670	TC-016_Erect Steel C33/C43 - C34/C44	9	9	0%	15-Apr-25	25-Apr-25
A1680	TC-016_Detail & Deck C33/C43 - C34/C44	23	23	0%	17-Apr-25	19-May-25
CTR1430	TC-04F_Sleeves and box outs - Area C	52	52	0%	08-May-25	22-Jul-25
A2550	TC-04F_Sleeves & Boxouts LVL 1 Area C	2	2	0%	08-May-25	09-May-25
CTR1420	TC-020_Cast-In-Place Shaft Walls - Area C	54	54	0%	09-May-25	25-Jul-25
CTR1440	TC-020_FRP Concrete SOMD - Area C	58	58	0%	09-May-25	31-Jul-25
A1690	TC-016_Erect Steel C53/C63 - C54/C64	9	9	0%	09-May-25	21-May-25
A1970	TC-020_FRP LVL 1 SOMD Area C	3	3	0%	09-May-25	13-May-25
A2240	TC-020_FRP Shear Wall LVL 0 - LVL 1 Area C	5	5	0%	09-May-25	15-May-25

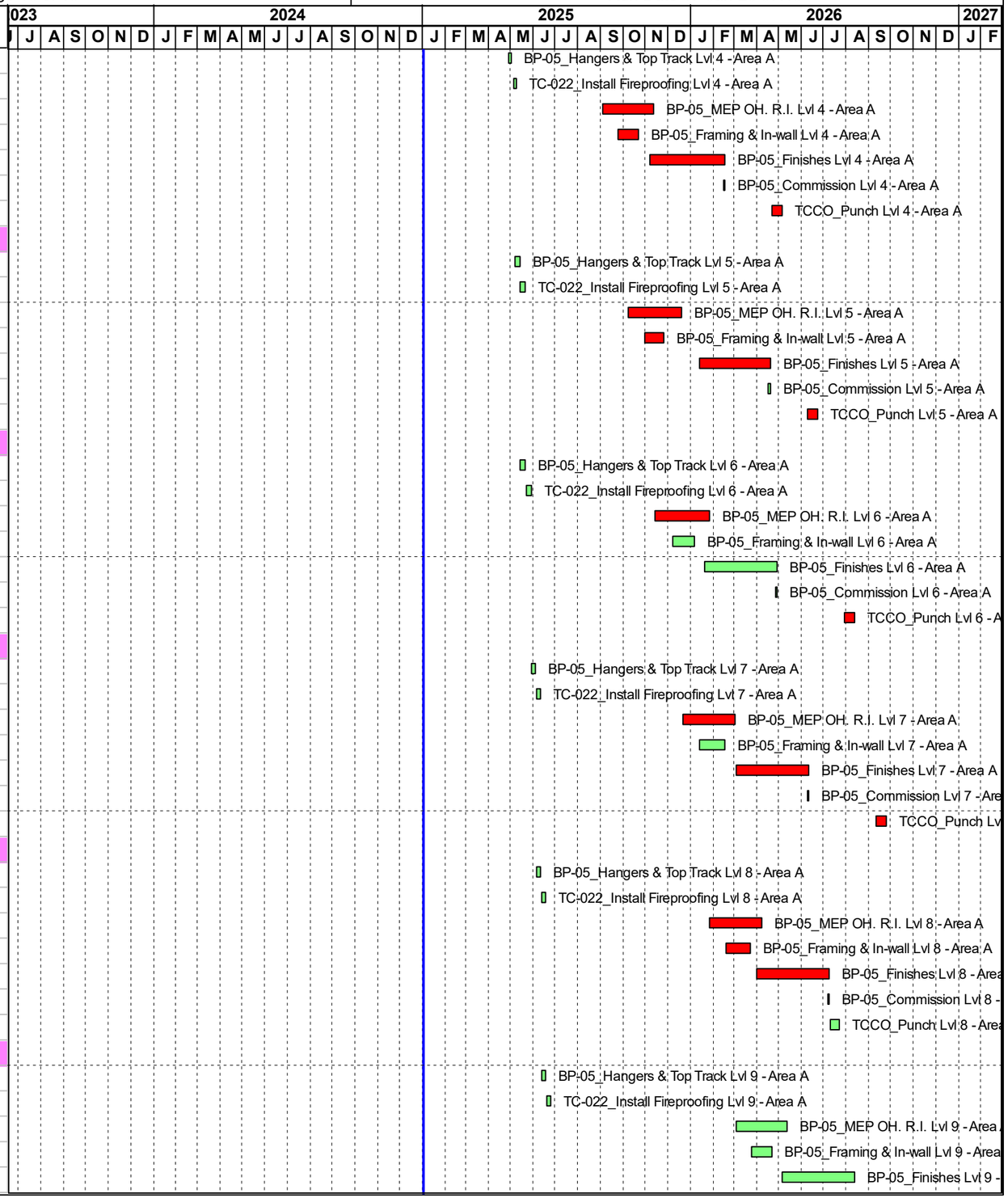


Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
A1700	TC-016_Detail & Deck C53/C63 - C54/C64	21	21	0%	13-May-25	11-Jun-25
A2250	TC-020_FRP Shear Wall LVL 1 - LVL 2 Area C	5	5	0%	16-May-25	22-May-25
A2560	TC-04F_Sleeves & Boxouts LVL 2 Area C	2	2	0%	21-May-25	22-May-25
A1960	TC-020_FRP LVL 2 SOMD Area C	3	3	0%	22-May-25	27-May-25
A2260	TC-020_FRP Shear Wall LVL 2 - LVL 3 Area C	5	5	0%	23-May-25	30-May-25
A1710	TC-016_Erect Steel C73/C83 - C74/C84	9	9	0%	28-May-25	09-Jun-25
A2570	TC-04F_Sleeves & Boxouts LVL 3 Area C	2	2	0%	29-May-25	30-May-25
A1720	TC-016_Detail & Deck C73/C83 - C74/C84	20	20	0%	30-May-25	26-Jun-25
A1980	TC-020_FRP LVL 3 SOMD Area C	3	3	0%	30-May-25	03-Jun-25
A2270	TC-020_FRP Shear Wall LVL 3 - LVL 4 Area C	5	5	0%	02-Jun-25	06-Jun-25
A2280	TC-020_FRP Shear Wall LVL 4 - LVL 5 Area C	5	5	0%	12-Jun-25	18-Jun-25
A2580	TC-04F_Sleeves & Boxouts LVL 4 Area C	2	2	0%	16-Jun-25	17-Jun-25
A1990	TC-020_FRP LVL 4 SOMD Area C	3	3	0%	17-Jun-25	19-Jun-25
A2590	TC-04F_Sleeves & Boxouts LVL 5 Area C	2	2	0%	18-Jun-25	19-Jun-25
A2290	TC-020_FRP Shear Wall LVL 5 - LVL 6 Area C	5	5	0%	19-Jun-25	25-Jun-25
A2000	TC-020_FRP LVL 5 SOMD Area C	3	3	0%	25-Jun-25	27-Jun-25
A1730	TC-016_Erect Steel C93 - C94	4	4	0%	26-Jun-25	01-Jul-25
A2300	TC-020_FRP Shear Wall LVL 6 - LVL 7 Area C	5	5	0%	27-Jun-25	03-Jul-25
A1740	TC-016_Detail & Deck Steel C93 - C94	9	9	0%	30-Jun-25	11-Jul-25
A2600	TC-04F_Sleeves & Boxouts LVL 6 Area C	2	2	0%	07-Jul-25	08-Jul-25
A2010	TC-020_FRP LVL 6 SOMD Area C	3	3	0%	09-Jul-25	11-Jul-25
A2310	TC-020_FRP Shear Wall LVL 7 - LVL 8 Area C	5	5	0%	14-Jul-25	18-Jul-25
A2610	TC-04F_Sleeves & Boxouts LVL 7 Area C	2	2	0%	15-Jul-25	16-Jul-25
A2020	TC-020_FRP LVL 7 SOMD Area C	3	3	0%	16-Jul-25	18-Jul-25
A2620	TC-04F_Sleeves & Boxouts LVL 8 Area C	2	2	0%	17-Jul-25	18-Jul-25
A2320	TC-020_FRP Shear Wall LVL 8 - LVL 9 Area C	5	5	0%	21-Jul-25	25-Jul-25
A2630	TC-04F_Sleeves & Boxouts LVL 9 Area C	2	2	0%	21-Jul-25	22-Jul-25
A2030	TC-020_FRP LVL 8 SOMD Area C	3	3	0%	22-Jul-25	24-Jul-25
A2040	TC-020_FRP LVL 9 SOMD Area C	3	3	0%	29-Jul-25	31-Jul-25
ENVELOPE		106	106		05-May-25	02-Oct-25
Curtain Wall/Precast/Roofing		106	106		05-May-25	02-Oct-25
Envelope Area A		57	57		05-May-25	24-Jul-25
01A1180	TC-001_Install Arch Precast - Area A	40	40	0%	05-May-25	30-Jun-25
01A1170	TC-002_Install Curtain Wall - Area A	20	20	0%	03-Jun-25	30-Jun-25
A180	TC-024_Install Roofing - Area A	30	30	0%	12-Jun-25	24-Jul-25
Envelope Area B		41	41		02-Jul-25	28-Aug-25
01A1370	TC-002_Install Curtain Wall - Area B	40	40	0%	02-Jul-25	27-Aug-25
01A1380	TC-001_Install Arch Precast - Area B	15	15	0%	01-Aug-25	21-Aug-25
A510	TC-024_Install Roofing - Area B	15	15	0%	08-Aug-25	28-Aug-25
Envelope Area C		29	29		22-Aug-25	02-Oct-25
01A1410	TC-001_Install Arch Precast - Area C	10		0%	22-Aug-25	05-Sep-25
01A1420	TC-002_Install Curtain Wall - Area C	25	25	0%	28-Aug-25	02-Oct-25
A520	TC-024_Install Roofing - Area C	10	10	0%	29-Aug-25	12-Sep-25
INTERIORS		424	424		31-Mar-25	30-Nov-26
Elevators		270	270		29-Aug-25	22-Sep-26



Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
CTR920	**TC-004_Install Service Cars for Construction Use**	75	75	0%	29-Aug-25	16-Dec-25
CTR810	TC-004_Install Remaining Elevators	195	195	0%	17-Dec-25	22-Sep-26
MEP Equip and MEP Risers/Shafts		121	121		28-Apr-25	16-Oct-25
MEP Risers/Shafts Area A		33	33		28-Apr-25	12-Jun-25
CTR820	BP-04F_Install MEP Risers - Area A	33	33	0%	28-Apr-25	12-Jun-25
MEP Risers/Shafts Area B		33	33		16-Jul-25	29-Aug-25
CTR860	BP-04F_Install MEP Risers - Area B	33	33	0%	16-Jul-25	29-Aug-25
MEP Risers/Shafts Area C		33	33		02-Sep-25	16-Oct-25
CTR870	BP-04F_Install MEP Risers - Area C	33	33	0%	02-Sep-25	16-Oct-25
Arch./MEP/AV/Fire Proofing		424	424		31-Mar-25	30-Nov-26
Interiors Area A		379	379		31-Mar-25	24-Sep-26
Basement		190	190		31-Mar-25	29-Dec-25
CTR830	BP-05_Hangers & Top Track Basement - Area A	5	5	0%	31-Mar-25	04-Apr-25
CTR840	TC-022_Install Fireproofing Basement - Area A	5	5	0%	07-Apr-25	11-Apr-25
CTR850	BP-04_MEP OH. R.I. Mech. Room - Area A	80	80	0%	14-Apr-25	05-Aug-25
CTR910	BP-05_MEP OH R.I. Basement - Area A	30	30	0%	06-Aug-25	17-Sep-25
CTR1150	BP-05_Framing & In-wall Basement - Area A	25	25	0%	27-Aug-25	01-Oct-25
CTR1190	BP-05_Finishes Basement - Area A	50	50	0%	02-Oct-25	12-Dec-25
CTR2730	BP-05_Commission Basement - Area A	6	6	0%	05-Dec-25	12-Dec-25
CTR2455	TCCO_Punch Basement - Area A	10	10	0%	15-Dec-25	29-Dec-25
Level 1		155	155		07-Apr-25	12-Nov-25
CTR1180	BP-05_Hangers & Top Track Lvl 1 - Area A	5	5	0%	07-Apr-25	11-Apr-25
A190	TC-022_Install Fireproofing Lvl 1 - Area A	5	5	0%	14-Apr-25	18-Apr-25
CTR890	BP-05_MEP OH. R.I. Lvl 1 - Area A	50	50	0%	19-May-25	29-Jul-25
CTR880	BP-05_Framing & In-wall Lvl 1 - Area A	25	25	0%	17-Jun-25	22-Jul-25
CTR900	BP-05_Finishes Lvl 1 - Area A	70	70	0%	23-Jul-25	29-Oct-25
CTR2740	BP-05_Commission Lvl 1 - Area A	2	2	0%	28-Oct-25	29-Oct-25
CTR2350	TCCO_Punch Lvl 1 - Area A	10	10	0%	30-Oct-25	12-Nov-25
Level 2		210	210		14-Apr-25	10-Feb-26
CTR1575	BP-05_Hangers & Top Track Lvl 2 - Area A	5	5	0%	14-Apr-25	18-Apr-25
A565	TC-022_Install Fireproofing Lvl 2 - Area A	5	5	0%	21-Apr-25	25-Apr-25
CTR1585	BP-05_MEP OH. R.I. Lvl 2 - Area A	50	50	0%	24-Jun-25	03-Sep-25
CTR1590	BP-05_Framing & In-wall Lvl 2 - Area A	25	25	0%	16-Jul-25	19-Aug-25
CTR1605	BP-05_Finishes Lvl 2 - Area A	70	70	0%	20-Aug-25	26-Nov-25
CTR1635	BP-05_Commission Lvl 2 - Area A	2	2	0%	25-Nov-25	26-Nov-25
CTR2365	TCCO_Punch Lvl 2 - Area A	10	10	0%	28-Jan-26	10-Feb-26
Level 3		235	235		21-Apr-25	24-Mar-26
CTR1645	BP-05_Hangers & Top Track Lvl 3 - Area A	5	5	0%	21-Apr-25	25-Apr-25
A580	TC-022_Install Fireproofing Lvl 3 - Area A	5	5	0%	28-Apr-25	02-May-25
CTR1660	BP-05_MEP OH. R.I. Lvl 3 - Area A	50	50	0%	30-Jul-25	08-Oct-25
CTR1665	BP-05_Framing & In-wall Lvl 3 - Area A	20	20	0%	20-Aug-25	17-Sep-25
CTR1675	BP-05_Finishes Lvl 3 - Area A	70	70	0%	02-Oct-25	13-Jan-26
CTR1915	BP-05_Commission Lvl 3 - Area A	2	2	0%	12-Jan-26	13-Jan-26
CTR2380	TCCO_Punch Lvl 3 - Area A	10	10	0%	11-Mar-26	24-Mar-26
Level 4		260	260		28-Apr-25	05-May-26

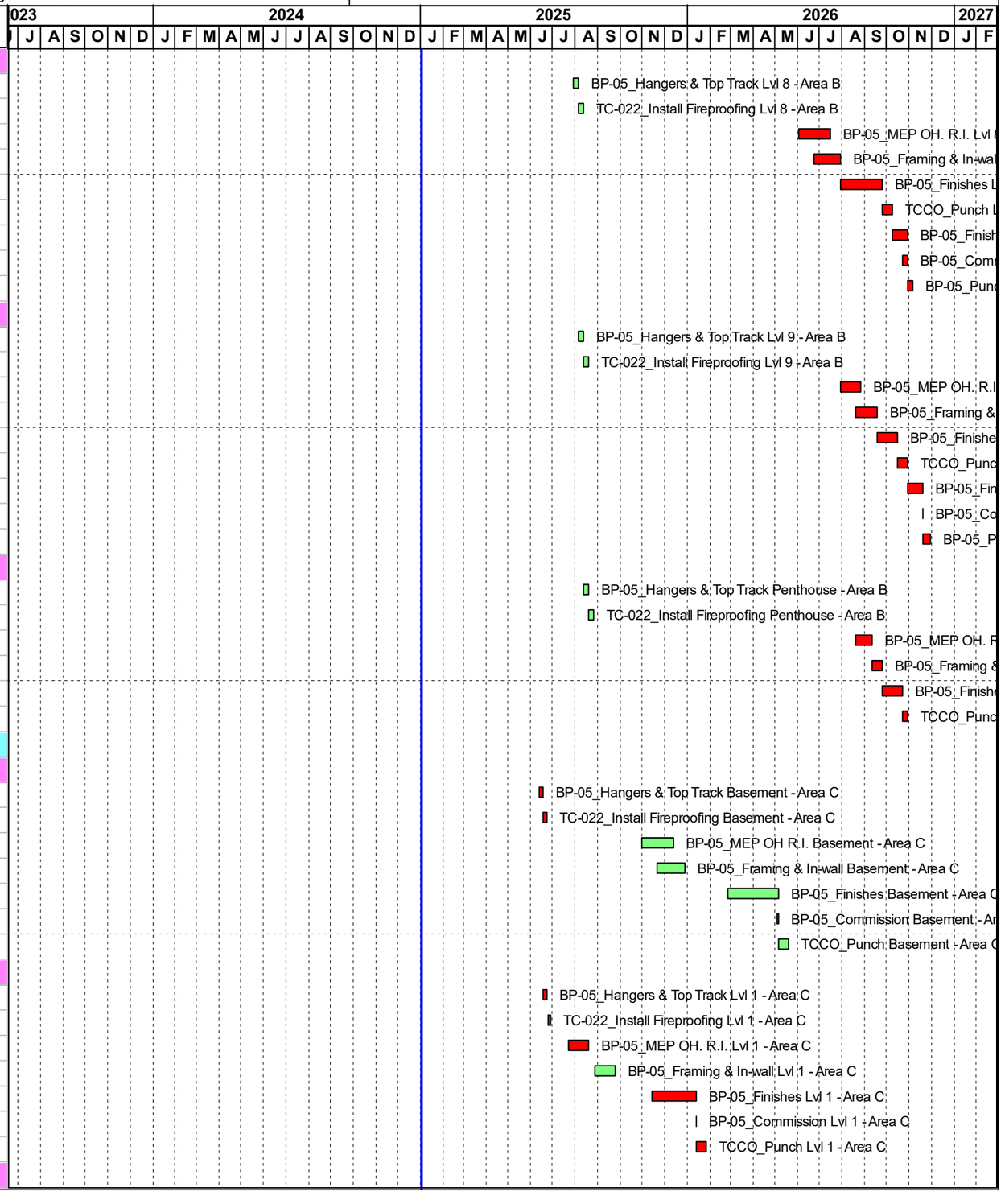
Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
CTR1715	BP-05_Hangers & Top Track Lvl 4 - Area A	5	5	0%	28-Apr-25	02-May-25
A595	TC-022_Install Fireproofing Lvl 4 - Area A	5	5	0%	05-May-25	09-May-25
CTR1730	BP-05_MEP OH. R.I. Lvl 4 - Area A	50	50	0%	04-Sep-25	12-Nov-25
CTR1740	BP-05_Framing & In-wall Lvl 4 - Area A	20	20	0%	25-Sep-25	22-Oct-25
CTR1745	BP-05_Finishes Lvl 4 - Area A	70	70	0%	06-Nov-25	17-Feb-26
CTR1985	BP-05_Commission Lvl 4 - Area A	2	2	0%	16-Feb-26	17-Feb-26
CTR2395	TCCO_Punch Lvl 4 - Area A	10	10	0%	22-Apr-26	05-May-26
Level 5		286	286		08-May-25	23-Jun-26
CTR1785	BP-05_Hangers & Top Track Lvl 5 - Area A	5	5	0%	08-May-25	14-May-25
A610	TC-022_Install Fireproofing Lvl 5 - Area A	5	5	0%	15-May-25	21-May-25
CTR1800	BP-05_MEP OH. R.I. Lvl 5 - Area A	50	50	0%	09-Oct-25	19-Dec-25
CTR1810	BP-05_Framing & In-wall Lvl 5 - Area A	20	20	0%	30-Oct-25	26-Nov-25
CTR1815	BP-05_Finishes Lvl 5 - Area A	70	70	0%	13-Jan-26	20-Apr-26
CTR1995	BP-05_Commission Lvl 5 - Area A	2	2	0%	17-Apr-26	20-Apr-26
CTR2410	TCCO_Punch Lvl 5 - Area A	10	10	0%	10-Jun-26	23-Jun-26
Level 6		316	316		15-May-25	12-Aug-26
CTR1855	BP-05_Hangers & Top Track Lvl 6 - Area A	5	5	0%	15-May-25	21-May-25
A625	TC-022_Install Fireproofing Lvl 6 - Area A	5	5	0%	22-May-25	29-May-25
CTR1870	BP-05_MEP OH. R.I. Lvl 6 - Area A	50	50	0%	13-Nov-25	27-Jan-26
CTR1880	BP-05_Framing & In-wall Lvl 6 - Area A	20	20	0%	08-Dec-25	06-Jan-26
CTR1885	BP-05_Finishes Lvl 6 - Area A	70	70	0%	21-Jan-26	28-Apr-26
CTR2005	BP-05_Commission Lvl 6 - Area A	2	2	0%	27-Apr-26	28-Apr-26
CTR2425	TCCO_Punch Lvl 6 - Area A	10	10	0%	30-Jul-26	12-Aug-26
Level 7		337	337		29-May-25	24-Sep-26
CTR1925	BP-05_Hangers & Top Track Lvl 7 - Area A	5	5	0%	29-May-25	04-Jun-25
A640	TC-022_Install Fireproofing Lvl 7 - Area A	5	5	0%	05-Jun-25	11-Jun-25
CTR1940	BP-05_MEP OH. R.I. Lvl 7 - Area A	50	50	0%	22-Dec-25	03-Mar-26
CTR1950	BP-05_Framing & In-wall Lvl 7 - Area A	25	25	0%	14-Jan-26	17-Feb-26
CTR1955	BP-05_Finishes Lvl 7 - Area A	70	70	0%	04-Mar-26	10-Jun-26
CTR2015	BP-05_Commission Lvl 7 - Area A	2	2	0%	09-Jun-26	10-Jun-26
CTR2440	TCCO_Punch Lvl 7 - Area A	10	10	0%	11-Sep-26	24-Sep-26
Level 8		288	288		05-Jun-25	23-Jul-26
CTR2000	BP-05_Hangers & Top Track Lvl 8 - Area A	5	5	0%	05-Jun-25	11-Jun-25
A660	TC-022_Install Fireproofing Lvl 8 - Area A	5	5	0%	12-Jun-25	18-Jun-25
CTR2030	BP-05_MEP OH. R.I. Lvl 8 - Area A	50	50	0%	28-Jan-26	07-Apr-26
CTR2050	BP-05_Framing & In-wall Lvl 8 - Area A	25	25	0%	18-Feb-26	24-Mar-26
CTR2060	BP-05_Finishes Lvl 8 - Area A	70	70	0%	01-Apr-26	09-Jul-26
CTR2750	BP-05_Commission Lvl 8 - Area A	2	2	0%	08-Jul-26	09-Jul-26
CTR2120	TCCO_Punch Lvl 8 - Area A	10	10	0%	10-Jul-26	23-Jul-26
Level 9		308	308		12-Jun-25	27-Aug-26
CTR2130	BP-05_Hangers & Top Track Lvl 9 - Area A	5	5	0%	12-Jun-25	18-Jun-25
A690	TC-022_Install Fireproofing Lvl 9 - Area A	5	5	0%	19-Jun-25	25-Jun-25
CTR2150	BP-05_MEP OH. R.I. Lvl 9 - Area A	50	50	0%	04-Mar-26	12-May-26
CTR2170	BP-05_Framing & In-wall Lvl 9 - Area A	20	20	0%	25-Mar-26	21-Apr-26
CTR2180	BP-05_Finishes Lvl 9 - Area A	70	70	0%	06-May-26	13-Aug-26



Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
CTR2760	BP-05_Commission Lvl 9 - Area A	2	2	0%	12-Aug-26	13-Aug-26
CTR2330	TCCO_Punch Lvl 9 - Area A	10	10	0%	14-Aug-26	27-Aug-26
Penthouse		308	308		19-Jun-25	03-Sep-26
CTR2215	BP-05_Hangers & Top Track Penthouse - Area A	5	5	0%	19-Jun-25	25-Jun-25
A705	TC-022_Install Fireproofing Penthouse - Area A	5	5	0%	26-Jun-25	02-Jul-25
CTR2225	BP-05_MEP OH. R.I. Penthouse - Area A	30	30	0%	08-Apr-26	19-May-26
CTR2230	BP-05_Framing & In-wall Penthouse - Area A	20	20	0%	29-Apr-26	27-May-26
CTR2240	BP-05_Finishes Penthouse - Area A	50	50	0%	11-Jun-26	20-Aug-26
CTR2255	BP-05_Commission Penthouse - Area A	6	6	0%	13-Aug-26	20-Aug-26
CTR2340	TCCO_Punch Penthouse - Area A	10	10	0%	21-Aug-26	03-Sep-26
Interiors Area B		392	392		14-May-25	30-Nov-26
Basement		208	208		14-May-25	10-Mar-26
CTR2265	BP-05_Hangers & Top Track Basement - Area B	5	5	0%	14-May-25	20-May-25
CTR2270	TC-022_Install Fireproofing Basement - Area B	5	5	0%	21-May-25	28-May-25
CTR2275	BP-04_MEP OH. R.I. Mech. Room - Area B	50	50	0%	10-Jun-25	19-Aug-25
CTR2280	BP-05_MEP OH R.I. Basement - Area B	30	30	0%	18-Sep-25	29-Oct-25
CTR2285	BP-05_Framing & In-wall Basement - Area B	25	25	0%	09-Oct-25	12-Nov-25
CTR2290	BP-05_Finishes Basement - Area B	50	50	0%	15-Dec-25	24-Feb-26
CTR2855	BP-05_Commission Basement - Area B	5	5	0%	18-Feb-26	24-Feb-26
CTR2465	TCCO_Punch Basement - Area B	10	10	0%	25-Feb-26	10-Mar-26
Level 1		183	183		21-May-25	10-Feb-26
CTR1490	BP-05_Hangers & Top Track Lvl 1 - Area B	5	5	0%	21-May-25	28-May-25
A490	TC-022_Install Fireproofing Lvl 1 - Area B	5	5	0%	29-May-25	04-Jun-25
CTR1500	BP-05_MEP OH. R.I. Lvl 1 - Area B	30	30	0%	23-Jun-25	04-Aug-25
CTR1510	BP-05_Framing & In-wall Lvl 1 - Area B	25	25	0%	23-Jul-25	26-Aug-25
CTR1520	BP-05_Finishes Lvl 1 - Area B	40	40	0%	02-Oct-25	26-Nov-25
CTR2355	TCCO_Punch Lvl 1 - Area B	10	10	0%	01-Dec-25	12-Dec-25
CTR2560	BP-05_Finishes Elevator Core(s) Lvl 1 - Area B	15	15	0%	14-Jan-26	03-Feb-26
CTR2770	BP-05_Commission Lvl 1 - Area B	1	1	0%	03-Feb-26	03-Feb-26
CTR2590	BP-05_Punch Elevator Core(s) Lvl 1 - Area B	5	5	0%	04-Feb-26	10-Feb-26
Level 2		203	203		29-May-25	17-Mar-26
CTR1580	BP-05_Hangers & Top Track Lvl 2 - Area B	5	5	0%	29-May-25	04-Jun-25
A570	TC-022_Install Fireproofing Lvl 2 - Area B	5	5	0%	05-Jun-25	11-Jun-25
CTR1600	BP-05_MEP OH. R.I. Lvl 2 - Area B	30	30	0%	19-Aug-25	30-Sep-25
CTR1610	BP-05_Framing & In-wall Lvl 2 - Area B	25	25	0%	10-Sep-25	14-Oct-25
CTR1625	BP-05_Finishes Lvl 2 - Area B	40	40	0%	30-Oct-25	29-Dec-25
CTR2370	TCCO_Punch Lvl 2 - Area B	10	10	0%	11-Feb-26	24-Feb-26
CTR2570	BP-05_Finishes Elevator Core(s) Lvl 2 - Area B	15	15	0%	11-Feb-26	03-Mar-26
CTR2780	BP-05_Commission Lvl 2 - Area B	3	3	0%	27-Feb-26	03-Mar-26
CTR2600	BP-05_Punch Elevator Core(s) Lvl 2 - Area B	5	5	0%	11-Mar-26	17-Mar-26
Level 3		233	233		05-Jun-25	05-May-26
CTR1650	BP-05_Hangers & Top Track Lvl 3 - Area B	5	5	0%	05-Jun-25	11-Jun-25
A585	TC-022_Install Fireproofing Lvl 3 - Area B	5	5	0%	12-Jun-25	18-Jun-25
CTR1670	BP-05_MEP OH. R.I. Lvl 3 - Area B	30	30	0%	15-Oct-25	25-Nov-25
CTR1705	BP-05_Framing & In-wall Lvl 3 - Area B	20	20	0%	05-Nov-25	04-Dec-25

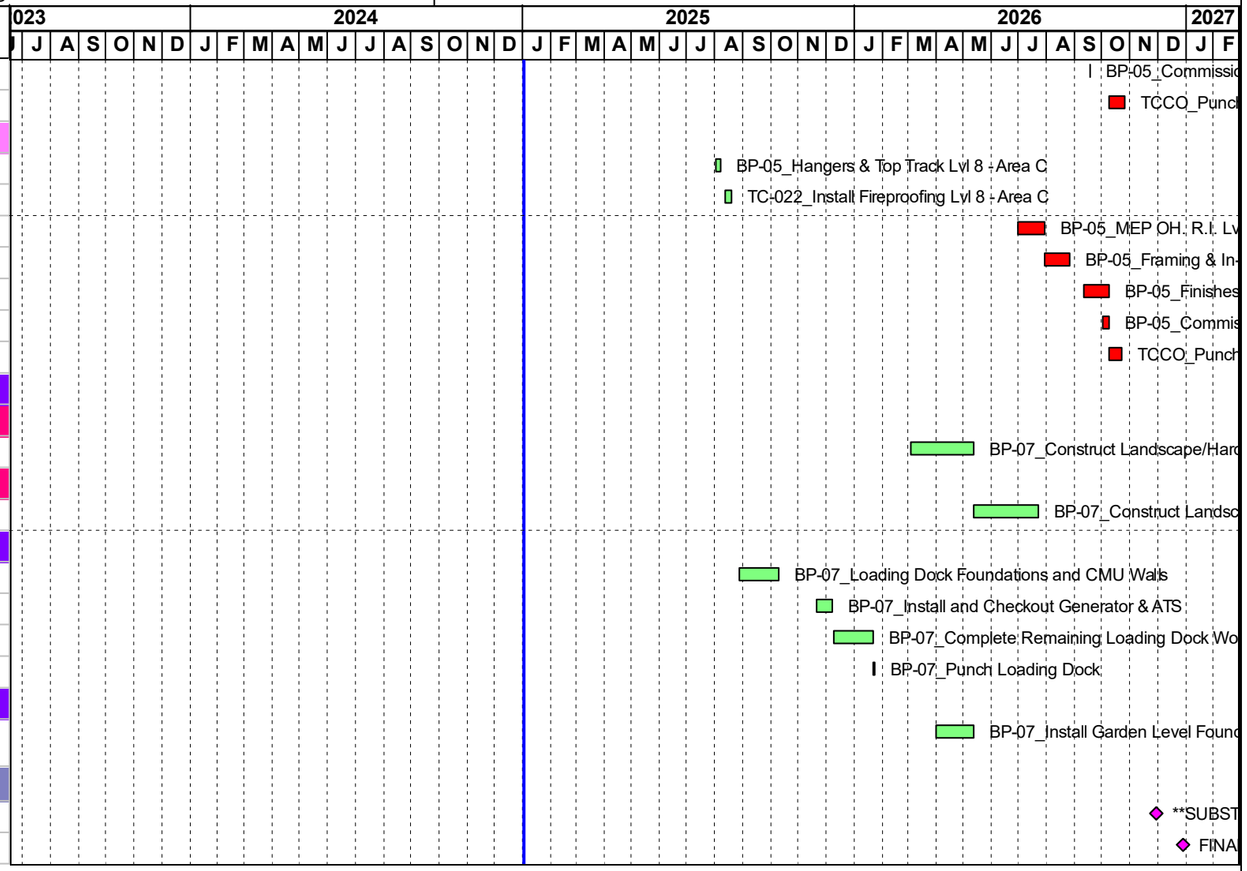
Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
CTR1695	BP-05_Finishes Lvl 3 - Area B	40	40	0%	15-Dec-25	10-Feb-26
CTR2385	TCCO_Punch Lvl 3 - Area B	10	10	0%	25-Mar-26	07-Apr-26
CTR2580	BP-05_Finishes Elevator Core(s) Lvl 3 - Area B	15	15	0%	08-Apr-26	28-Apr-26
CTR2790	BP-05_Commission Lvl 3 - Area B	2	2	0%	27-Apr-26	28-Apr-26
CTR2610	BP-05_Punch Elevator Core(s) Lvl 3 - Area B	5	5	0%	29-Apr-26	05-May-26
Level 4		262	262		12-Jun-25	23-Jun-26
CTR1720	BP-05_Hangers & Top Track Lvl 4 - Area B	5	5	0%	12-Jun-25	18-Jun-25
A600	TC-022_Install Fireproofing Lvl 4 - Area B	5	5	0%	19-Jun-25	25-Jun-25
CTR1735	BP-05_MEP OH. R.I. Lvl 4 - Area B	30	30	0%	12-Dec-25	26-Jan-26
CTR1755	BP-05_Framing & In-wall Lvl 4 - Area B	20	20	0%	06-Jan-26	02-Feb-26
CTR1760	BP-05_Finishes Lvl 4 - Area B	40	40	0%	03-Feb-26	30-Mar-26
CTR2400	TCCO_Punch Lvl 4 - Area B	10	10	0%	06-May-26	19-May-26
CTR1775	BP-05_Finishes Elevator Core(s) Lvl 4 Area B	15	15	0%	27-May-26	16-Jun-26
CTR2800	BP-05_Commission Lvl 4 - Area B	2	2	0%	15-Jun-26	16-Jun-26
CTR2620	BP-05_Punch Elevator Core(s) Lvl 4 - Area B	5	5	0%	17-Jun-26	23-Jun-26
Level 5		292	292		19-Jun-25	12-Aug-26
CTR1790	BP-05_Hangers & Top Track Lvl 5 - Area B	5	5	0%	19-Jun-25	25-Jun-25
A615	TC-022_Install Fireproofing Lvl 5 - Area B	5	5	0%	26-Jun-25	02-Jul-25
CTR1805	BP-05_MEP OH. R.I. Lvl 5 - Area B	30	30	0%	12-Dec-25	26-Jan-26
CTR1825	BP-05_Framing & In-wall Lvl 5 - Area B	20	20	0%	06-Jan-26	02-Feb-26
CTR1830	BP-05_Finishes Lvl 5 - Area B	40	40	0%	24-Mar-26	18-May-26
CTR2415	TCCO_Punch Lvl 5 - Area B	10	10	0%	24-Jun-26	08-Jul-26
CTR1845	BP-05_Finishes Elevator Core(s) Lvl 5 Area B	15	15	0%	16-Jul-26	05-Aug-26
CTR2810	BP-05_Commission Lvl 5 - Area B	2	2	0%	04-Aug-26	05-Aug-26
CTR2630	BP-05_Punch Elevator Core(s) Lvl 5 - Area B	5	5	0%	06-Aug-26	12-Aug-26
Level 6		299	299		16-Jul-25	17-Sep-26
CTR1860	BP-05_Hangers & Top Track Lvl 6 - Area B	5	5	0%	16-Jul-25	22-Jul-25
A630	TC-022_Install Fireproofing Lvl 6 - Area B	5	5	0%	23-Jul-25	29-Jul-25
CTR1875	BP-05_MEP OH. R.I. Lvl 6 - Area B	30	30	0%	10-Feb-26	23-Mar-26
CTR1895	BP-05_Framing & In-wall Lvl 6 - Area B	20	20	0%	03-Mar-26	30-Mar-26
CTR1900	BP-05_Finishes Lvl 6 - Area B	40	40	0%	01-Apr-26	27-May-26
CTR2640	BP-05_Finishes Elevator Core(s) Lvl 6 Area B	15	15	0%	24-Jul-26	13-Aug-26
CTR2820	BP-05_Commission Lvl 6 - Area B	2	2	0%	12-Aug-26	13-Aug-26
CTR2430	TCCO_Punch Lvl 6 - Area B	10	10	0%	13-Aug-26	26-Aug-26
CTR2650	BP-05_Punch Elevator Core(s) Lvl 6 Area B	5	5	0%	11-Sep-26	17-Sep-26
Level 7		326	326		23-Jul-25	02-Nov-26
CTR1930	BP-05_Hangers & Top Track Lvl 7 - Area B	5	5	0%	23-Jul-25	29-Jul-25
A645	TC-022_Install Fireproofing Lvl 7 - Area B	5	5	0%	30-Jul-25	05-Aug-25
CTR1945	BP-05_MEP OH. R.I. Lvl 7 - Area B	30	30	0%	07-Apr-26	18-May-26
CTR1965	BP-05_Framing & In-wall Lvl 7 - Area B	20	20	0%	28-Apr-26	26-May-26
CTR1970	BP-05_Finishes Lvl 7 - Area B	40	40	0%	27-May-26	22-Jul-26
CTR2660	BP-05_Finishes Elevator Core(s) Lvl 7 Area B	15	15	0%	21-Sep-26	09-Oct-26
CTR2445	TCCO_Punch Lvl 7 - Area B	10	10	0%	25-Sep-26	08-Oct-26
CTR2830	BP-05_Commission Lvl 7 - Area B	2	2	0%	08-Oct-26	09-Oct-26
CTR2670	BP-05_Punch Elevator Core(s) Lvl 7 Area B	5	5	0%	27-Oct-26	02-Nov-26

Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
Level 8		324	324		30-Jul-25	05-Nov-26
CTR2010	BP-05_Hangers & Top Track Lvl 8 - Area B	5	5	0%	30-Jul-25	05-Aug-25
A670	TC-022_Install Fireproofing Lvl 8 - Area B	5	5	0%	06-Aug-25	12-Aug-25
CTR2040	BP-05_MEP OH. R.I. Lvl 8 - Area B	30	30	0%	03-Jun-26	15-Jul-26
CTR2080	BP-05_Framing & In-wall Lvl 8 - Area B	25	25	0%	24-Jun-26	29-Jul-26
CTR2090	BP-05_Finishes Lvl 8 - Area B	40	40	0%	30-Jul-26	24-Sep-26
CTR2320	TCCO_Punch Lvl 8 - Area B	10	10	0%	25-Sep-26	08-Oct-26
CTR2680	BP-05_Finishes Elevator Core(s) Lvl 8 Area B	15	15	0%	09-Oct-26	29-Oct-26
CTR2840	BP-05_Commission Lvl 8 - Area B	5	5	0%	23-Oct-26	29-Oct-26
CTR2690	BP-05_Punch Elevator Core(s) Lvl 8 Area B	5	5	0%	30-Oct-26	05-Nov-26
Level 9		334	334		06-Aug-25	30-Nov-26
CTR2140	BP-05_Hangers & Top Track Lvl 9 - Area B	5	5	0%	06-Aug-25	12-Aug-25
A700	TC-022_Install Fireproofing Lvl 9 - Area B	5	5	0%	13-Aug-25	19-Aug-25
CTR2160	BP-05_MEP OH. R.I. Lvl 9 - Area B	20	20	0%	30-Jul-26	26-Aug-26
CTR2190	BP-05_Framing & In-wall Lvl 9 - Area B	20	20	0%	20-Aug-26	17-Sep-26
CTR2200	BP-05_Finishes Lvl 9 - Area B	20	20	0%	18-Sep-26	15-Oct-26
CTR2335	TCCO_Punch Lvl 9 - Area B	10	10	0%	16-Oct-26	29-Oct-26
CTR2700	BP-05_Finishes Elevator Core(s) Lvl 9 Area B	15	15	0%	30-Oct-26	19-Nov-26
CTR2850	BP-05_Commission Lvl 9 - Area B	1	1	0%	19-Nov-26	19-Nov-26
CTR2710	BP-05_Punch Elevator Core(s) Lvl 9 Area B	5	5	0%	20-Nov-26	30-Nov-26
Penthouse		309	309		13-Aug-25	29-Oct-26
CTR2220	BP-05_Hangers & Top Track Penthouse - Area B	5	5	0%	13-Aug-25	19-Aug-25
A710	TC-022_Install Fireproofing Penthouse - Area B	5	5	0%	20-Aug-25	26-Aug-25
CTR2235	BP-05_MEP OH. R.I. Penthouse - Area B	15	15	0%	20-Aug-26	10-Sep-26
CTR2245	BP-05_Framing & In-wall Penthouse - Area B	10	10	0%	11-Sep-26	24-Sep-26
CTR2250	BP-05_Finishes Penthouse - Area B	20	20	0%	25-Sep-26	22-Oct-26
CTR2345	TCCO_Punch Penthouse - Area B	5	5	0%	23-Oct-26	29-Oct-26
Interiors Area C		349	349		12-Jun-25	26-Oct-26
Basement		238	238		12-Jun-25	19-May-26
CTR2295	BP-05_Hangers & Top Track Basement - Area C	4	4	0%	12-Jun-25	17-Jun-25
CTR2300	TC-022_Install Fireproofing Basement - Area C	4	4	0%	18-Jun-25	23-Jun-25
CTR2305	BP-05_MEP OH R.I. Basement - Area C	30	30	0%	30-Oct-25	12-Dec-25
CTR2310	BP-05_Framing & In-wall Basement - Area C	25	25	0%	20-Nov-25	29-Dec-25
CTR2315	BP-05_Finishes Basement - Area C	50	50	0%	25-Feb-26	05-May-26
CTR3325	BP-05_Commission Basement - Area C	2	2	0%	04-May-26	05-May-26
CTR2475	TCCO_Punch Basement - Area C	10	10	0%	06-May-26	19-May-26
Level 1		154	154		18-Jun-25	27-Jan-26
CTR1530	BP-05_Hangers & Top Track Lvl 1 - Area C	4	4	0%	18-Jun-25	23-Jun-25
A560	TC-022_Install Fireproofing Lvl 1 - Area C	4	4	0%	24-Jun-25	27-Jun-25
CTR1540	BP-05_MEP OH. R.I. Lvl 1 - Area C	20	20	0%	22-Jul-25	18-Aug-25
CTR1550	BP-05_Framing & In-wall Lvl 1 - Area C	20	20	0%	27-Aug-25	24-Sep-25
CTR1560	BP-05_Finishes Lvl 1 - Area C	40	40	0%	13-Nov-25	13-Jan-26
CTR2860	BP-05_Commission Lvl 1 - Area C	1	1	0%	13-Jan-26	13-Jan-26
CTR2360	TCCO_Punch Lvl 1 - Area C	10	10	0%	14-Jan-26	27-Jan-26
Level 2		180	180		24-Jun-25	10-Mar-26



Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
CTR1595	BP-05_Hangers & Top Track Lvl 2 - Area C	4	4	0%	24-Jun-25	27-Jun-25
A575	TC-022_Install Fireproofing Lvl 2 - Area C	4	4	0%	30-Jun-25	03-Jul-25
CTR1615	BP-05_MEP OH. R.I. Lvl 2 - Area C	20	20	0%	17-Sep-25	14-Oct-25
CTR1620	BP-05_Framing & In-wall Lvl 2 - Area C	20	20	0%	15-Oct-25	11-Nov-25
CTR1630	BP-05_Finishes Lvl 2 - Area C	40	40	0%	15-Dec-25	10-Feb-26
CTR2025	BP-05_Commission Lvl 1 - Area C	5	5	0%	04-Feb-26	10-Feb-26
CTR2375	TCCO_Punch Lvl 2 - Area C	10	10	0%	25-Feb-26	10-Mar-26
Level 3		206	206		30-Jun-25	21-Apr-26
CTR1655	BP-05_Hangers & Top Track Lvl 3 - Area C	4	4	0%	30-Jun-25	03-Jul-25
A590	TC-022_Install Fireproofing Lvl 3 - Area C	4	4	0%	07-Jul-25	10-Jul-25
CTR1685	BP-05_MEP OH. R.I. Lvl 3 - Area C	20	20	0%	12-Nov-25	11-Dec-25
CTR1690	BP-05_Framing & In-wall Lvl 3 - Area C	20	20	0%	05-Dec-25	05-Jan-26
CTR1700	BP-05_Finishes Lvl 3 - Area C	40	40	0%	11-Feb-26	07-Apr-26
CTR2035	BP-05_Commission Lvl 3 - Area C	1	1	0%	07-Apr-26	07-Apr-26
CTR2390	TCCO_Punch Lvl 3 - Area C	10	10	0%	08-Apr-26	21-Apr-26
Level 4		236	236		07-Jul-25	09-Jun-26
CTR1725	BP-05_Hangers & Top Track Lvl 4 - Area C	4	4	0%	07-Jul-25	10-Jul-25
A605	TC-022_Install Fireproofing Lvl 4 - Area C	4	4	0%	11-Jul-25	16-Jul-25
CTR1750	BP-05_MEP OH. R.I. Lvl 4 - Area C	20	20	0%	13-Jan-26	09-Feb-26
CTR1765	BP-05_Framing & In-wall Lvl 4 - Area C	20	20	0%	03-Feb-26	02-Mar-26
CTR1770	BP-05_Finishes Lvl 4 - Area C	40	40	0%	31-Mar-26	26-May-26
CTR2045	BP-05_Commission Lvl 4 - Area C	1	1	0%	26-May-26	26-May-26
CTR2405	TCCO_Punch Lvl 4 - Area C	10	10	0%	27-May-26	09-Jun-26
Level 5		266	266		14-Jul-25	29-Jul-26
CTR1795	BP-05_Hangers & Top Track Lvl 5 - Area C	4	4	0%	14-Jul-25	17-Jul-25
A620	TC-022_Install Fireproofing Lvl 5 - Area C	4	4	0%	18-Jul-25	23-Jul-25
CTR1820	BP-05_MEP OH. R.I. Lvl 5 - Area C	20	20	0%	13-Jan-26	09-Feb-26
CTR1835	BP-05_Framing & In-wall Lvl 5 - Area C	20	20	0%	03-Feb-26	02-Mar-26
CTR1840	BP-05_Finishes Lvl 5 - Area C	40	40	0%	19-May-26	15-Jul-26
CTR2055	BP-05_Commission Lvl 5 - Area C	1	1	0%	15-Jul-26	15-Jul-26
CTR2420	TCCO_Punch Lvl 5 - Area C	10	10	0%	16-Jul-26	29-Jul-26
Level 6		291	291		21-Jul-25	10-Sep-26
CTR1865	BP-05_Hangers & Top Track Lvl 6 - Area C	4	4	0%	21-Jul-25	24-Jul-25
A635	TC-022_Install Fireproofing Lvl 6 - Area C	4	4	0%	30-Jul-25	04-Aug-25
CTR1890	BP-05_MEP OH. R.I. Lvl 6 - Area C	20	20	0%	10-Mar-26	06-Apr-26
CTR1905	BP-05_Framing & In-wall Lvl 6 - Area C	20	20	0%	31-Mar-26	27-Apr-26
CTR1910	BP-05_Finishes Lvl 6 - Area C	40	40	0%	28-May-26	23-Jul-26
CTR2065	BP-05_Commission Lvl 6 - Area C	1	1	0%	23-Jul-26	23-Jul-26
CTR2435	TCCO_Punch Lvl 6 - Area C	10	10	0%	27-Aug-26	10-Sep-26
Level 7		319	319		25-Jul-25	26-Oct-26
CTR1935	BP-05_Hangers & Top Track Lvl 7 - Area C	4	4	0%	25-Jul-25	30-Jul-25
A650	TC-022_Install Fireproofing Lvl 7 - Area C	4	4	0%	06-Aug-25	11-Aug-25
CTR1960	BP-05_MEP OH. R.I. Lvl 7 - Area C	20	20	0%	05-May-26	02-Jun-26
CTR1975	BP-05_Framing & In-wall Lvl 7 - Area C	20	20	0%	27-May-26	23-Jun-26
CTR1980	BP-05_Finishes Lvl 7 - Area C	41	41	0%	23-Jul-26	18-Sep-26

Activity ID	Activity Name	Orig Dur	Rem Dur	% Compl	Start	Finish
CTR2075	BP-05_Commission Lvl 7 - Area C	1	1	0%	18-Sep-26	18-Sep-26
CTR2450	TCCO_Punch Lvl 7 - Area C	12	12	0%	09-Oct-26	26-Oct-26
Level 8		312	312		01-Aug-25	22-Oct-26
CTR2020	BP-05_Hangers & Top Track Lvl 8 - Area C	4	4	0%	01-Aug-25	06-Aug-25
A680	TC-022_Install Fireproofing Lvl 8 - Area C	4	4	0%	13-Aug-25	18-Aug-25
CTR2070	BP-05_MEP OH. R.I. Lvl 8 - Area C	20	20	0%	01-Jul-26	29-Jul-26
CTR2100	BP-05_Framing & In-wall Lvl 8 - Area C	20	20	0%	30-Jul-26	26-Aug-26
CTR2110	BP-05_Finishes Lvl 8 - Area C	20	20	0%	11-Sep-26	08-Oct-26
CTR2870	BP-05_Commission Lvl 8 - Area C	6	6	0%	01-Oct-26	08-Oct-26
CTR2325	TCCO_Punch Lvl 8 - Area C	10	10	0%	09-Oct-26	22-Oct-26
HARDSCAPE/LANDSCAPE		99	99		04-Mar-26	22-Jul-26
North		50	50		04-Mar-26	12-May-26
A200	BP-07_Construct Landscape/Hardscape North	50	50	0%	04-Mar-26	12-May-26
South		49	49		13-May-26	22-Jul-26
A210	BP-07_Construct Landscape/Hardscape South	49	49	0%	13-May-26	22-Jul-26
Loading Dock		102	102		28-Aug-25	23-Jan-26
A1360	BP-07_Loading Dock Foundations and CMU Walls	30	30	0%	28-Aug-25	09-Oct-25
A1370	BP-07_Install and Checkout Generator & ATS	10	10	0%	21-Nov-25	08-Dec-25
A1380	BP-07_Complete Remaining Loading Dock Work	30	30	0%	09-Dec-25	21-Jan-26
A1390	BP-07_Punch Loading Dock	2	2	0%	22-Jan-26	23-Jan-26
Garden Level		30	30		01-Apr-26	12-May-26
A1400	BP-07_Install Garden Level Foundations and Retaining Walls	30	30	0%	01-Apr-26	12-May-26
TURNOVER		20	20		30-Nov-26	29-Dec-26
MS150	**SUBSTANTIAL COMPLETION**	0	0	0%		30-Nov-26*
MS160	FINAL Completion	0	0	0%		29-Dec-26



FOR THE PROJECT TITLED:

Health Education Building
UK Project No. 2564 BP-05
JRA Project No. 202170
University of Kentucky
Lexington, Kentucky

To: Prospective Bidders

From: JRA Architects
301 East Vine Street
Lexington, KY 40507

Project Contact: D. Robert Deal, AIA, LEED AP
P. Matthew DeLuca, AIA

The Addendum will form a part of the Contract Documents and modifies the original Bidding Documents dated December 2024.

Bidders must acknowledge receipt of this Addendum in the space provided on the Form of Proposal. Failure to do so may subject the bidder to disqualification.

Bidding Documents, including the Drawings and Specifications, are amended as described herein.

ADDENDUM ITEMS:

ARCHITECTURAL

ITEM NO. 3.01
Refer to revised sheets A-147A – SEVENTH FLOOR REFLECTED CEILING PLAN – AREA A and A-148A – EIGHTH FLOOR REFLECTED CEILING PLAN – AREA A. The ceilings in the clouded areas have been lowered in order to align with the horizontal curtain wall mullions established in a previous bid package.

ITEM NO. 3.02
Refer to revised sheet A-377A – ENLARGED STAIR A SECTIONS. Clouded dimensions have been revised to match conditions established by the reflected ceiling plans.

ITEM NO. 3.03
Refer to revised specification 095426 – SUSPENDED WOOD CEILINGS. The requirements of material WPC-02 were changed to reflect that the basis-of-design product is a solid wood, not a veneered, product. The revisions also add the following manufacturer(s) as acceptable substitutes for WPC-02:

- CertainTeed/Saint Gobain

SAFETY & SECURITY

ITEM NO. 3.04
Refer to attached missing specification from Vol. II of the project manual:

- 280501 – GENERAL SAFETY & SECURITY
- 281643 – PERIMETER SECURITY SAFETY
- 282300 – VIDEO SURVEILLANCE
- 283100 – FIRE ALARM

ATTACHMENTS:

- A-147A
- A-148A
- A-377A
- Specification 095426
- Specification 280501
- Specification 281643
- Specification 282300
- Specification 283100

END OF ADDENDUM NO. 3.0

A REFLECTED CEILING PLAN - SEVENTH FLOOR - AREA A
1/8" = 1'-0"

RATED WALL LEGEND

	NON-RATED SMOKE PARTITION
	1 - HOUR FIRE BARRIER
	2 - HOUR FIRE BARRIER

KEY PLAN

CEILING TYPES

TYPE	DESCRIPTION
APC-01	2' x 2' ACOUSTICAL PANEL SYSTEM (09 5113)
APC-02	2' X 2' ACOUSTICAL PANEL SYSTEM - CONCEALED GRID (09 5113)
APC-03	2' x 2' ACOUSTICAL PANEL SYSTEM - HUMIDITY RESISTANT (09 5113)
APC-04	2' x 2' ACOUSTICAL PANEL SYSTEM - HEALTH (09 5113)
APC-05	2' x 2' ACOUSTICAL PANEL SYSTEM - CERAMAGUARD (09 5113)
EXP.	EXPOSED STRUCTURE. REFER TO RCP FOR PAINT
GYP P-03	5/8" GYPSUM BOARD ON METAL STUDS (09 2216) - PAINT 03
GYP P-04	5/8" GYPSUM BOARD ON METAL STUDS (09 2216) - PAINT 04
GYP P-06	5/8" GYPSUM BOARD ON METAL STUDS (09 2216) - PAINT 06
GYP P-07	5/8" GYPSUM BOARD ON METAL STUDS (09 2216) - PAINT 07
GYP P-08	5/8" GYPSUM BOARD ON METAL STUDS (09 2216) - PAINT 08
GYP P-09	5/8" GYPSUM BOARD ON METAL STUDS (09 2216) - PAINT 09
GYP-01	5/8" GYPSUM BOARD ON METAL STUDS (09 2216)
GYP-02	5/8" MOLD & MOISTURE RESISTANT GYPSUM BOARD ON METAL STUDS (09 2216)
GYP-2HR	2 HR RATED HORIZONTAL ASSEMBLY
MBC-01	METAL BAFFLE CEILING (09 5000)
MPC-01	ARKTURA PERFORATED METAL PANEL CEILING - (XX XXXX)
SAC-01	SOUND ABSORBING CEILING BAFFLES (09 5113)
WPC-01	LINEAR WOOD PANEL CEILING (09 5426)
WPC-02	WOOD PANEL CEILING (09 5426)

SPECIALTIES & EQUIPMENT SCHEDULE

	DESCRIPTION	PROVIDED BY	COMMENTS
08 7100 - DOOR HARDWARE			
DH1	KNOX BOX	C.F.C.I.	
10 1100 - VISUAL DISPLAY SURFACES			
V01	MARKER BOARD (4' X 8') (WHITE)	C.F.C.I.	
V02	MARKER BOARD (4' X 8') (DARK BLUE)	C.F.C.I.	
V03	MARKER BOARD (4' X 7') (WHITE)	C.F.C.I.	
V04	MARKER BOARD (4' X 7') (DARK BLUE)	C.F.C.I.	
V06	MARKER BOARD (4' X 12') (DARK BLUE)	C.F.C.I.	
V08	MARKER BOARD (4' X 12') (WHITE)	C.F.C.I.	
V09	MARKER BOARD (4' X 4') (DARK BLUE)	C.F.C.I.	
V10	MARKER BOARD (4' X 4') (WHITE)	C.F.C.I.	
V11	MARKER BOARD (10' X 4') (DARK BLUE)	C.F.C.I.	VERTICAL
V12	MARKER BOARD (10' X 4') (DARK BLUE)	C.F.C.I.	ANGLE CUT
V13	MARKER BOARD (4' X 10') (WHITE)	C.F.C.I.	
V14	MARKER BOARD (4' X 4') (DARK BLUE)	C.F.C.I.	
V15	MARKER BOARD (4' X 6') (WHITE)	C.F.C.I.	
V16	MARKER BOARD (4' X 6') (DARK BLUE)	C.F.C.I.	
V17	MARKER BOARD (4' X 9') (DARK BLUE)	C.F.C.I.	
V18	MARKER BOARD (6' X 8') (DARK BLUE)	C.F.C.I.	
V19	MARKER BOARD (FILLER) (DARK BLUE)	C.F.C.I.	
V20	MARKER BOARD (8' X 4') (WHITE)	C.F.C.I.	VERTICAL
V21	MARKER BOARD (2' X 3') (WHITE)	C.F.C.I.	VERTICAL
10 2239 - FOLDING PANEL PARTITIONS			
FP01	FOLDING OPERABLE ACOUSTICAL PANEL PARTITION	C.F.C.I.	
FP02	VERTICAL OPERABLE ACOUSTICAL PANEL PARTITION	C.F.C.I.	
10 2600 - WALL & DOOR PROTECTION			
CG-01	CORNER GUARD - 4' ABOVE TOP OF BASE	C.F.C.I.	<varies>
CG-02	STAINLESS STEEL WALL PROTECTION - 48" HIGH	C.F.C.I.	
10 2800 - TOILET ACCESSORY			
T01	GRAB BAR SET: 36" BACK, 42" SIDE, 18" VERTICAL	C.F.C.I.	
T02	GRAB BAR SET: 42" EACH SIDE, 18" VERTICAL EACH SIDE	C.F.C.I.	
T03	GRAB BAR - L SHAPED: 27" x 36"	C.F.C.I.	
T04	GRAB BAR - L SHAPED: 18" x 36"	C.F.C.I.	
T05	DOUBLE ROLL TOILET PAPER DISPENSER	O.F.C.I.	
T06	PAPER TOWEL DISPENSER - SURFACE MOUNTED	O.F.C.I.	
T07	SANITARY NAPKIN DISPOSAL - SURFACE MOUNTED	C.F.C.I.	
T08	SANITARY NAPKIN DISPOSAL - PARTITION MOUNTED	O.F.C.I.	
T09	SOAP DISPENSER - SURFACE MOUNTED, VERTICAL	O.F.C.I.	
T10	FRAMELESS MIRROR - 18" x 30"	C.F.C.I.	
T11	ADA SHOWER SEAT	C.F.C.I.	
T12	SHOWER CURTAIN AND ROD	C.F.C.I.	
T13	COAT HOOK	C.F.C.I.	
T14	BABY CHANGING STATION	C.F.C.I.	
T15	UTILITY SHELF	C.F.C.I.	
T16	FRAMED MIRROR - 24" x 60"	C.F.C.I.	
10 4313 - DEFIBRILLATOR CABINETS			
D1	DEFIBRILLATOR CABINET	C.F.C.I.	
10 4413 - FIRE EQUIPMENT			
F1	RECESSED FIRE EXTINGUISHER CABINET	C.F.C.I.	
F2	BRACKET MOUNTED FIRE EXTINGUISHER	C.F.C.I.	
F3	STANDPIPE CABINET	C.F.C.I.	SEE MEP
10 5123 - LOCKERS			
L1	REFRIGERATOR LOCKER	O.F.C.I.	
L2	TRIPLE TIER LOCKER	C.F.C.I.	
L3	DOUBLE TIER S OR Z STYLE LOCKER	C.F.C.I.	
L4	PLASTIC-LAMINATE-CLAD SINGLE LOCKERS	C.F.C.I.	
L5	ADA CHANGING BENCH - NO BACK SUPPORT - 44"X20"	C.F.C.I.	
L6	ADA CHANGING BENCH - WITH BACK SUPPORT - 44"X20"	C.F.C.I.	
L7	DOUBLE TIER LOCKER	C.F.C.I.	
11 1319 - LOADING DOCK EQUIPMENT			
DL-1	RECESSED DOCK LEVELER	C.F.C.I.	
12 2413 - ROLLER WINDOW SHADES			
RS-1	MANUAL ROLLER SHADE (SURFACE MOUNTED)	C.F.C.I.	
RS-2	MOTORIZED ROLLER SHADE (SURFACE MOUNTED)	C.F.C.I.	
RS-3	MOTORIZED ROLLER SHADE - BLACKOUT (SURFACE MOUNTED)	C.F.C.I.	
RS-4	MOTORIZED ROLLER SHADE - CENTRALIZED CONTROL (RECESSED)	C.F.C.I.	
APPLIANCES			
A1	VENDING MACHINE	C.F.C.I.	
A2	REFRIGERATOR	C.F.C.I.	
A3	UNDER-COUNTER REFRIGERATOR	C.F.C.I.	
A4	MICROWAVE	C.F.C.I.	
A5	DISHWASHER	C.F.C.I.	
AV EQUIPMENT			
O2	WALL MOUNTED MONITOR	C.F.C.I.	
P1	PROJECTION SCREEN	C.F.C.I.	SEE MEP
EQUIPMENT			
CON-004	WALL MOUNTED MONITOR	C.F.C.I.	SEE A/V
O1	COPIER	O.F.C.I.	
O2	WALL MOUNTED MONITOR	C.F.C.I.	SEE A/V
O3	CEILING MOUNTED MONITOR	C.F.C.I.	SEE A/V
O4	WIRE SHELVING	O.F.C.I.	
O5	UK WASTE RECEPTACLE - SS MODEL 1	O.F.C.I.	
O6	E-WASTE RECEPTACLE	O.F.C.I.	
O7	UK WASTE RECEPTACLE - RESTROOM	O.F.C.I.	

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301 East Vine Street
Lexington, Kentucky 40507
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RESERVED FOR AHJ STAMP

10 S. Broadway Suite 200
St. Louis, MO 63102
314.421.2000

BP-05

MICHAEL D. RANKIN MD HEALTH EDUCATION BUILDING
UNIVERSITY OF KENTUCKY - BLDG NO. 0724
1149 UNIVERSITY DRIVE, LEXINGTON, KENTUCKY

ARCHITECTURAL

PROJECT	202170
DATE	12.16.24

REVISIONS

No.	Description	Date
10	BP-05 ADD 3	1.22.24

REFLECTED CEILING PLAN - SEVENTH FLOOR - AREA A

A-147A

RATED WALL LEGEND

- NON-RATED SMOKE PARTITION
- 1 - HOUR FIRE BARRIER
- 2 - HOUR FIRE BARRIER

KEY PLAN

CEILING TYPES

TYPE	DESCRIPTION
APC-01	2' x 2' ACOUSTICAL PANEL SYSTEM (09 5113)
APC-02	2' X 2' ACOUSTICAL PANEL SYSTEM - CONCEALED GRID (09 5113)
APC-03	2' x 2' ACOUSTICAL PANEL SYSTEM - HUMIDITY RESISTANT (09 5113)
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APC-05	2' x 2' ACOUSTICAL PANEL SYSTEM - CERAMAGUARD (09 5113)
EXP.	EXPOSED STRUCTURE. REFER TO RCP FOR PAINT
GYP P-03	5/8" GYPSUM BOARD ON METAL STUDS (09 2216) - PAINT 03
GYP P-04	5/8" GYPSUM BOARD ON METAL STUDS (09 2216) - PAINT 04
GYP P-06	5/8" GYPSUM BOARD ON METAL STUDS (09 2216) - PAINT 06
GYP P-07	5/8" GYPSUM BOARD ON METAL STUDS (09 2216) - PAINT 07
GYP P-08	5/8" GYPSUM BOARD ON METAL STUDS (09 2216) - PAINT 08
GYP P-09	5/8" GYPSUM BOARD ON METAL STUDS (09 2216) - PAINT 09
GYP-01	5/8" GYPSUM BOARD ON METAL STUDS (09 2216)
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GYP-2HR	2 HR RATED HORIZONTAL ASSEMBLY
MBC-01	METAL BAFFLE CEILING (09 9000)
MPC-01	ARKTURA PERFORATED METAL PANEL CEILING - (XX XXXX)
SAC-01	SOUND ABSORBING CEILING BAFFLES (09 5113)
WPC-01	LINEAR WOOD PANEL CEILING (09 5426)
WPC-02	WOOD PANEL CEILING (09 5426)

SPECIALTIES & EQUIPMENT SCHEDULE

	DESCRIPTION	PROVIDED BY	COMMENTS
08 7100 - DOOR HARDWARE			
DH1	KNOX BOX	C.F.C.I.	
10 1100 - VISUAL DISPLAY SURFACES			
V01	MARKER BOARD (4' X 8') (WHITE)	C.F.C.I.	
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V03	MARKER BOARD (4' X 7') (WHITE)	C.F.C.I.	
V04	MARKER BOARD (4' X 7') (DARK BLUE)	C.F.C.I.	
V06	MARKER BOARD (4' X 12') (DARK BLUE)	C.F.C.I.	
V08	MARKER BOARD (4' X 12') (WHITE)	C.F.C.I.	
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V12	MARKER BOARD (10' X 4') (DARK BLUE)	C.F.C.I.	ANGLE CUT
V13	MARKER BOARD (4' X 10') (WHITE)	C.F.C.I.	
V14	MARKER BOARD (4' X 4') (DARK BLUE)	C.F.C.I.	
V15	MARKER BOARD (4' X 6') (WHITE)	C.F.C.I.	
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10 2600 - WALL & DOOR PROTECTION			
CG-01	CORNER GUARD - 4' ABOVE TOP OF BASE	C.F.C.I.	<varies>
CG-02	STAINLESS STEEL WALL PROTECTION - 48" HIGH	C.F.C.I.	
10 2800 - TOILET ACCESSORY			
T01	GRAB BAR SET: 36" BACK, 42" SIDE, 18" VERTICAL	C.F.C.I.	
T02	GRAB BAR SET: 42" EACH SIDE, 18" VERTICAL EACH SIDE	C.F.C.I.	
T03	GRAB BAR - L SHAPED: 27" x 36"	C.F.C.I.	
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T05	DOUBLE ROLL TOILET PAPER DISPENSER	O.F.C.I.	
T06	PAPER TOWEL DISPENSER - SURFACE MOUNTED	O.F.C.I.	
T07	SANITARY NAPKIN DISPOSAL - SURFACE MOUNTED	C.F.C.I.	
T08	SANITARY NAPKIN DISPOSAL - PARTITION MOUNTED	C.F.C.I.	
T09	SOAP DISPENSER - SURFACE MOUNTED, VERTICAL	O.F.C.I.	
T10	FRAMELESS MIRROR - 18" x 30"	C.F.C.I.	
T11	ADA SHOWER SEAT	C.F.C.I.	
T12	SHOWER CURTAIN AND ROD	C.F.C.I.	
T13	COAT HOOK	C.F.C.I.	
T14	BABY CHANGING STATION	C.F.C.I.	
T15	UTILITY SHELF	C.F.C.I.	
T16	FRAMED MIRROR - 24" x 60"	C.F.C.I.	
10 4313 - DEFIBRILLATOR CABINETS			
D1	DEFIBRILLATOR CABINET	C.F.C.I.	
10 4413 - FIRE EQUIPMENT			
F1	RECESSED FIRE EXTINGUISHER CABINET	C.F.C.I.	
F2	BRACKET MOUNTED FIRE EXTINGUISHER	C.F.C.I.	
F3	STANDPIPE CABINET	C.F.C.I.	SEE MEP
10 5123 - LOCKERS			
L1	REFRIGERATOR LOCKER	O.F.O.I.	
L2	TRIPLE TIER LOCKER	C.F.C.I.	
L3	DOUBLE TIER S OR Z STYLE LOCKER	C.F.C.I.	
L4	PLASTIC-LAMINATE-CLAD SINGLE LOCKERS	C.F.C.I.	
L5	ADA CHANGING BENCH - NO BACK SUPPORT - 44"X20"	C.F.C.I.	
L6	ADA CHANGING BENCH - WITH BACK SUPPORT - 44"X20"	C.F.C.I.	
L7	DOUBLE TIER LOCKER	C.F.C.I.	
11 1319 - LOADING DOCK EQUIPMENT			
DL-1	RECESSED DOCK LEVELER	C.F.C.I.	
12 2413 - ROLLER WINDOW SHADES			
RS-1	MANUAL ROLLER SHADE (SURFACE MOUNTED)	C.F.C.I.	
RS-2	MOTORIZED ROLLER SHADE (SURFACE MOUNTED)	C.F.C.I.	
RS-3	MOTORIZED ROLLER SHADE - BLACKOUT (SURFACE MOUNTED)	C.F.C.I.	
RS-4	MOTORIZED ROLLER SHADE - CENTRALIZED CONTROL (RECESSED)	C.F.C.I.	
APPLIANCES			
A1	VENDING MACHINE	C.F.C.I.	
A2	REFRIGERATOR	C.F.C.I.	
A3	UNDER-COUNTER REFRIGERATOR	C.F.C.I.	
A4	MICROWAVE	C.F.C.I.	
A5	DISHWASHER	C.F.C.I.	
AV EQUIPMENT			
O2	WALL MOUNTED MONITOR	C.F.C.I.	
P1	PROJECTION SCREEN	C.F.C.I.	SEE MEP
EQUIPMENT			
CON-004	WALL MOUNTED MONITOR	C.F.C.I.	SEE A/V
O1	COPIER	O.F.O.I.	
O2	WALL MOUNTED MONITOR	C.F.C.I.	SEE A/V
O3	CEILING MOUNTED MONITOR	C.F.C.I.	SEE A/V
O4	WIRE SHELVING	O.F.O.I.	
O5	UK WASTE RECEPTACLE - SS MODEL 1	O.F.O.I.	
O6	E-WASTE RECEPTACLE	O.F.O.I.	
O7	UK WASTE RECEPTACLE - RESTROOM	O.F.O.I.	

A REFLECTED CEILING PLAN - EIGHTH FLOOR - AREA A

1/8" = 1'-0"

JRA architects
301 East Vine Street
Lexington, Kentucky 40507
859.252.6781

JRA, INC. REGISTERED NO. 5964-5449 5463-5449 COMMONWEALTH OF KENTUCKY ARCHITECTS

RESERVED FOR AHJ STAMP

HOK
10 S. Broadway Suite 200
St. Louis, MO 63102
314.421.2000

BP-05

MICHAEL D. RANKIN MD HEALTH EDUCATION BUILDING
UNIVERSITY OF KENTUCKY - BLDG NO. 0724
1149 UNIVERSITY DRIVE, LEXINGTON, KENTUCKY

ARCHITECTURAL

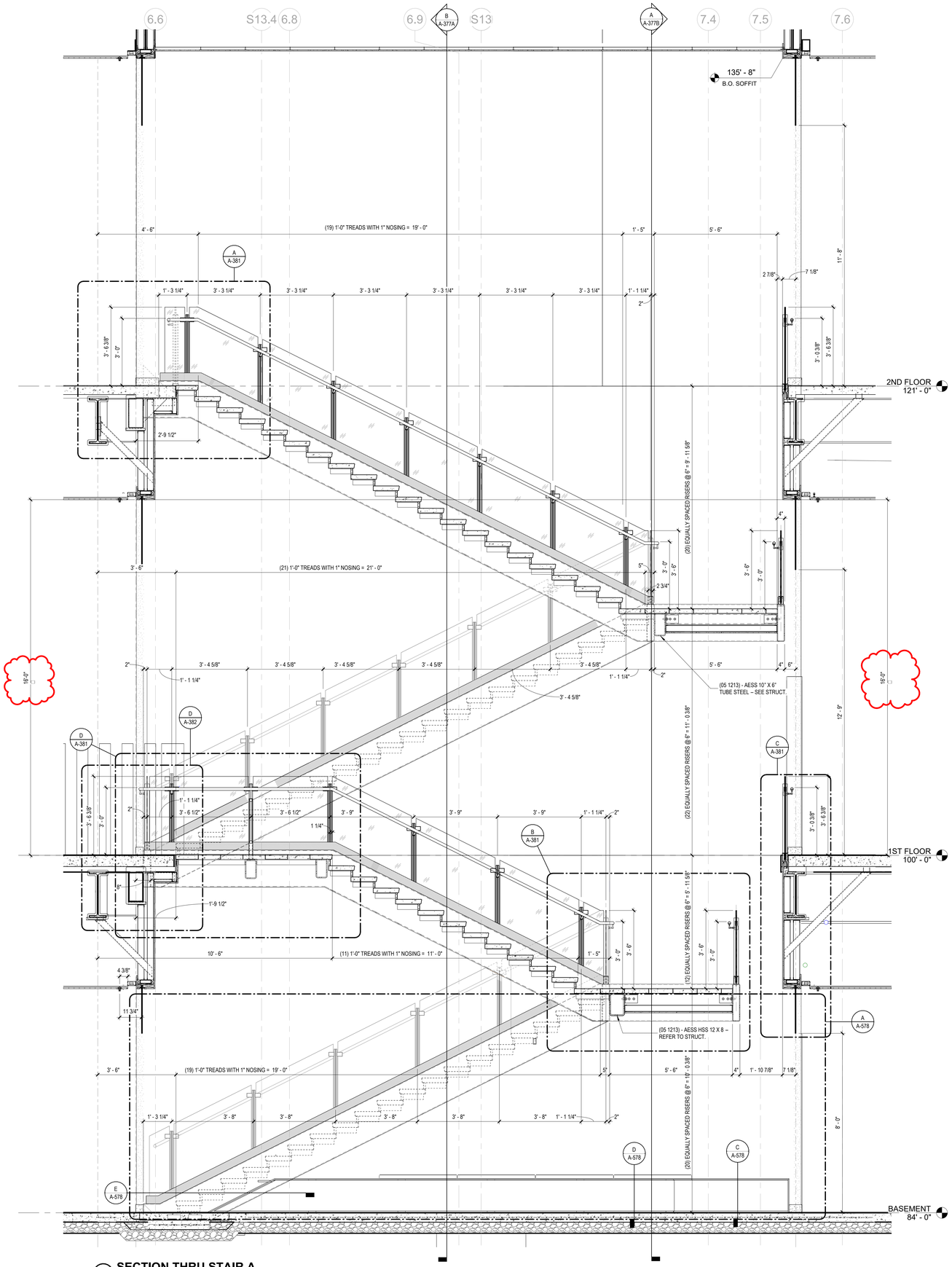
PROJECT	202170
DATE	12.16.24

REVISIONS

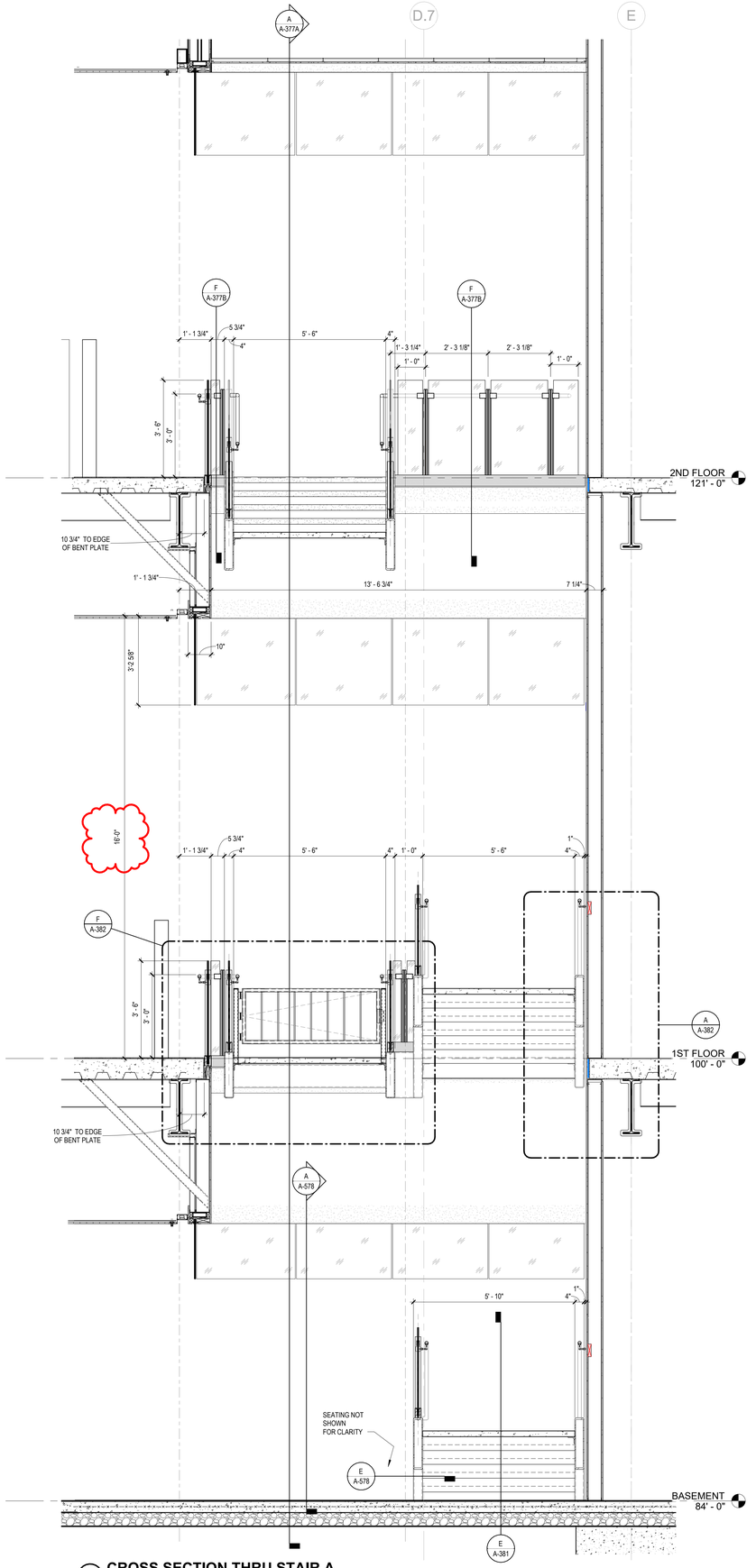
No.	Description	Date
10	BP-05 ADD 3	1.22.24

REFLECTED CEILING PLAN - EIGHTH FLOOR - AREA A

A-148A



A SECTION THRU STAIR A
1/2" = 1'-0"



B CROSS SECTION THRU STAIR A
1/2" = 1'-0"

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BP-05

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UNIVERSITY OF KENTUCKY - BLDG NO. 0724
1149 UNIVERSITY DRIVE, LEXINGTON, KENTUCKY

ARCHITECTURAL

PROJECT	202170
DATE	12.16.24

REVISIONS

No.	Description	Date
10	BP-05 ADD 3	1.22.24

ENLARGED STAIR A SECTIONS

A-377A

SECTION 09 5426 - SUSPENDED WOOD CEILINGS

PART 1 - GENERAL

1.1 SUMMARY

A. Section Includes:

1. Wood-veneer, linear-panel ceilings (WPC-02).
2. Wood, linear-plank ceilings (WPC-01).

B. Related Requirements:

1. Section 017419 – “Construction Waste Management and Disposal”
2. Section 018113 – “Sustainable Design and LEED Requirements”
3. Section 018116 – “Low Emitting Materials”
4. Section 018119 – “Construction Indoor Air Quality (IAQ) Management”.

1.2 DEFINITIONS

A. NRC: Noise Reduction Coefficient.

1.3 COORDINATION

A. Coordinate layout and installation of wood ceilings and suspension systems with other construction that penetrates ceilings or is supported by them, including light fixtures, HVAC equipment, fire-suppression system, and partition assemblies.

1.4 PREINSTALLATION MEETINGS

A. Preinstallation Conference: Conduct conference at Project site.

1.5 ACTION SUBMITTALS

A. Product Data: For each type of product.

1. Wood-veneer, linear-panel ceilings.
2. Wood, linear-plank ceilings.

B. Sustainable Design Submittals:

1. Chain-of-Custody Certificates: For certified wood products. Include statement of costs.
2. Chain-of-Custody Qualification Data: For manufacturer and vendor.
3. Product Data: For adhesives, indicating VOC content.
4. Laboratory Test Reports: For adhesives, indicating compliance with requirements for low-emitting materials.
5. Laboratory Test Reports: For composite wood products, indicating compliance with

requirements for low-emitting materials.

C. LEED Submittals:

1. Building Product Disclosure Credit Documentation.

a. Environmental Product Declarations
b. Embodied Carbon/LCA Optimization Documentation
c. Sourcing of Raw Materials Documentation.

1) Provide statement of Material Cost for each product.

d. Material Ingredient and Optimization Reports

2. Low-Emitting Materials Credit Documentation for materials internal to weatherproofing envelope.

a. VOC Content for paints, coatings, adhesives and sealants wet-applied on site

1) Provide volume used in Liters

b. Emissions Evaluation or USGBC-approved Third-Party Certifications and Labels for Low-Emitting Product Categories

1) Provide statement of Material Cost for each product.

D. Shop Drawings: For suspended wood ceilings.

1. Include reflected ceiling plans, sections, and details, drawn to scale, showing the following:

a. Wood ceiling patterns and joints.
b. Ceiling suspension members.
c. Method of attaching hangers to building structure and locations of cast-in-place anchors, clips, and other ceiling attachment devices whose installation is specified in other Sections.
d. Ceiling-mounted items including, but not limited to, light fixtures, diffusers, grilles, speakers, sprinklers, and access panels.
e. Ceiling perimeter and penetrations through ceiling; trim and moldings.

E. Samples for Initial Selection: For units with factory-applied colors and finishes.

1. Include Samples of accessories involving color and finish selections.

F. Samples for Verification: For the following products:

1. Wood Ceilings: 12-inch- long by 12-inch- wide or full-width Samples of each type, color, and finish.
2. Suspension-System Members: 12-inch- long Sample of each type.
3. Exposed Molding and Trim: 12-inch- long Samples of each type, color, and finish.
4. Veneer Edge Banding: Applied to a cut end of a wood-ceiling Sample for each type, color, and finish.
5. Filler Strips: 12-inch- long Samples of each type, color, and finish.
6. Sound Absorbers: 12 inches long by full width.

1.6 INFORMATIONAL SUBMITTALS

A. Product Test Reports: For each suspended wood ceiling, for tests performed by a qualified testing agency.

B. Evaluation Reports: For suspended-wood-ceiling framing systems.

1.7 CLOSEOUT SUBMITTALS

A. Maintenance Data: For finishes to include in maintenance manuals.

1.8 QUALITY ASSURANCE

A. Mockups: Build mockups to verify selections made under Sample submittals and to demonstrate aesthetic effects and to set quality standards for materials and execution.

1. Build mockup of each type of suspended wood ceiling as shown on Drawings.

a. Demonstrate treatment of exposed field cuts.

2. Approval of mockups does not constitute approval of deviations from the Contract Documents contained in mockups unless Architect specifically approves such deviations in writing.
3. Subject to compliance with requirements, approved mockups may become part of the completed Work if undisturbed at time of Substantial Completion.

B. Certified Wood: Provide an invoice including vendor's chain-of-custody number, product cost, and entity being invoiced.

C. Vendor Qualifications: A vendor that is certified for chain of custody by an FSC-accredited certification body.

1.9 DELIVERY, STORAGE, AND HANDLING

A. Deliver ceiling components and accessories to Project site in original, unopened packages and store them in a fully enclosed, conditioned space where they are protected against damage from moisture, humidity, temperature extremes, direct sunlight, surface contamination, and other causes.

1. Store materials flat and level, raised from the floor.

B. Handle ceiling components and accessories in a manner that prevents damage.

1.10 PROJECT CONDITIONS

A. Environmental Limitations: Do not install interior ceilings until spaces are enclosed and weathertight, wet-work in spaces is complete and dry, work above ceilings is complete, and HVAC system is operating and maintaining temperature and relative humidity at levels planned

for building occupants during the remainder of the construction period.

1. Store and acclimatize wood products in the spaces where they will be installed for a minimum of 72 hours immediately before ceiling installation.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Structural Performance: Exterior suspended wood ceilings to withstand exterior exposure, the effects of gravity loads, and the following loads and stresses without showing permanent deformation of ceiling system components or permanent damage to fasteners and anchors:

1. Wind Load: Uniform pressure indicated on Drawings, acting inward or outward.

B. Certified Wood: Wood products shall be certified as "FSC Pure" or "FSC Mixed Credit" according to FSC STD-01-001 and FSC STD-40-004.

C. Forest Stewardship Certification: Provide wood products obtained from forests certified by an FSC-accredited certification body to comply with FSC 1.2, "Principles and Criteria."

D. Adhesives: Use adhesives that meet the testing and product requirements of the California Department of Public Health's "Standard Method for the Testing and Evaluation of Volatile Organic Chemical Emissions from Indoor Sources Using Environmental Chambers."

E. Composite Wood Products: Products shall be made using ultra-low-emitting formaldehyde resins as defined in the California Air Resources Board's "Airborne Toxic Control Measure to Reduce Formaldehyde Emissions from Composite Wood Products" or shall be made with no added formaldehyde.

F. Recycled Content of Composite-Wood Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 50 percent.

G. Recycled Content of Steel Products: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 25 percent.

H. Low-emitting Requirements – General: For Paints and Coatings, Adhesives and Sealants, Flooring, Ceiling, Wall Panels, and Insulation products internal to the weatherproofing envelope.

1. VOC Emissions Evaluation: Product must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.2–2017, using the applicable exposure scenario or comply with USGBC-approved Third-Party Certifications and Labels.
2. VOC Content Requirements for Wet Applied Products: All paints and coatings wet-applied on site must meet the applicable VOC limits of the California Air Resources Board (CARB) 2007, Suggested Control Measure (SCM) for Architectural Coatings, or the South Coast Air Quality Management District (SCAQMD) Rule 1113, effective February 5, 2016.
3. Methylene chloride and perchloroethylene shall not be intentionally added in paints, coatings, adhesives, or sealants.
4. VOC Content Requirements for Wet Applied Products: All adhesives and sealants wet-applied on site must meet the applicable chemical content requirements of SCAQMD

Rule 1168, amended October 26, 2017, Adhesive and Sealant Applications, as analyzed by the methods specified in Rule 1168.

5. Methylene chloride and perchloroethylene shall not be intentionally added in paints, coatings, adhesives, or sealants.
6. Do not use adhesives that contain urea formaldehyde.
7. Free of Formaldehyde: Insulation manufactured with 100 percent acrylic binders and no formaldehyde.

I. Low-emitting Requirements – Composite Wood: For composite wood products internal to the weatherproofing envelope provide products that meet UGBSC approved formaldehyde emissions evaluation.

2.2 WOOD-VENEER, LINEAR-PANEL CEILINGS

A. Wood-Veneer Linear Ceiling Panels (WPC-02): Manufacturer's standard linear panels fabricated from planks consisting of wood veneer adhered to backs and exposed surfaces ofmanufacturer's standard composite-wood cores. Planks run parallel to panel length.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Armstrong World Industries, Inc., WOODWORKS Concealed or comparable product by one of the following:

    a. Armstrong World Industries, Inc
    b. 9Wood
    c. USG

2. Surface-Burning Characteristics: Provide products with the following characteristics when tested in accordance with ASTM E84:

    a. Flame-Spread Index: 25 or less.
    b. Smoke-Developed Index: 50 or less.

3. Veneer Face Grade: Manufacturer's standard.
4. Veneer Species: As indicated on the Drawings.
5. Veneer Cut: Plain sliced (flat cut).
6. Plank Edges: Square.
7. Reveal/Plank Spacing: 1/4 inch between long edges of planks.
8. Panel Module: 24 by 96 by 3/4 inches.
9. Panel Attachment: Provide manufacturer's standard attachment hooks or clips for attaching panels to grid suspension system, spaced to support ceiling loads and in accordance with manufacturer's written installation instruction.
10. Veneer Adhesive: Manufacturer's standard that complies with "Performance Requirements" Article.
11. Factory Finish: Manufacturer's standard finish; applied on every wood surface.

    a. Plank Finish: Clear.
    b. Plank Stain: Match Architect's control sample, as indicated on the Drawings.
    c. Plank Gloss: Satin.

B. Linear-Ceiling-Panel Accessories: Linear-ceiling-panel manufacturer's accessories required to provide a complete installation of ceiling in accordance with manufacturer's written installation instructions.

1. Safety Cables: 24 inches.
2. Panel Splice Plates: Manufacturer's standard.
3. Veneer Edge Banding: Manufacturer's standard matching planks for treating cut edges; with pressure-sensitive adhesive backing.
4. Trim: As indicated on Drawings; with trim connectors recommended in writing by ceiling and suspension-system manufacturers.

C. Grid Suspension System: ASTM C635/C635M; recommended in writing by ceiling and suspension-system manufacturers for applications indicated; main- and cross-runner system complete with suspension-system components required to support ceiling units and other ceiling-supported construction.

1. Material: ASTM A653/A653M, hot-dip galvanized, cold-rolled sheet steel, G60 coating designation.
2. Structural Classification: Heavy-duty system.
3. Face Width: 15/16 inch
4. Finish: Flat black.

2.3 WOOD LINEAR-PLANK CEILINGS

A. Wood Linear Ceiling Planks (WPC-01): Manufacturer's standard planks consisting of solid wood planks; with square-cut ends.

1. Basis-of-Design Product: Subject to compliance with requirements, provide Armstrong World Industries, Inc., WOODWORKS Linear Tegular (6733F51L4T5) or comparable product by one of the following:

   a. Armstrong World Industries, Inc
   b. USG

2. Surface-Burning Characteristics: Provide products with the following characteristics when tested in accordance with ASTM E84:

   a. Flame-Spread Index: 25 or less.
   b. Smoke-Developed Index: 50 or less.

3. Face Grade: Manufacturer's standard.
4. Species: Manufacturer’s standard.
5. Cut: Plain sliced (flat cut).
6. Nominal Plank Width: 1 1/2 inches.
7. Plank Depth: 1/2 inch.
8. Plank Length: 48 inches.
9. Plank Long Edge: Rectangular.

   a. Reveal/Plank Spacing: 10 Horizontal slats per module.

10. Factory Finish: Manufacturer's standard finish; applied on every wood surface.

    a. Type: Clear.
    b. Stain: Matching Architect's control sample. Refer to the Drawings.
    c. Gloss: Satin.

B. Linear-Ceiling-Plank Accessories: Linear-ceiling-plank manufacturer's accessories required to provide a complete installation of ceiling in accordance with manufacturer's written installation

instructions.

1. Attachment Clips: Manufacturer's standard metal clips for attaching planks to suspension system.
2. Plank Leveling Splines: Manufacturer's standard for aligning ends of planks.
3. Plank Splice Plates: Manufacturer's standard.
4. Veneer Edge Banding: Manufacturer's standard matching planks for treating cut edges; with pressure-sensitive adhesive backing.
5. Trim: As indicated on Drawings; with trim connectors recommended in writing by ceiling and suspension-system manufacturers.

C. Grid Suspension System: Basis-of-Design Product: Subject to compliance with requirements, provide Armstrong PRELUDE XL HRC

1. Metal Suspension-System Standard: Provide manufacturer's standard, direct-hung, metal suspension system and accessories in accordance with ASTM C635/C635M and designated by type, structural classification, and finish indicated.
2. Recycled Content: Postconsumer recycled content plus one-half of preconsumer recycled content not less than 60 percent.
3. Wide-Face, Capped, Double-Web, Steel Suspension System: Main and cross runners roll formed from cold-rolled steel sheet; prepainted, electrolytically zinc coated, or hot-dip galvanized, G30 coating designation; with prefinished 15/16-inch- wide metal caps on flanges.

    a. Structural Classification: Heavy-duty system.
    b. End Condition of Cross Runners: Override (stepped) type.
    c. Face Design: Flat, flush.
    d. Cap Material: Cold-rolled steel.
    e. Cap Finish: Painted black.

2.4 SUSPENSION-SYSTEM HANGERS, BRACES, AND TIES

A. Attachment Devices: Size for 5 times the design load indicated in ASTM C635/C635M, Table 1, Direct Hung, unless otherwise indicated.

1. Cast-in-Place and Postinstalled Anchors in Concrete: Anchors of type and material indicated below, with holes or loops for attaching hangers of type indicated and with capability to sustain, without failure, a load equal to 5 times that imposed by ceiling construction as determined by testing in accordance with ASTM E488/E488M or ASTM E1512, as applicable, conducted by a qualified testing and inspecting agency.

    a. Type: Postinstalled expansion anchors.
    b. Corrosion Protection:

        1) Carbon-steel components zinc plated to comply with ASTM B633, Class Fe/Zn 5 (0.005 mm) for Class SC service condition (mild).

B. Wire Hangers, Braces, and Ties: Provide wire complying with the following requirements:

1. Zinc-Coated, Carbon-Steel Wire: ASTM A641/A641M, Class 1 zinc coating, soft temper.
2. Size: Select wire diameter so its stress at 3 times the hanger design load indicated in ASTM C635/C635M, Table 1, Direct Hung is less than yield stress of wire, but provide not less than 0.106-inch- diameter wire.

C. Rods and Flat Hangers: Mild steel, zinc coated or protected with rust-inhibitive paint.

D. Angle Hangers: Angles with legs not less than 7/8 inch wide; formed from 0.04-inch- thick, galvanized-steel sheet complying with ASTM A653/A653M, G90 coating designation; with bolted connections and 5/16-inch- diameter bolts.

PART 3 - EXECUTION

3.1 EXAMINATION

A. Examine substrates, areas, and conditions, including structural framing and substrates to which suspended wood ceilings attach or abut, with Installer present, for compliance with requirements specified in this and other Sections that affect ceiling installation and anchorage, and with requirements for installation tolerances and other conditions affecting performance of suspended wood ceilings.

B. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 PREPARATION

A. Measure each ceiling area and establish layout of suspended wood ceilings.

1. Balance border widths at opposite edges of each ceiling.
2. Avoid using less-than-half-width units.

3.3 INSTALLATION OF SUSPENDED WOOD CEILINGS

A. Comply with ASTM C636/C636M and seismic requirement indicated, in accordance with manufacturer's written instructions and CISCA's "Ceiling Systems Handbook."

B. Suspend ceiling hangers from building's structural members and as follows:

1. Install hangers plumb and free from contact with insulation or other objects within ceiling plenum that are not part of supporting structure or of ceiling suspension system.
2. Splay hangers only where required to miss obstructions; offset resulting horizontal forces by bracing, countersplaying, or other equally effective means.
3. Where width of ducts and other construction within ceiling plenum produces hanger spacings that interfere with location of hangers at spacings required to support standard suspension-system members, install supplemental suspension members and hangers in form of trapezes or equivalent devices.
4. Secure wire hangers to ceiling suspension members and to supports above with a minimum of three tight turns in 3 inches. Connect hangers directly either to structures or to inserts, eye screws, or other devices that are secure and appropriate for substrate to which hangers are attached and for type of hanger involved.
5. Do not support ceilings directly from permanent metal forms or floor deck. Fasten hangers to cast-in-place hanger inserts or postinstalled mechanical or adhesive anchors that extend through forms into concrete.
6. When steel framing does not permit installation of hanger wires at spacing required, install carrying channels or other supplemental support for attachment of hanger wires.
7. Do not attach hangers to steel deck tabs.

8. Do not attach hangers to steel roof deck. Attach hangers to structural members.
9. Space hangers not more than 48 inches o.c. along each member supported directly from hangers unless otherwise indicated; provide hangers not more than 8 inches from ends of each member.
10. Size supplemental suspension members and hangers to support ceiling loads within performance limits established by referenced standards and publications.

C. Secure bracing wires to ceiling suspension members and to supports with a minimum of four tight turns in 1-1/2 inches. Suspend bracing from building's structural members as required for hangers and without attaching to permanent metal forms, steel deck, or steel deck tabs. Fasten bracing wires into concrete with cast-in-place or postinstalled anchors.

D. Install edge moldings and trim at perimeter of ceiling area and where necessary to conceal edges and ends of wood units.

1. Screw-attach metal moldings to substrate at intervals of not more than 16 inches o.c. and not more than 3 inches from ends, leveling with ceiling suspension system to a tolerance of 1/8 inch in 12 feet. Miter corners accurately and connect securely.
2. Do not use exposed fasteners on moldings and trim.

E. Grid Suspension Systems: Space main beams at 48 inches o.c.

1. Install cross tees to form modules sized in accordance with manufacturer's written installation instructions.
2. Remove and replace dented, bent, or kinked members.

F. Linear-Carrier Suspension Systems: Install carriers at no more than 24 inches o.c. aligned and securely interlocked with one another.

1. Install stabilizer channels, tees, and bars at regular intervals to stabilize carriers and at light fixtures, air-distribution equipment, access doors, and other equipment; spaced as standard with manufacturer for use indicated.
2. Remove and replace dented, bent, or kinked members.

G. Install wood components and accessories in accordance with manufacturer's written instructions and to accommodate natural expansion and contraction of wood products resulting from fluctuations in humidity.

H. Cut wood components for accurate fit at borders and at interruptions and penetrations by other work through ceilings.

1. Stiffen edges of cut wood components as required to eliminate variations in flatness.

I. Treat field-cut edges of wood components in accordance with manufacturer's written recommendations; finish exposed field cuts to match factory finish.

J. Install wood components in coordination with suspension system and moldings and trim.

1. Install wood components in patterns indicated on Drawings.

K. Install field-constructed access panels in locations indicated on Drawings.

3.4 FIELD QUALITY CONTROL

A. Testing Agency: Owner will engage a qualified testing agency to perform tests and inspections.

B. Tests and Inspections: Testing and inspecting of completed installations of ceiling hangers, anchors, and fasteners to take place in successive stages, in test areas and using methods as follows. Do not proceed with installations of ceiling hangers for the next area until test results for previously completed installations show compliance with requirements.

1. Test Areas: Test installation of ceiling suspension systems on each floor when installation has reached 20 percent completion but before wood ceilings have been installed.

a. Within each test area, testing agency will select one of every 10 power-actuated fasteners and postinstalled anchors used to attach hangers to concrete and will test them for 200 lbf of tension; it will also select one of every two postinstalled anchors used to attach bracing wires to concrete and will test them for 440 lbf of tension.
b. When testing discovers fasteners and anchors that do not comply with requirements, testing agency will test those anchors not previously tested until 20 pass consecutively and then will resume initial testing frequency.

C. Ceiling hangers, anchors, and fasteners will be considered defective if they do not pass tests and inspections.

D. Prepare test and inspection reports.

3.5 CLEANING

A. Clean exposed surfaces of ceilings, including trim and edge moldings. Comply with manufacturer's written instructions for cleaning and touchup of minor finish damage. Remove and replace ceiling components that cannot be successfully cleaned and repaired to permanently eliminate evidence of damage, including dented units.

END OF SECTION 09 5426

SECTION 28 0501 – GENERAL PROVISIONS SAFETY AND SECURITY

PART 1 - GENERAL

1.1 The Instructions to Bidders, General and Special Conditions, and all other contract documents shall apply to the Contractor's work as well as to each of his Sub Contractor's work. Each Contractor is directed to familiarize himself in detail with all documents pertinent to this Contract. In case of conflict between these General Provisions and the General and/or Special Conditions, the affected Contractor shall contact the Engineer for clarification and final determination.

1.2 Each Contractor shall be governed by any alternates, unit prices and Addenda or other contract documents insofar as they may affect his part of the work.

1.3 The work included in this division consists of the furnishing of all labor, equipment, transportation, supplies, material and appurtenances and performing all operations necessary for the satisfactory installation of complete and operating Electrical Systems indicated on the drawings and/or specified herein.

1.4 Any materials, labor, equipment or services not mentioned specifically herein which may be necessary to complete or perfect any part of the Electrical Systems in a substantial manner, in compliance with the requirements stated, implied, or intended in the drawings and specifications, shall be included as part of this Contract. The Contractor shall give written notice of any materials or apparatus believed inadequate or unsuitable; in violation of laws, ordinances, rules or regulations of authorities having jurisdiction; and any necessary items of work omitted a minimum of ten days prior to bid. In the absence of such written notice and by the act of submitting his bid, it shall be understood that the Contractor has included the cost of all required items in his bid, and that he will be responsible for the approved satisfactory functioning of the entire system without extra compensations.

1.5 It is not the intent of this section of the specifications (or the remainder of the contract documents) to make any specific Contractor, other than the Contractor holding the prime contract, responsible to the Owner, Architect and Engineer. All transactions such as submittal of shop drawings, claims for extra costs, requests for equipment or materials substitution, shall be done through the Contractor to the Architect (if applicable), then to the Engineer.

1.6 This section of the Specifications or the arrangement of the contract documents shall not be construed as an attempt to arbitrarily assign responsibility for work, material, equipment or services to a particular trade Contractor or Sub-Contractor. Unless stated otherwise, the subdivision and assignment of work under the various sections shall be the responsibility of the Contractor holding the prime contract.

1.7 It is the intent of this Contract to deliver to the Owners a "like new" project once work is complete. Although plans and specifications are complete to the extent possible, it shall be responsibility of the Contractors involved to remove and/or relocate or re-attach any existing or new systems which interfere with new equipment or materials to be installed by other trades without additional cost to the Owner.

1.8 In general, and to the extent possible, all work shall be accomplished without interruption of the existing facilities' operations. Each Contractor shall advise the Architect, Owner and Engineer in writing at least one week prior to the deliberate interruption of any services. The Owners shall be advised of the exact time that interruption will occur and the length of time the interruption will occur. Failure to comply with this requirement may result in complete work stoppage by the Contractors involved until a complete schedule of interruptions can be developed. Contractor will not be entitled to additional compensation due to work stoppage mandated by unscheduled interrup

tion.

1.9 Whenever utilities are interrupted, either deliberately or accidentally, the Contractor shall work continuously to restore said service. The Contractor shall provide tools, materials, skilled journeymen of his own and other trades as necessary, premium time as needed and coordination with all applicable utilities, including payment of utility company charges (if any), all without requests for extra compensation to the Owner, except where otherwise provided for in the contract for the work. The contractor shall abide by the requirements on the Special Conditions and the University's outage request program.

1.10 Definitions:

1.10.1 Prime Contractor - The Contractor who has been engaged by the Owner in a contractual relationship to accomplish the work.

1.10.2 Electrical Contractor - Any Contractor whether bidding or working independently or under the supervision of a General Contractor, that is: the one holding the Prime Contract and who installs any type of Electrical work, such as: power, lighting, television, telecommunications, data, fiber optic, intercom, fire detection and alarm, security, video, underground or overhead electrical, etc.

1.10.3 Electrical Sub-Contractor - Each or any Contractor contracted to, or employed by, the Electrical Contractor for any work required by the Electrical Contractor.

1.10.4 Specialty Contractor - Any Contractor whether bidding or working independently or under the supervision of a General Contractor, that is: the one holding the Prime Contract and who installs any type of Electrical work, such as: fire detection and alarm, security, etc.

1.10.5 Engineer - The Consulting Mechanical-Electrical Engineers either consulting to the Owner, Architect, other Engineers, etc.

1.10.6 Architect - The Architect of Record for the project, if any.

1.10.7 Furnish - Deliver to the site in good condition.

1.10.8 Provide - Furnish and install in complete working order.

1.10.9 Install - Install equipment furnished by others in complete working order.

1.10.10 Contract Documents - All documents pertinent to the quality and quantity of all work to be performed on the project. Includes, but not limited to: Plans, Specifications, Addenda, Instructions to Bidders, (both General and Sub-Contractors), Unit Prices, Shop Drawings, Field Orders, Change Orders, Cost Breakdowns, Construction Manager's Assignments, Architect's Supplemental Instructions, Periodical Payment Requests, etc.

1.11 Note: Any reference within these specifications to a specific entity, i.e., "Electrical Contractor" is not to be construed as an attempt to limit or define the scope of work for that entity or assign work to a specific trade or contracting entity. Such assignments of responsibility are the responsibility of the Contractor or Construction Manager holding the prime contract, unless otherwise provided herein.

PART 2 - INTENT

2.1 It is the intent of these specifications and all associated drawings that the Contractor provide finished work, tested, and ready for operation. Wherever the word "provide" is used, it shall mean "furnish and install complete and ready for use."

2.2 Minor details not usually shown or specified, but necessary for the proper installation and operation, shall be included in the work, the same as if herein specified or shown.

PART 3 - DRAWINGS AND SPECIFICATIONS

3.1 The drawings are diagrammatic only and indicate the general arrangement of the systems and are to be followed insofar as possible. If deviations from the layouts are necessitated by field conditions, detailed layouts of the proposed departures shall be submitted in writing to the Engineer for approval before proceeding with the work. The Contract Drawings are not intended to show every vertical or horizontal offset which may be necessary to complete the systems. Contractors shall, however, anticipate that additional offsets may be required and submit their bid accordingly.

3.2 The drawings and specifications are intended to supplement each other. No Contractor or supplier shall take advantage of conflict between them, or between parts of either, but should this condition exist, the Contractor or supplier shall request a clarification of the condition at least ten days prior to the submission of bids so that the condition may be clarified by Addendum. In the event that such a condition arises after work is started, the interpretation of the Engineer shall be the determining factor. In all instances, unless modified in writing and agreed upon by all parties thereto, the Contract to accomplish the work shall be binding on the affected Contractor.

3.3 The drawings and specifications shall be considered to be cooperative and complimentary and anything appearing in the specifications which may not be indicated on the drawings or conversely, shall be considered as part of the Contract and must be executed the same as though indicated by both.

3.4 This Contractor shall make all his own measurements in the field and shall be responsible for correct fitting. He shall coordinate this work with all other branches of work in such a manner as to cause a minimum of conflict or delay.

3.5 The Engineer shall reserve the right to make minor adjustments in location of conduit, fixtures, outlets, switches, etc., where he considers such adjustments desirable in the interest of concealing work or presenting a better appearance.

3.6 Each Contractor shall evaluate ceiling heights called for on Architectural Plans. Where the location of Electrical equipment may interfere with ceiling heights, the Contractor shall call this to the attention of the Engineer in writing prior to making the installation. Any such changes shall be anticipated and requested sufficiently in advance so as to not cause extra work on the part of the Contractor or unduly delay the work.

3.7 Should overlap of work between the various trades become evident, this shall be called to the attention of the Engineer. In such event neither trade shall assume that he is to be relieved of the work which is specified under his branch until instructions in writing are received from the Engineer.

3.8 The drawings are intended to show the approximate location of equipment, materials, etc. Dimensions given in figures on the drawings shall take precedence over scaled dimensions and all dimensions whether given in figures or scaled shall be verified in the field. In case of conflict between small and large scale drawings, the larger scale drawings shall take precedence.

3.9 The Specialty Contractor and his Sub Contractors shall review all drawings in detail as they may relate to his work (structural, architectural, site survey, mechanical, electrical, etc.). Review all drawings for general coordination of work, responsibilities, ceiling clearances, wall penetration points, chase access, elevations, etc. Make any pertinent coordination or apparent conflict com

ments to the Engineers at least ten days prior to bids, for issuance of clarification by written addendum.

3.10 Where on any of the drawings a portion of the work is drawn out and the remainder is indicated in outline, or not indicated at all, the parts drawn out shall apply to all other like portions of the work. Where ornament or other detail is indicated by starting only, such detail shall be continued throughout the courses or parts in which it occurs and shall also apply to all other similar parts of the work, unless otherwise indicated.

PART 4 - EXAMINATION OF SITE AND CONDITIONS

4.1 Each Contractor shall inform himself of all of the conditions under which the work is to be performed, the site of the work, the structure of the ground, the obstacles that may be encountered, the availability and location of necessary facilities and all relevant matters concerning the work. All Contractors shall carefully examine all Drawings and Specifications and inform themselves of the kind and type of materials to be used throughout the project and which may, in any way, affect the execution of his work.

4.2 Each Contractor shall fully acquaint himself with all existing conditions as to ingress and egress, distance of haul from supply points, routes for transportation of materials, facilities and services, availability of temporary or permanent utilities, etc. The Contractor shall include in his work all expenses or disbursements in connection with such matters and conditions. Each Contractor shall verify all work shown on the drawings and conditions at the site, and shall report in writing to the Engineer ten days prior to bid, any apparent omissions or discrepancies in order that clarifications may be issued by written addendum. No allowance is to be made for lack of knowledge concerning such conditions after bids are accepted.

4.3 The Specialty Contractor is required to provide coordination drawings, data and collaboration for all aspects of his work in accordance with the general and special conditions – Divisions 20, 22, 23, 26, and 28, and the Construction Manager’s procedures.

PART 5 - EQUIPMENT AND MATERIALS SUBSTITUTIONS OR DEVIATIONS

5.1 When any Contractor requests review of substitute materials and/or equipment, and when under an approved formal alternate proposal, it shall be understood and agreed that such substitution, if approved, will be made without additional cost regardless of changes in connections, spacing, service, mounting, etc. In all cases where substitutions affect other trades, the Contractor offering such substitutions shall advise all such Contractors of the change and shall reimburse them for all necessary changes in their work. Any drawings, Specifications, Diagrams, etc., required to describe and coordinate such substitutions or deviations shall be professionally prepared at the responsible Contractor's expense. Special Note: Review of Shop Drawings by the Engineer does not absolve the Contractor of this responsibility.

5.2 References in the specifications to any article, device, product, material, fixture, form, or type of construction by name, make, or catalog number shall be interpreted as establishing a standard of quality and shall not be construed as limiting competition. Each Contractor, in such cases, may, at his option, use any article, device, product, material, fixture, form, or type of construction which in the judgment of the Engineer is equivalent to that specified, provided the provisions of paragraph (A) immediately preceding are met. Substitutions shall be submitted to the Engineer a minimum of ten days prior to bid date for approval to bid in written form thru addenda or other method selected by the Engineer. If prevailing laws of cities, towns, states or countries are more stringent than these specifications regarding such substitutions, then those laws shall prevail over these requirements.

5.3 Wherever any equipment and material is specified exclusively only such items shall be used un

less substitution is accepted in writing by the engineers.

5.4 Each Contractor shall furnish along with his proposal a list of specified equipment and materials which he proposes to provide. Where several makes are mentioned in the Specifications and the Contractor fails to state which he proposes to furnish, the Engineer shall have the right to choose any of the makes mentioned without change in price.

PART 6 - SUPERVISION OF WORK

6.1 Each Contractor and Sub-Contractors shall personally supervise the work or have a competent superintendent on the project site at all times during progress of the work, with full authority to act for him in matters related to the project.

PART 7 - CODES, RULES, PERMITS, FEES, REGULATIONS, ETC.

7.1 The Contractor shall give all necessary notices, obtain and pay for all permits, government sales taxes, fees, and other costs including utility connections or extensions, in connection with his work. As necessary, he shall file all required plans, utility easement requests and drawings, survey information on line locations, load calculations, etc., prepare all documents and obtain all necessary approvals of all utility and governmental departments having jurisdiction; obtain all required certificates of inspection for his work and deliver same to the Engineer before request for acceptance and final payment for the work.

7.2 Ignorance of Codes, Rules, regulations, utility company requirements, laws, etc., shall not diminish or absolve Contractor's responsibilities to provide and complete all work in compliance with such.

7.3 The Contractor shall include in the work, without extra cost, any labor, materials, services, apparatus or drawings required in order to comply with all applicable laws, ordinances rules and regulations, whether or not shown on drawings and/or specified.

7.4 All materials furnished and all work installed shall comply with the current edition of the National Electrical Codes, National Fire Codes of the National Fire Protection Association, the requirements of local utility companies, and with the requirements of all governmental agencies or departments having jurisdiction.

7.5 All material and equipment for the electrical safety and security systems shall bear the approval label, or shall be listed by the Underwriters' Laboratories, Incorporated. Listings by other testing agencies may be acceptable with written approval by the Engineer.

7.6 All work is to be constructed and installed in accordance with plans and specifications which have been approved in their entirety and/or reflect any changes requested by the University Fire Marshal, as applicable or required. Electrical work shall not commence until such plans are in the hands of the Electrical Contractor.

7.7 The Contractor shall insure that his work is accomplished in accord with OSHA Standards and any other applicable government requirements.

7.8 Where conflict arises between any code and the plans and/or specifications, the code shall apply except in the instance where the plans and specifications exceed the requirements of the code. Any changes required as a result of these conflicts shall be brought to the attention of the Engineer at least ten working days prior to bid date, otherwise the Contractor shall make the required changes at his own expense. The provisions of the codes constitute minimum standards for wiring methods, materials, equipment and construction and compliance therewith will be required for all electrical work, except where the drawings and specifications require better materials, equip

ment, and construction than these minimum standards, in which case the drawings and specifications shall be the minimum standards.

PART 8 - COST BREAKDOWNS

8.1 Within thirty days after acceptance of the Contract, each Contractor is required to furnish to the Engineer one copy of a detailed cost breakdown on each respective area of work. These cost breakdowns shall be made on forms provided or approved by the Engineer or Architect. Payments will not be made until satisfactory cost breakdowns are submitted.

PART 9 - GUARANTEES AND WARRANTIES

9.1 Each Contractor shall unconditionally guarantee all equipment, apparatus, materials, and workmanship entering into this Contract to be the best of its respective kind and shall replace all parts at his own expense, which fail or are deemed defective within one year from final acceptance of the work by the Engineer. The effective date of completion of the work shall be the date each or any portion of the work is accepted by the Engineer as being substantially complete.

9.2 Items of equipment which have longer guarantees, as called for in these specifications or as otherwise offered by the manufacturer, such as generators, engines, batteries, transformers, etc., shall have warranties and guarantees completed in order, and shall be in effect at the time of final acceptance of the work by the Engineer. The Contractor shall present the Engineer with such warranties and guarantees at the time of final acceptance of the work. The Owner reserves the right to use equipment installed by the Contractor prior to date of final acceptance. Such use of equipment shall in no way invalidate the guarantee except that Owner shall be liable for any damage to equipment during this period due to negligence of his operator or other employee.

PART 10 - INSPECTION, APPROVALS AND TESTS

10.1 Before requesting a final review of the installation from the Architect and/or Engineer, the Contractor shall thoroughly inspect his installation to assure that the work is complete in every detail and that all requirements of the Contract Documents have been fulfilled. Failure to accomplish this may result in charges from the Architect and/or Engineers for unnecessary and undue work on their part.

10.2 The Contractor shall provide as a part of this contract electrical inspection by a competent Electrical Inspection Agency, licensed to provide such services. The name of this agency shall be included in the list of materials of the Form of Proposal by the Contractor. All costs incidental to the provision of electrical inspections shall be borne by the Electrical Contractor.

10.3 The Contractor shall advise each Inspection Agency in writing (with an information copy of the correspondence to the Architect and/or Engineer) when he anticipates commencing work. Failure of the Inspection Agency to inspect the work in the stage following and submit the related reports may result in the Contractor's having to expose concealed work not so inspected. Such exposure will be at the expense of the responsible Contractor.

10.4 Inspections shall be scheduled for rough as well as finished work. The rough inspections shall be divided into as many inspections as may be necessary to cover all roughing-in without fail. Report of each such inspection visit shall be submitted to the Architect, Engineer and the Contractor within three days of the inspection.

10.5 Approval by an Inspector does not relieve the Contractor from the responsibilities of furnishing equipment having a quality of performance equivalent to the requirements set forth in these plans and specifications. All work under this contract is subject to the review of the Architect and/or Engineer, whose decision is binding.

10.6 Before final acceptance, the Contractor shall furnish three copies of the certificates of final approval by the Electrical Inspector (as well as all other inspection certificates) to the Engineer with one copy of each to the appropriate government agencies, as applicable. Final payment for the work shall be contingent upon completion of this requirement.

10.7 The Contractor shall test all wiring and connections for continuity and grounds before equipment and fixtures are connected, and when indicated or required, demonstrate by Megger Test the insulation resistance of any circuit or group of circuits. Where such tests indicate the possibility of faulty insulation, locate the point of such fault, pull out the defective conductor, replacing same with new and demonstrate by further test the elimination of such defect.

PART 11 - CHANGES IN WORK

REFER TO GENERAL AND SPECIAL CONDITIONS.

PART 12 - CLAIMS FOR EXTRA COST

REFER TO GENERAL AND SPECIAL CONDITIONS.

PART 13 - SURVEYS, MEASUREMENTS AND GRADES

13.1 The Contractor shall lay out his work and be responsible for all necessary lines, levels, elevations and measurements. He must verify the figures shown on the drawings before laying out the work and will be held responsible for any error resulting from his failure to do so.

13.2 The Contractor shall base all measurements, both horizontal and vertical from established bench marks. All work shall agree with these established lines and levels. Verify all measurements at site and check the correctness of same as related to the work.

13.3 Should the Contractor discover any discrepancy between actual measurements and those indicated, which prevents following good practice or the intent of the drawings and specifications, he shall notify the Engineer thru normal channels of job communication and shall not proceed with his work until he has received instructions from the Engineer.

PART 14 - TEMPORARY USE OF EQUIPMENT

14.1 The permanent equipment, when installed, may be used for temporary services, subject to consent of the Engineer and Owner. Should the permanent systems be used for this purpose, each Contractor shall pay for all temporary connections required and any replacements required due to damage without cost, leaving the equipment and installation in "as new" condition. The Contractor may be required to bear utility costs, user fees, etc.

14.2 Permission to use the permanent equipment does not relieve the Contractors who utilize this equipment from the responsibility for any damages to the building construction and/or equipment which might result because of its use.

PART 15 - TEMPORARY SERVICES

15.1 The Contractor shall arrange for temporary electrical and other services which he may require to accomplish his work. In the absence of other provisions in the contract, the Contractor shall provide for his own temporary services of all types, including the cost of connections, utility company fees, construction, removal, etc., in his bid.

PART 16 - RECORD DRAWINGS

16.1 The Contractor shall insure that any deviations from the design are being recorded daily or as necessary on record drawings being maintained by the Contractor. Dimensions from fixed, visible permanent lines or landmarks shown in vertical and horizontal ways shall be utilized. Compliance shall be a requirement for final payment. Pay particular attention to the location of underfloor or underground exterior in-contract or utility-owned or leased service lines, main switches and other appurtenances important to the maintenance and safety of the Electrical System. Deliver these record drawings to the Engineer at the completion of the work.

PART 17 - MATERIALS AND WORKMANSHIP

17.1 All electrical equipment, materials and articles incorporated in the work shall be new and of comparable quality to that specified. All workmanship shall be first-class and shall be performed by technicians skilled and regularly employed in their respective trades. The Contractor shall determine that the equipment he proposes to furnish can be brought into the building(s) and installed within the space available. All equipment shall be installed so that all parts are readily accessible for inspection, maintenance, replacement, etc. Extra compensation will not be allowed for relocation of equipment for accessibility or for dismantling equipment to obtain entrance into the building(s).

17.2 All conduit and/or conductors shall be concealed in or below walls, floors or above ceilings unless otherwise noted. All controllers, devices and wiring required shall be installed to make up complete systems as indicated on the drawings and specified herein.

17.3 All materials, where applicable, shall bear Underwriters' Laboratories label or that of another Engineer-approved testing agency, where such a standard has been established.

17.4 Each length of conduit, wireway, duct, conductor, cable, fitting, controller and device used in the electrical systems shall be stamped or indelibly marked with the makers mark or name.

17.5 All electrical equipment shall bear the manufacturer's name and address and shall indicate its electrical capacity and characteristics.

17.6 All electrical materials, equipment and appliances shall conform to the latest standards of the National Electric Manufacturers Association (NEMA) and the National Board of Fire Underwriters (NBFU) and shall be approved by the Owner's insuring agency if so required.

PART 18 - QUALIFICATIONS OF WORKMEN

18.1 All contractors bidding this project must have been a licensed company for a minimum of three years to qualify to bid this project. Individual employee experience does not supercede this requirement.

18.2 All specialty contractors bidding the electrical work must have completed one project of 70% this contract cost size and two projects of 50% this subcontract cost size.

18.3 All electrical work shall be accomplished by qualified workmen competent in the area of work for which they are responsible. Untrained and incompetent workmen as evidenced by their workmanship shall be relieved of their responsibilities in those areas. The Engineer shall reserve the right to determine the quality of workmanship of any workman and unqualified or incompetent workmen shall refrain from work in areas not satisfactory to him. Requests for relief of a workman shall be made through the normal channels of responsibility established by the Architect or the contract document provisions.

18.4 Special electrical systems, such as Fire Detection and Alarm Systems, Telecommunications or

Data Systems, Video Systems, Special Electronic Systems, Control Systems, etc., shall be installed by workmen normally engaged or employed in these respective trades. As an exception to this, where small amounts of such work are required and are, in the opinion of the Engineer, within the competency of workmen directly employed by the Contractor involved, they may be provided by this Contractor. See 270610 for qualification requirements for telecommunication contractor who is responsible for the network cable and equipment installation.

PART 19 - CONDUCT OF WORKMEN

19.1 The Contractor shall be responsible for the conduct of all workmen under his supervision. Misconduct on the part of any workmen to the extent of creating a safety hazard, or endangering the lives and property of others, shall result in the prompt relief of that workman. The consumption or influence of alcoholic beverages, narcotics or illegally used controlled substances on the jobsite is strictly forbidden.

PART 20 - COOPERATION AND COORDINATION BETWEEN TRADES

20.1 The Contractor is expressly directed to read the General Conditions and all detailed sections of these specifications for all other trades and to study all drawings applicable to his work, including Architectural, Mechanical, Structural and other pertinent Drawings, to the end that complete coordination between trades will be affected.

20.2 Refer to Coordination Among Trades, Systems Interfacing and Connection of Equipment Furnished by Others section of these Specifications for further coordination requirements.

PART 21 - PROTECTION OF EQUIPMENT

21.1 The Contractor shall be entirely responsible for all material and equipment furnished by him in connection with his work and special care shall be taken to properly protect all parts thereof from damage during the construction period. Such protection shall be by a means acceptable to the Engineer. All rough-in conduit shall be properly plugged or capped during construction in a manner approved by the Engineer. Equipment damaged while stored on site either before or after installation shall be repaired or replaced (as determined by the Engineer) by the responsible Contractor.

PART 22 - SMOKE AND FIRE PROOFING

22

22.1 The Contractor shall not penetrate rated fire walls, ceilings or floors with conduit, cable, bus duct, wireway or other raceway system unless all penetrations are protected in a code compliant manner which maintains the rating of the assembly. Smoke and fire stop all openings made in walls, chases, ceiling and floors. Patch all openings around conduit, wireway, bus duct, etc., with appropriate type material to smoke stop walls and provide needed fire rating at fire walls, ceilings and floors. Smoke and fire proofing materials and method of application shall be approved by the local authority having jurisdiction.

22.2 Contractor to provide heat detectors in the area of construction with complete fire detection until fire alarm system is operational and construction is complete.

PART 24 - FINAL CONNECTIONS TO EQUIPMENT

24.1 The roughing-in and final connections to all equipment furnished under this and all other sections of the contract documents or by others, shall be included in the Contract and shall consist of furnishing all labor and materials for connection. The Contractor shall carefully coordinate with equipment suppliers, manufacturer’s representatives, the vendor or other trades to provide com

plete electrical and dimensional interface to all such equipment (fire suppression, elevators, power transfer switches, smoke control devices, door hardware, etc., etc.).

PART 25 – NOT USED

PART 26 - ACCESSIBILITY

26.1 The Contractor shall be responsible for the sufficiency of the size of shafts and chases, the adequate clearance in partitions and above suspended ceilings for the proper installation of his work. He shall cooperate with the General Contractor (or Construction Manager) and all other Contractors whose work is in the same space, and shall advise each Contractor of his requirements. Such spaces and clearances shall be kept to the minimum size required to ensure adequate clearance and access.

26.2 The Contractor shall locate all equipment which must be serviced, operated, or maintained in fully accessible positions. Equipment shall include but not be limited to junction boxes, pull boxes, contactors, panels, disconnects, controllers, switchgear, etc. Minor deviations from drawings may be made to allow for better accessibility, and any change shall be approved where the equipment is concealed.

26.3 Each Contractor shall provide (or arrange for the provision by other trades) the access panels for each concealed junction box, pull box, fixtures or electrical device requiring access or service as shown on Engineer's plans or as required. Locations of these panels shall be identified in sufficient time to be installed in the normal course of work. All access panels shall be installed in accord with the Architect's standards for such work.

26.4 Access Doors; in Ceilings or Walls:

26.4.1 In mechanical, electrical, or service spaces:
14 gauge aluminum brushed satin finish, 1" border.

26.4.3 In finished areas:
Risk-resistant security access panels - KEES Model number SSAP-RR. Doors shall be 24”x24” in size with the following options: continuous internal hinged welded to door and collar; continuous door stops on 3 sides; 12-gauge steel door, flange and collar, collar stitch welded to flange with continuously welded seams; 3/8” radius on door and flange; pinned Allen head security cam latches; paintable finish; cylinder lock (coordinate cylinders and keys with Owner to match facility standards). Door shall open 150 degrees. For masonry construction, furnish frames with adjustable metal masonry anchors and straps. For fire rated units, provide manufacturer’s standard insulated flush panel/doors with continuous piano hinge and self-closing mechanism. The Contractor shall include all required access doors in the bid and shall coordinate with the General Contractor prior to the bid to ensure a complete project.

26.4.3 In fire or smoke rated partitions, access doors shall be provided that equal or exceed the required rating of the construction they are mounted in.

PART 27 - ELECTRICAL CONNECTIONS

27.1 The Contractor shall furnish and install all power wiring complete from power source to motor or equipment junction box, including power wiring through starters. The Contractor shall install all starters not factory mounted on equipment. Unless otherwise noted, the supplier of equipment shall furnish starters with the equipment. Also refer to Division 20, 22, 23, 26, and 27 of Specifications, shop drawings and equipment schedules for additional information.

27.2 All control, interlock, sensor, thermocouple and other wiring required for equipment operation

shall be provided by the Contractor. All such installations shall be fully compliant with all requirements of Division 26 regardless of which trade actually installs such wiring. Equipment shall be provided for current and voltage characteristics as indicated or required. All wiring shall be enclosed in raceways unless otherwise noted.

27.3 Each Contractor or sub-contractor, prior to bidding the work, shall coordinate power, control, sensor, interlock and all other wiring requirements for equipment or motors with all other contractors or sub-contractors, to ensure all needed wiring is provided in the Contract. Failure to make such coordination shall not be justification for claims of extra cost or a time extension to the Contract.

PART 28 - NOT USED

PART 29 - CUTTING AND PATCHING

29.1 Unless otherwise indicated or specified, the Contractor shall provide cutting and patching necessary to install the work specified in this Division. Patching shall match adjacent surfaces to the satisfaction of the Engineer and shall be in accord with the Architect's standards for such work, as applicable.

29.2 No structural members shall be cut without the approval of the Structural Engineer and all such cutting shall be done in a manner directed by him.

PART 30 - SLEEVES AND PLATES

30.1 Each Contractor shall provide and locate all sleeves and inserts required for his work before the floors and walls are built, or shall be responsible for the cost of cutting and patching required where sleeves and inserts were not installed, or where incorrectly located. Each Contractor shall do all drilling required for the installation of his hangers. Drilling of anchor holes may be prohibited in post-tensioned concrete construction, in which case the Contractor shall request approved methods from the Architect and shall carefully coordinate setting of inserts, etc., with the Structural Engineer and/or Architect.

30.2 Sleeves shall be provided for all conduit passing thru concrete floor slabs and concrete, masonry, tile and gypsum wall construction. Sleeves shall not be provided for piping running embedded in concrete or insulating concrete slabs on grade, unless otherwise noted.

30.3 Where sleeves are placed in exterior walls below grade, the space between the pipe or conduit and the sleeves shall be packed with oakum and lead, mechanical waterstop or other approved material and made completely water tight by a method approved by the Engineer and/or Architect.

30.4 Where conduit motion due to expansion and contraction will occur, make sleeves of sufficient diameter to permit free movement of pipe. Check floor and wall construction finishes to determine proper length of sleeves for various locations; make actual lengths to suit the following:

30.4.1 Terminate sleeves flush with walls, partitions and ceiling.

30.4.2 In all areas where pipes are exposed, extend sleeves ½ inch above finished floor, except in rooms having floor drains, where sleeves shall be extended 3/4 inches above floor.

30.5 Sleeves shall be constructed of 24 gauge galvanized sheet steel with lock seam joints for all sleeves set in concrete floor slabs terminating flush with the floor. All other sleeves shall be constructed of galvanized steel pipe unless otherwise indicated on the drawings.

30.6 Fasten sleeves securely in floors, walls, so that they will not become displaced when concrete is

poured or when other construction occurs around them. Take precautions to prevent concrete, plaster or other materials being forced into the space between pipe and sleeve during construction. Fire and smoke stop all sleeves in a manner approved by the local authority having jurisdiction or per prevailing codes.

PART 31 - WEATHERPROOFING

31.1 Where any work pierces waterproofing, including waterproof concrete, the method of installation shall be as approved by the Architect and/or Engineer before work is done. The Contractor shall furnish all necessary sleeves, caulking and flashing required to make openings absolutely watertight.

31.2 Wherever work penetrates roofing, it shall be done in a manner that will not diminish or void the roofing guarantee or warranty in any way. Coordinate all such work with the roofing installer.

PART 32 - OPERATING INSTRUCTIONS

32.1 Upon completion of all work and all tests, each Contractor shall furnish the necessary skilled labor and helpers for operating his systems and equipment for a period of three days of eight hours each, or as otherwise specified. During this period, instruct the Owner or his representative fully in the operations, adjustment, and maintenance of all equipment furnished. Give at least one week's written notice to the Owner, Architect and Engineer in advance of this period. The Engineer may attend any such training sessions or operational demonstrations. The Contractor shall certify in writing to the Engineer that such demonstrations have taken place, noting the date, time and names of the Owner's representative that were present.

32.2 Each Contractor shall furnish three complete bound sets for approval to the Engineer of typewritten and/or blueprinted instructions for operating and maintaining all systems and equipment included in this contract. All instructions shall be submitted in draft, for approval, prior to final issue. Manufacturer's advertising literature or catalogs will not be acceptable for operating and maintenance instructions.

32.3 Each Contractor, in the above mentioned instructions, shall include the maintenance schedule for the principal items of equipment furnished under this contract and a detailed, easy to read parts list and the name and address of the nearest source of supply.

PART 33 - SCAFFOLDING, RIGGING AND HOISTING

33.1 The Contractor shall furnish all scaffolding, rigging, hoisting, and services necessary for erection and delivery into the premises of any equipment and apparatus furnished. Remove same from premises when no longer required.

PART 34 - CLEANING

34.1 The Contractor shall, at all times, keep the area of his work presentable to the public and clean of rubbish caused by his operations; and at the completion of the work, shall remove all rubbish, all of his tools, equipment, temporary work and surplus materials, from and about the premises, and shall leave the work clean and ready for use. If the Contractor does not attend to such cleaning immediately upon request, the Engineer may cause cleaning to be done by others and charge the cost of same to the responsible Contractor. Each Contractor shall be responsible or all damage from fire which originates in, or is propagated by, accumulations of his rubbish or debris.

34.2 After completion of all work and before final acceptance of the work, each Contractor shall thoroughly clean all equipment and materials and shall remove all foreign matter such as grease, dirt, plaster, labels, stickers, etc., from the exterior of materials, equipment and all associated fabrica

tion. Pay particular attention to finished area surfaces such as lighting fixture lenses, lamps, reflectors, panels, etc.

PART 35 - PAINTING

35.1 Each fixture device, panel, junction box, etc., that is located in a finished area shall be provided with finish of color and type as selected or approved by the Architect or Engineer. If custom color is required, it shall be provided at no additional cost to the Owner. All other equipment, fixtures or devices located in finished or unfinished areas, that are not required to have or are provided with finish color or coating shall be provided in a prime painted condition, ready to receive finish paint or coating. All galvanized metal in finished areas shall be properly prepared with special processes to receive finish paint as directed and approved by the Architect.

PART 36 - INDEMNIFICATION

36.1 Refer to the General Conditions and Special Conditions of the Contract Documents for the Contractors indemnification obligations.

PART 37 - HAZARDOUS MATERIALS

37.1 The Contractor is hereby advised that it is possible that asbestos and/or other hazardous materials are or were present in this building(s). Any worker, occupant, visitor, inspector, etc., who encounters any material of whose content they are not certain shall promptly report the existence and location of that material to the Contractor and/or Owner. The Contractor shall, as a part of his work, insure that his workers are aware of this potential and what they are to do in the event of suspicion. He shall also keep uninformed persons from the premises during construction. Furthermore, the Contractor shall insure that no one comes near to or in contact with any such material or fumes therefrom until its content can be ascertained to be non-hazardous. Refer to the General Conditions and Special Conditions of the Contract Documents for detailed requirements related to any Hazardous Materials encountered.

37.2 CMTA, Inc., Consulting Engineers, have no expertise in the determination of the presence of hazardous materials. Therefore, no attempt has been made by them to identify the existence or location of any such material. Furthermore, CMTA nor any affiliate thereof will neither offer nor make any recommendations relative to the removal, handling or disposal of such material.

37.3 If the work interfaces, connects or relates in any way with or to existing components which contain or bear any hazardous material, asbestos being one, then, it shall be the Contractor's sole responsibility to contact the Construction Manager and so advise him immediately.

37.4 The Contractor by execution of the contract for any work and/or by the accomplishment of any work thereby agrees to bring no claim relative to hazardous materials for negligence, breach of contract, indemnity, or any other such item against CMTA, its principals, employees, agents or consultants. Refer to the General Conditions and Special Conditions of the Contract Documents for the Contractors indemnification obligations.

PART 38 – ABOVE-CEILING AND FINAL PUNCH LISTS

38.1 The Contractor shall review each area and prepare a punch list for each of the subcontractors, as applicable, for at least two stages of the project.

38.1.1 For review of the above-ceiling work that will be concealed by tile or other materials well before substantial completion.

38.1.2 For review of all other work as the project nears substantial completion.

38.2 When all work from the Contractor's punch list is complete at each of these stages and prior to completing ceiling installations (or at the final punch list stage), the Contractor shall request that the Engineer develop a punch list. This request is to be made in writing seven days prior to the proposed date. After all corrections have been made from the Engineer's punch list, the Contractor shall review and initial off on each item. This signed-off punch list and all work prior to the ceilings being installed and at the final punch list review.

38.3 If additional visits are required by the Engineer to review work not completed by this review, the Engineer shall be reimbursed directly by the Contractor by check or money order (due net 10 days from date of each additional visit) at a rate of $125.00 per hour for extra trips required to complete either of the above-ceiling or final punch lists.

END OF SECTION 28 0501

SECTION 28 1643 - PERIMETER SECURITY SAFETY

PART 1 - GENERAL

1.1 SCOPE

A. This section details product and execution requirements for Security Management System (SMS) for the project.
B. Work includes furnishing all labor, materials, tools and equipment, and documentation required for a complete turnkey working system as specified in this Section. SMS shall consist of but not be limited to Door Controllers, Card Readers, Sensors, Switches, Conduit, Boxes, Cable and Wired Devices. Programming and cardholder enrolling are also considered as part of installation as well as coordination with UKPD.
C. Unless noted otherwise, "Contractor" shall refer to SMS Integrator & Installer.

Communications routing from SMS to door controllers shall be via Owner LAN.

1.2 RELATED WORK

A. Related Sections in other divisions of Work:

087100 – DOOR HARDWARE
260000 - ELECTRIC
270000 - COMMUNICATIONS

1.3 REFERENCES AND STANDARDS

A. Work under this Section is subject to requirements of Division 1 General Requirements.
B. Other applicable standards are as follows:

UL 294 - Access Control System Units.
UL 1076 - Proprietary Burglar Alarm Units and Systems.
FCC Rules and Regulations Part 15, Radio Frequency Devices

C. All work and materials shall conform in every detail to rules and requirements of National Fire Protection Association, Kentucky Electrical Code, University of Kentucky Standards and University of Kentucky CNS Standards
D. All materials shall be listed by UL and shall bear UL label. If UL has no published standards for a particular item, then other national independent testing standards shall apply, and such items shall bear those labels. Where UL has, an applicable system listing, and label entire system shall be so labeled.

1.4 DEFINITIONS AND ABBREVIATIONS

A. SMS – Security Management System

1.5 WORK BY OWNER

A. Owner shall:

Provide list of cardholders for initial SMS programming by Contractor.
Provide scheduling of each door, including:

a. Alarm activations and distribution.
b. Door lock and unlock.
c. Cardholder validation by day and time.

d. Delay time of door open alarm.
e. Duration of lock activation upon credential authorization.

1.6 SUBMITTALS

A. Product Data: For each type of product indicated.
B. System Design drawings with cable routing, device location and labeling.
C. Operation statements for all SMS doors.
D. Communication Closet layout drawings.
E. Certifications for BICSI as required by UKCNS per Division 27.
F. Owner Operation Manuals for all installed equipment as well as documentation of all programing.
G. As built drawings showing cable pathways and routing. As built drawings to also show any changes made to original ESS drawings.

1.7 QUALITY ASSURANCE

A. Security Management System Contractor shall:

Have successfully completed two (2) Security Systems projects in equal magnitude of the system specified in following sections. Contractor shall be a Lenel Authorized VAR in good standing. Proper proof of certifications will be submitted at time of Bid. Be responsible for complete turnkey system up to but not including SMS programing, programing cost will be included in BID with Programing work being done by UKPD's Lenel VAR of Record. Be responsible to coordinate with UKPD's Lenel VAR of Record to complete system installation. Comply with all certification requirements set out in Division 27 as it related to the installation of DATA cabling. Specifically, contractor will comply with the requirement of all DATA cabling being installed by BICSI certified installers and installation supervised by a registered in good standing RCDD in the full-time employee of the project contractor.

1.8 GUARANTEE

A. Warranty requirements for Security Management System (SMS) shall be two (2) years on all parts and labor commencing on Date of Substantial Completion. Those requirements apply to all components covered in this section.

PART 2 - PRODUCTS

2.1 GENERAL

A. Security Management System shall provide ability to:

Unlock electrified door locks upon authentication of submitted credential to local card readers.
Monitor door alarms and remotely unlock.
Lock doors on an automated schedule from central system.
Unlock doors as required by code via fire alarm relays.
Annunciate intrusion alarms from remote sensors.
Unlock individual doors manually via operator interface.
Lock doors from central Operations Center.

B. System must support the Campus Central One Card ID Badge.

2.2 NETWORK SMS

A. Manufacturer: Lenel Security Systems

2.3 SYSTEM CONTROLLER

A. Manufacturer: Mercury Systems LNL-2220. Controllers will include all power supplies, Life Safety FPO250 or Mercury Systems approved equal and Battery Back Up Units. All parts and pieces needed for a complete UL listed working turnkey system. All Lenel Licensing required for UK Campus Enterprise System shall be included Contractors Bid.

2.4 MULTI-DOOR DOOR CONTROLLER

A. Manufacturer: Mercury Systems LNL-1320.

Controller shall accommodate minimum two card readers and associated inputs/outputs.

2.5 MULTI-INPUT / OUTPUT CONTROLLER

A. Manufacturer: Mercury Systems LNL-1100 / LNL-1200.

Controller shall accommodate 16 programmable inputs: 2 programmable relay outputs

2.6 PROXIMITY CARD READERS

A. Manufacturer: HID

Mullion Mount: 20TKS-T0-000375 (SIGNO PRIORITY LINE)

Standard
Wall-mount: 40TKS-T0-000375 (SIGNO PRIORITY LINE)

B. General

Reader(s) shall:

a. Be furnished in Wiegand, and OSDP, output model and shall be sealed in a polycarbonate enclosure designed to withstand harsh environments.
b. Unless otherwise specified, reader covers shall be furnished in “black” color – Classic design.
c. Recognize iClass 13.56 MHz signals.
d. Contain an indicator to indicate valid and invalid card.
e. Be designed for ambient operating environment.
f. Be powered remotely using centralized power supplies.
g. Read iClass Corporate 1000 sector information.
h. Include Near Field / Bluetooth capabilities.

2.7 BIOMETRIC READERS (Eye Scanners)

Manufacturer: EyeLock

Wall-mount Model: nano NXT

Scanner(s) shall:

a. Be mounted at 54” AFF typically.
b. Be mounted above card reader.
c. Always be installed in conjunction with a Card Reader
d. Be installed with DATA cable connected to POE Network Switch port.
e. Be installed with 12-24 Volt DC Power via hard wire cable to dedicated Life Safety Power Supply located in nearest UKCNS Data Closet. Each Scanner Unit shall be fused at the power supply individually.

2.8 DOOR CONTACTS (DPS / Monitor Points when not included in Door Hardware)

Steel Door contacts.

Manufacturers: GE Interlogix 1078 Series or approved equal.

2.9 REQUEST-TO-EXIT MOTIONS SENSORS (When not included in Door Hardware)

Manufacturers: GE, Honeywell, or approved equivalent.

1. Provide door header mounted request to exit motion sensors as indicated on Drawings.

2. Minimum Specifications

a. Detection technology Passive infrared
b. Detection pattern Narrow beam 35-degree cone
c. Output contact normally open contact is closed when sensing zone is entered or exited.
d. Power requirements 12 – 24 VDC
e. Mounting: Door header

2.10 Panic Button

Manufacturer: Honeywell 270R
Panic button is hard cabled to the nearest access control panel for reporting to UKPD dispatch. Coordinate with UKPD for final placement and programing.

2.11 POWER SUPPLIES

A. As required to support Card Reader(s), Door Controller(s), Strike(s), Sensor(s), Eye Scanners and other components for fully operational turnkey system. Each component connected to power supplies shall be independently fused with rated fuses to match the manufacturer requirements for each specific device. Power supply cabinets shall have door locks included and keys shall be turned over to UKPD at substantial completion.
B. Electrified Door hardware power supplies shall be specified by Division 8. Each component connected to power supplies shall be independently fused with rated fuses to match the manufacturer requirements for each specific device.

2.12 CABLING

A. General

Cable shall be:

a. Plenum Rated.

B. Reader Cable

Construction:

a. 18 AWG stranded or as recommended by system manufacturer.
b. Aluminum/Mylar shield with drain wire applied over assembled conductors.

C. Door Lock Power Cable

Provide and install as required for door hardware. Refer to Architectural Door Schedule and Door Hardware documents.

D. Door Contact / Signal Cable

Door Contact/Signal Cable used for monitoring purposes.
Construction:

a. 22 AWG twisted, stranded, or as recommended by system manufacturer.
b. Aluminum/Mylar shield with drain wire applied over assembled conductors.

E. Request-to-Exit Motion Detector Signal Cable

Motion Detector Signal Cable used for monitoring purposes.
Construction:

a. 20 AWG stranded or as recommended by system manufacturer.
b. Aluminum/Mylar shield with drain wire applied over assembled conductors.

F. Door Controller Cable

Provide all LAN patch cables, jacks, and faceplates

PART 3 - EXECUTION

3.1 PRE-INSTALLATION COORDINATION

A. Coordinate with Electrical Contractor (Division 260000) that:

Section 280000 provided pathways and equipment back boxes are completed and are coordinated with no conflicts for system installation.
Adequate power has been provided and properly located for security system equipment.
Code-complying fire alarm relays will be installed for cable termination. Fire Alarm contractor will provide relay contacts in Com Closet for connection to Access control panels. Contractor is responsible for coordination with Fire Alarm Contractor. Access control Contractor shall provide all parts and pieces including all cabling from Access control panel to Fire Alarm Contact point.
Coordinate scheduling of work to make sure there are no conflicts.

B. Coordinate with Door Frame supplier (Division 8):

Doors and door frames are properly prepared for electric locking hardware and door position switches are furnished by door type.
Locations of all devices prior to installation.
Electric door power supply locations and connections requirements.

C. Coordinate with the Communications Contractor (Division 27):

Locations of all LAN-connected devices with no conflicts.
Coordinate scheduling of work.

D. At a minimum, coordinate the following with Owner:

VLAN/or network partitioning for SMS system.
Owner-provided IP addresses for SMS devices.
Network infrastructure requirements at SMS head-end Next Level Gateway-6100UK.
Initial database programming.
Planned system downtime.
Programming and training for new system.

E. Coordinate with Construction Manager as required providing a fully functioning turnkey Security system.

F. Coordinate with all trades on the operation and installation of ADA entrance doors with relation to Long Range Card Readers and interconnection with door actuator plates, motor units, Fire Alarm and Smoke Evacuation System. Contractor will supply all associated timer boards or additional parts required for complete operating doors system.

G. Coordination Meetings shall be scheduled and conducted beginning within 60 days of contract award and continuing till project conclusion inclusive with the A/E team and Commissioning Agent.

3.2 INSTALLATION

A. General

Verify acceptance of each type of specified request-to-exit hardware for each application with local life safety code officials.
Provide tamper proof fasteners for all equipment in public areas. Fastener finish shall match equipment finish.
Maintain minimum three feet of access in front of class 1 electrical equipment.

B. Delivery, Storage, and Handling

Deliver products to and receive products at site under provisions of General Requirements.
Materials shall be stored according to manufacturer's recommendations at minimum.

C. Equipment

Provide equipment as indicated on Drawings and specified herein. Additional specific installation requirements are as follows:

Door Controllers

a. Provide Door Controllers in Data Closets as shown on Drawings.
b. Provide connection to 120 VAC via hardwire conduit. Coordination with Division 260000.
c. Separate 24 VDC and 120 VAC, wire, cable, and devices by 12” minimum space.
d. Enclose wire and cable in wire ways or bundle with wire exiting wire ways to terminal strips or panel mounted devices.
e. Space controllers according to manufacturer’s requirements. Ensure adequate space is allowed for device heat dissipation.
f. Do not place controller or control devices on enclosure sides.

Card Readers

g. Provide card readers and card reader devices as shown on Drawings.

h. Wire card reader LEDs to indicate valid and invalid card reads, and door locked and unlocked conditions. All card reader LED indicators shall operate identically throughout Project. LED shall be red in normal, secured state, and shall be green on valid card read and while door is unlocked.

Electric Locking Mechanics

i. Interface with electric locking mechanics as required by the door hardware.
j. Provide lock control of electrified locking mechanics through output contacts activated by Door Controller.

Electrified Panic Devices

k. Interface with electrified panic devices as indicated on Drawings. Provide all low-voltage wire and connections between SMS power transfer device and electric locking mechanics.
l. Provide lock control of electrified panic devices through output contacts activated by Door Controller.
m. Provide all 120VAC if required for Device operation per hardware specifications. Provide connection to Fire Alarm connection points as required by Code. Fire Alarm Contractor to provide relay contacts in Com closets for this purpose. Contractor is responsible for all parts and pieces including cable from Access control panel to the Fire Alarm relay contract. Contractor is responsible for coordination with Fire Alarm contractor.

Door Position Switches

n. Install as shown on drawings.
o. Coordinate pathways.

Request-to-Exit Motion Sensors

p. Provide as shown on drawings.
q. Coordinate pathways.

Fire Alarm Interface

r. Connect (hard wire) door controller to building fire alarm system for fail-safe release upon any fire alarm.
s. Interface with low voltage / low current normally closed dry contact from fire alarm system provided by fire alarm Contractor (verify exact location in Data Closet for connection with FA). Contact shall open on any fire alarm condition.
t. Provide all additional UL listed fail-safe relays and power supplies necessary to interface to this contact and unlock all fail-secure doors.
u. Coordination Meetings with Fire Alarm Contractor shall be scheduled and conducted beginning within 60 days of contract award and continuing till project conclusion inclusive with the A/E team and Commissioning Agent.

Cable Installation

v. Visually inspect all wire and cable for faulty insulation prior to installation.
w. Furnish and install all specified wire and cable as required for functioning SMS system.
x. Neatly lace, dress and support cabling.
y. Pull cables in accordance with cable manufacturer's recommendations University of Kentucky CNS and ANSI/EEE C2 Standards.

1) Do not exceed manufacturer's recommended pulling tensions.
2) Do not install bruised, kinked, scored, deformed, or abraded cable.
3) Do not splice cable between indicated termination, tap, or junction points.

4) Remove and discard cable where damaged during installation and replace it with new cable.
5) Pull all cable by hand unless installation conditions require mechanical assistance.

z. Run all wire and cable continuous from device location to final point of termination. No mid-run cable splices shall be allowed.
aa. Cables shall not be attached to existing cabling, plumbing or steam piping, ductwork, ceiling supports, or electrical or communications conduit.
bb. Cable shall never be laid directly on a ceiling grid or attached in any manner to ceiling grid wires.
cc. Furnish and install all cable such that ample slack is supplied at device terminating end of cable to compensate for any final field modifications at install locations.

1) Loosely coil slack in “Figure-eight” in a manner that prevents kinking.
2) Loop radius shall be at least 4X minimum bend radius for cable.
3) Slack length of cable shall be 4 feet (minimum).

dd. Provide code-compliant fire proofing techniques for all penetrations of fire rated partitions and slabs, where penetrations are made by or used for installation of SMS System.
ee. Coordinate routing of wire and cable requiring isolation from power, radio frequency (RF), electromagnetic interference (EMI), telephone, etc. with General Contractor.
ff. At no time, shall any cable be subjected to a bend less than manufacturer’s specified minimum radius and UK CNS Standards.
gg. Provide grommets and strain relief material where necessary to avoid abrasion of wire and excess tension on Wire and Cable.
hh. Make connections with solder-less devices, mechanically and electrically secured in accordance with manufacturers’ recommendations. Wire nuts shall not be an acceptable means of connecting wire and cable.
ii. Utilize conduit and cable trays and or pathways to route SMS cables from each door or device to Door Controller. Follow University of Kentucky CNS standards for low voltage cabling.
jj. No A/C current-carrying conductors are allowed in same pathway as signal or low-voltage power cables.
kk. Wire and cable within Door Controllers, enclosures and or other security enclosures shall be neatly installed, completely terminated, pulled tight with slack removed and routed in such a way as to allow direct, unimpeded access to equipment within enclosure. All wire and cable shall be bundled and tied. Ties shall be similar to T&B TyRap cable ties.
ll. Use of electrical tape for splices and connections shall not be acceptable.
mm. Make connections with solder less devices, mechanically and electrically secured in accordance with manufacturers’ recommendations. Wire nuts shall not be an acceptable means of connecting wire and cable.
nn. All system cabling within vertical risers (as required) shall be bundled, wrapped and tied to structure at three-meter intervals in order to isolate it from other wire and cable within riser. Additionally, all wire and cable within shaft shall be supported at least every two floors using Greenlee Slack Grips (Split Mesh Lace Closing) or approved equal. Provide all personnel and equipment necessary to install and support cable. All equipment shall be UL listed for application.

D. System Programming and Data Entry

Collect all data required to make the Security Management System operational. Deliver data to Owner on data entry forms, utilizing data from Contract Documents, Contractor's field surveys and all or pertinent information in Contractor's possession required for complete installation database. Identify and request from

Owner any additional data needed to make SMS System fully operational and integrated. Completed forms shall be delivered to Owner for review and approval at least 30 days prior to Contractor's scheduled needed date. Contractor will coordinate with University of Kentucky Police Department Campus Security System Lenel VAR of Record (Securitas) for database and Campus Cloud Services programming and Integration. Contractor shall provide Door Counts, Panel Counts and locations, Reader Counts and input, output counts. Contractor shall also supply any special devices or operations that may require special programing. Examples would be Elevators, Biometric readers, and others. Contractor shall request a quote for this programing work, two (2) Client Workstation Licenses and any other Lenel Licenses required from Securitas. Securitas Security Group Contact person is Vicky Daugherty (912-246-9466) Vicky.Daugherty@securitas.com. This and any fees associated with the Lenel programing shall be included in Contractor's Bid. Contractors Bid shall be for a complete turnkey total functional system. Contractor shall provide time in Bid to coordinate and participate with Securitas Security during their testing and programing.

Provide all initial system information for SMS setup including, but not limited to following:

a. SMS Card Reader Information

1) Coordinate all card reader values and text, including descriptors, alarm messages, map call up and identification with Owner.

b. Input and output points for SMS. Coordinate all input and output priorities and text, including descriptors, alarm messages, Video Camera call up, and map call up and identification with Engineer.

c. Initial system users, including levels of access. This shall include designation of Owner's representative at "Super User" level immediately upon SMS initialization.

d. Provide Elevator access per cardholder by cab and floor.

E. Furnish and install all SMS wire and cable including LAN cabling.

F. Provide code-compliant fire proofing techniques for all penetrations of fire rated partitions and slabs, where penetrations are made by or used for installation of SMS.

G. 120 VAC power dedicated to security system shall be on provided Emergency Generator Power. Gateways shall be on properly sized UPS units on Emergency Generator backup circuits. UPS units are provided by UKCNS. Contractor shall coordinate with UKCNS to provide power requirements for all equipment. A meeting with UKCNS to coordinate this and other IT related issues will be scheduled within 60 days of Contract award and be inclusive of A / E Team, UKCNS and Commissioning Agent.

H. Connect to AC power with provided UL listed power supplies and transformers to distribute low voltage power to system components as required.

I. Provide hinged cover UL listed terminal cabinets with tamper switches for all power supplies, transformers, and power distribution terminal strips. Provide all conduit and wiring from AC power facilities to terminal cabinets.

J. Provide protection against spikes, surges, noise, and or line problems for all system equipment and components.

K. Provide protection on all exterior, control, power, signal cables and conductors against power surges. Each surge protector shall be UL Listed.

L. In no instance, shall any UL labeled door or frame be drilled, cut, penetrated, or modified in any way.
M. Contractor shall be responsible for replacing any labeled door or frame that is modified without written approval from project Engineer.
N. Label all controls as necessary to agree with their function.
O. Label all Wire and Cable in common at both ends using a permanent method such as self-laminating cable marking tape.

Tags shall be attached to wire and cable nylon cable ties in an accessible location so that they can easily be read.

Tags shall be installed when wire and cables are installed.

Labeling shall be consistent with existing cable labeling system and agree with Record Documentation.

P. Place wire identification numbers at each end of conductor involved by using sleeve type, heat shrinkable markers. Markers shall be installed so as to be readable from left to right or top to bottom.
Q. Mark all connectors with common designations for mating connectors. Connector designations shall be indicated on record drawings.
R. Coil all spare conductors in device back box, panel wire way, or top of panel where wire way is not provided. Conductors shall be neatly bundled and tagged.
S. Install integrated security and communication system in accordance with manufacturer's instructions at locations indicated on the Drawings.
T. Mount equipment plumb, level, square, and secure. For video entrance stations and video door stations, comply with manufacturer's design requirements to provide optimum picture quality of station monitoring.

3.3 DEMONSTRATION AND TRAINING

A. Coordinate with Owner and UKPD to establish required training.

B. Contractor shall be on call during Warranty period to answer any questions Owner might have. The Owner reserves the right to use any excess training hours, not used by time of system completion, for future training as requested by Owner until total number of training hours has been used.
C. Demonstration:

Demonstrate that integrated security and communication system functions properly. Perform demonstration at final system inspection by qualified representative of manufacturer working with UK Lenel VAR of Record.

3.4 SYSTEM START-UP

A. Start-up includes all Contractor-Furnished, Contractor-Installed (CFCI) systems and equipment.
B. Work shall be complete and ready to operate prior to final acceptance.
C. All database programming for systems up to inaugural day of beneficial use of Security System shall be coordinated thru UKPD and UK Lenel VAR of Record.
D. Adjust integrated security and communication system for proper operation in accordance with manufacturer’s instructions.

3.5 SYSTEM ACCEPTANCE

A. Final acceptance testing of Work will be coordinated and observed by owner representatives and UKPD in coordination with Securitas Security Solutions.
B. Prior to testing, Contractor shall submit two sets of preliminary (draft) Record Drawings to owner and UKPD. Preliminary Record Drawings are to be used by owner and UKPD to conduct system final test.
C. At completion of Work, remove all waste materials, rubbish, Contractor's and subcontractors' tools, construction equipment, machinery, and all surplus materials.

3.6 PROTECTION

A. Protect installed integrated security and communication system from damage during construction.

END OF SECTION 28 1643

SECTION 28 2300 - VIDEO SURVEILLANCE

PART 1 - GENERAL

1.1 SCOPE

This section details product and execution requirements for VIDEO MANAGEMENT SYSTEM for the project.
Work includes furnishing all labor, materials, tools and equipment, and documentation required for a complete turnkey working system as specified in this Section. VMS shall consist of but not be limited to, Cameras, Monitors, Conduit, Boxes, Cable, and Wired Devices. Programming work sheets and camera view setup is considered part of installation as well as coordination with UKPD, Stanley Security and Salient Systems.
Unless noted otherwise, "Contractor" shall refer to VMS Integrator & Installer.
Communications routing from VMS Servers to Cameras shall be via Owner LAN.
Coordinate with any and all trade contractors as required to provide a fully functioning system.
Unless noted otherwise, "Contractor" shall refer to security system integrator & installer.
Applicable provisions of Division 1 shall govern all work under this section.
Video surveillance can be restricted or prohibited by law. This document details technical considerations only. It is assumed that registration, licensing, policies regarding disclosure and privacy (notification, processing of images, time, and date stamping, recording of sound, etc.), and or legal obligations are responsibility of Owner.

1.2 RELATED WORK

Related Division 28 Sections include:

1. 281643 - PERIMETER SECURITY SAFETY

Related Sections in other divisions of Work:

2. 087100 - DOOR HARDWARE
3. 260000 - ELECTRIC
4. 270000 - COMMUNICATIONS

1.3 REFERENCES AND STANDARDS

Work under this Section is subject to requirements of Contract Documents including General Conditions, Supplementary Conditions, and sections under Division 1 General Requirements.
All work and materials shall conform in every detail to rules and requirements of National Fire Protection Association, Kentucky Electrical Code, University of Kentucky Standards and University of Kentucky ITS Standards.
All materials shall be listed by UL and shall bear UL label. If UL has no published standards for a particular item, then other national independent testing standards shall apply, and such items shall bear those labels. Where UL has an applicable system listing and label entire system shall be so labeled.
Other applicable standards are as follows:

1. ANSI/IEEE C2 - National Electrical Safety Code
2. NFPA 70-1999 - National Electrical Code
3. IEEE/ANSI 142-1982 – Recommendations for Grounding of Industrial & Commercial Power Systems.

4. NTSC/EIA RS-170A Video Standard
5. IEEE 802.3 standards for CSMA/CD (Ethernet) based LANs.
6. Emissions: FCC 15, Class A; CE: EN55022 (Emissions)
7. CE: EN50082-01 (Immunity)
8. CE, UL 1950; CUL 1950 CE: EN60950 (Safety)
9. State of Kentucky
10. City of Lexington, KY

1.4 DEFINITIONS AND ABBREVIATIONS

VMS – Video Management System
LAN – Local Area Network

1.5 WORK BY OWNER

Owner shall provide:

1. Verify exact security device mounting locations.
2. Verify Acceptable per-camera field-of-view information.
3. Enterprise-wide Data Network / LAN to be utilized by VMS system.
4. Cross-connections from VMS components to building LAN, contractor provides all interconnection cables (Patch Cables) as needed but may not connect to LAN without ITS oversight and approval.
5. All active LAN components (switches, routers) as required for Security system function.
6. IP-address allotment and management for VMS devices as needed.

1.6 SUBMITTALS

Product Data: For each type of product indicated.
System Design drawings with cable routing, device location and labeling.
Communication and Security Closet layouts.
Camera View Modeling.

1.7 QUALITY ASSURANCE

Video Management System Contractor shall:

1. Have successfully completed two (2) Salient Systems projects in equal magnitude of the system specified in following sections. Be fully certified by Salient Systems for Sales and Installation of Salient equipment. Proper proof of certification with Salient will be submitted at time of Bid.

1.8 GUARANTEE

Warranty requirements for Video Management System (VMS) shall be two (2) years on all parts and labor commencing on Date of Substantial Completion. Those requirements apply to all components covered in this section.

PART 2 - PRODUCTS

2.1 GENERAL

VMS system shall deliver high quality; color video over an IP, UTP structured cable system using H.264 /H.265 compression and shall provide for monitoring and recording of all cameras in system as indicated herein and on project Drawings. The VMS allows event-based monitoring of campus and situational awareness though IP cameras centrally managed from the University of Kentucky Police Department Operations Center. The VMS utilizes analytics to identify potential situations on campus and preserving evidence for authorities to review. The Salient VMS has the capability to be securely monitored via mobile devices or off-campus locations, video sharing with outside public safety first responders.
Video shall be configurable from a workstation on the University LAN using standard Browser software.

2.2 IP VIDEO CAMERA (FIXED)

Interior Camera shall be: Hanwha Techwin XND-L6080V.
Elevator Camera shall be: Axis M3057-PLVE
Exterior Camera shall be: Hanwha Techwin XNV-L6080R
Camera shall:

1. Be ceiling / wall mountable dome-type.
2. Be IP-native.
3. Utilize Power-over-Ethernet (PoE) for device power.
4. Be designed to provide video streams at the minimum HDTV 1080p (1920x1080) resolution at 30 frames per second using H. 264 / H.265.
5. Be equipped with Day/Night functionality, Wide Dynamic Range (WDR), color video to ½ lux, black and white below ½ lux and feature remote back focus capabilities.
6. Be provided complete with standard interior (3-9 mm nominal) auto-iris lens.
7. Per-camera lens selection dependent upon Owner-required field-of-view.
8. Have a smoked bubble.
9. Have housing and mount color to match surrounding architectural colors.

2.3 NETWORK VIDEO SERVER:

Security Cameras shall be connected to the owners Security LAN by UKCNS personnel and SMS VAR of Record, Stanley Security. Cameras shall be routed to Management Servers and Recording Servers via the Owners Security VAN. Installing Integrator shall complete all Camera Programing worksheets and provide to Stanley Security for System Programing and addition of Cameras to the Campus VMS. Integrator shall coordinate with VAR of Record, Stanley Security to include the cost of this programing in their bid for project. Contact Stanley Security. Stanley Security Group Contact person is Vicky Daugherty (912-246-9466) Vicky.Daugherty@sbdinc.com.

2.4 WIRE AND CABLE

General

1. Provide and install all device DATA cables as per UKITS and Division 270000 requirements. DATA cabling for Security cameras shall be terminated in each DATA Closet, in approved labeled patch panels (As per Division 270000 requirements). Camera cabling should be terminated in jacks at the camera device. Contractor to provide all patch cables. All exterior camera cables shall be provided with Surge protection units on each

cable. Proper cable types must be must as per UKITS standards and Division 270000 requirements.

2. Provide all interconnecting system cabling at Security Closets and Communication Closets as well at security device end points. All UKITS standards must be followed. Exterior cameras that exceed the normal distance for copper cable must be installed with Fiber Cable as per UKITS Standards and Division 270000 requirements. At these fiber locations a Rugged / Hardened Switch is required, this switch should be provided by contractor by purchase thru UKITS.
3. Bond metallic system components in all Communications Closets and Security Closets to existing in-room ground bar.
4. Confirm and provide any necessary interface cabling with existing Access Control system.

PART 3 - EXECUTION

3.1 GENERAL

Work performed for installation of VMS system shall be performed by Security System Integrator – “Contractor”.
Provide equipment as indicated on Drawings and specified herein.
Provide all labor and materials necessary to construct systems as described herein to include furnishing and installing all system equipment, interconnecting cabling, programming and start-up, software (including software upgrades and reprogramming as necessary), termination components, mounting hardware, incidentals, accessories, testing, labeling, documentation, and training as detailed in following sections.

1. Neatly lace, dress, and support cabling.
2. Coordinate any downtime with Owner.

Prior to installation:

3. Conduit and equipment back boxes are as required. Contractor is responsible for coordination with all trades to ensure that conduit and back boxes are correctly placed for VMS use. Contractor is responsible for coordinating installation of conduit and boxes to make sure they are installed on schedule with other trades and are coordinated as to not interfere with other systems or pathways.
4. 120V AC Power is as required and is properly located.
5. LAN structured cabling is as required and properly located, and installation has been coordinated with other trades.
6. Coordinate all devices and locations prior to equipment installation with owner.
7. Coordinate Owner-desired camera views, providing camera modeling prior to installation.
8. Coordinate Camera housing and mount finishes with Architect and Owner.

Install and wire equipment in accordance with University of Kentucky ITS Standards, manufacturer’s recommendations, and accepted engineering and installation practices.
Mount system components as recommended by manufacturer. All equipment mounting in Communication Closets must be approved by UK ITS prior to installation.

9. Arrange equipment to facilitate permanent access for use and maintenance.

3.2 CABLE INSTALLATION

Neatly lace, dress, and support cabling.
Pull cables in accordance with cable manufacturer's recommendations and ANSI/EEE C2 Standards as well as University of Kentucky ITS Standards and all Division 270000 requirements.

1. Do not exceed manufacturer's recommended pulling tensions.
2. Do not install bruised, kinked, scored, deformed, or abraded cable.
3. Do not splice cable between indicated termination, tap, or junction points.
4. Remove and discard cable where damaged during installation and replace it with new cable.
5. Pull all cable by hand unless installation conditions require mechanical assistance.

Run all wire and cable continuous from device location to final point of termination. No mid-run cable splices shall be allowed.
Furnish and install all cable such that ample slack is supplied at device terminating end of cable to compensate for any final field modifications in camera location.

6. Loosely coil slack in “Figure-eight” in a manner that prevents kinking.
7. Loop radius shall be at least 4X minimum bend radius for cable.
8. Slack length of cable shall be 4 feet (minimum).

Provide code compliant fire proofing techniques for all penetrations of fire rated partitions and slabs, where penetrations are made by or used for installation of Video System.
Coordinate routing of wire and cable requiring isolation from power, radio frequency (RF), electromagnetic interference (EMI), telephone, etc. with Engineer.
At no time shall any cable be subjected to a bend less than manufacturer’s specified minimum radius. Also refer to UKITS Standards.
Provide grommets and strain relief material where necessary to avoid abrasion of wire and excess tension on Wire and Cable.
Make connections with solder-less devices, mechanically and electrically secured in accordance with manufacturers’ recommendations. Wire nuts shall not be an acceptable means of connecting wire and cable.

3.3 IP VIDEO CAMERAS

Mount Video Cameras per project drawings.
Field-verify exact locations and field-of-views with Owner prior to installation.
Provide video camera lenses to accommodate Owner-coordinated field-of-view per camera.

1. Field verify and confirm views with Owner prior to procurement and final installation and adjust camera positions and lens sizes as required upon installation.

Configure resolution, frame rate, password, etc. to match existing system installation, coordinate with UKPD.
Coordinate with Owner prior to installation to confirm required parameters.
Wire interface(s) to external alarms.

3.4 NETWORK CONNECTION

Cross-connections to building LAN by Owner, NO EQUIPMENT MAY BE CONNECTED TO UK NETWORKS BY ANY SUB CONTRACTOR, ONLY BY UK ITS personnel.

3.5 LABELING AND IDENTIFICATION

Labeling protocols to match all UK Security System installations.

1. Cabling, Hardware, and Equipment shall be clearly labeled using a Code identifying each piece as unique throughout Video Camera System. This code will aid in identifying hardware for servicing and maintenance.

2. Labels and Tags shall be machine-generated using English character set in black ink on white background labels and Tags.

    a. Self-laminating permanent labels are required on cables; permanent non-marring labels are required on all other hardware/cabinets.
    b. No hand-written Labels or Tags shall be allowed.
    c. Dymo or Kroy type adhesive backed lettering is not acceptable.

Identify and tag all cables to denote function.

3. Tag shall indicate:

    a. System of which cable is a part,
    b. Indication of cable destination (e.g., room or component), and
    c. Unique alpha-numeric identifier that distinguishes cable from all others in system.

All labels shall be machine generated. Handwritten labeling is not acceptable.
Label all front panel controls used in normal operation of system using plastic laminate engraved labels or approved equal.

4. Firmly affix to panel or device.

Labeling Formats

5. To be defined by Owner prior to construction following practice for all campus Security System installations.

3.6 SYSTEM TESTING AND ACCEPTANCE

System shall be complete and fully operational before requesting final acceptance and scheduling system Integration into the Campus VMS.
Installation of all field devices will be inspected by Owner or Owner's representative. Inspection will consider overall neatness and quality of installation, functionality of each individual device, mounting, wiring and labeling.
Conduct a seven-day burn-in test. Intent of burn-in test shall be to prove System by placing it in near real operating conditions prior to connection to Campus VMS.

1. During this period System shall be fully functional and programmed so that all points, controls, messages, prompts, etc. can be exercised and validated.

Provide written notification to Owner that system is completely installed, integrated, burn-in testing completed and is fully functional as specified herein.

2. Submit schedule for acceptance testing. Representatives of Owner, UKPD and/or representative may witness test procedures.
3. Notify Owner UKPD and the representative in writing a minimum of two weeks in advance to allow for such participation.
4. Describe test procedures prior to testing and submit sample test form to Owner / Representative.

Prior to final acceptance test, equipment rooms and similar areas should be free of accumulation of waste materials or rubbish caused by operations under Contract.
Equipment shall be on and fully operational during any and all testing procedures.

5. Provide all personnel, equipment, and supplies necessary to perform site testing.
6. Supply a form of communication with remote parties in the team for use during test.
7. A manufacturer's representative shall be present on site to answer any questions that may be

beyond technical capability of Contractor's employees, if Contractor so elects or by specific request of Representative Owner, at no charge to Representative or Owner.

During course of final acceptance test, Contractor shall be responsible for demonstrating that, without exception, provided VMS complies with contract requirements.
Testing shall include but not be limited to:

8. Continuity and conductor/connector integrity on all cables.
9. Demonstrate functionality of all cameras including:
    a. Owner-acceptable field of view.
    b. Response to alarms.
    c. Response to Access Control System inputs.
10. Confirm remote viewing, configuration, and camera control via Browser and in the UKPD Operations Center. Confirm all Analytic uses on Cameras programmed for Analytic use.
    a. Confirm system rights settings for authorized users.
11. Demonstrate storage and retrieval of recorded video by date/time.

Owner retains the right to suspend and/or terminate testing at any time when system fails to perform as specified.

12. In event it becomes necessary to suspend test, Contractor shall work diligently to complete / repair all outstanding items to condition specified in Specification and as indicated on Security Drawings.
13. All Owner's / Representative Fees and expenses related to suspended test will be deducted from Contractor's retainage.
14. Contractor shall supply Owner with a detailed completion schedule outlining phase by phase completion dates and a tentative date for a subsequent punch list retest.
15. During final acceptance test, no adjustments, repairs, or modifications to system will be conducted without permission of Owner.

Upon successful completion of final acceptance test (or subsequent punch list retest) Owner or Representative will issue a letter of final acceptance.
Records of Test Results shall be included in System Documentation and submitted as detailed below.

3.7 OWNER TRAINING

Training course for system covered in this section shall be a minimum of 6-hours.
Maximum number of students to be (6).

1. Training materials shall be provided to all students.

Record, label, and catalog all training on DVD Videodiscs. Provide discs to Owner for future in-house training sessions and / or reviews. Furnish all temporary equipment necessary for taping all training sessions. Maintain accurate and up-to-date time sheets of all training sessions. Contractor shall be on call during Warranty period to answer any questions Owner might have. The Owner reserves the right to use any excess training hours, not used by time of system completion, for future training as requested by Owner until total number of training hours has been completed.

3.8 DOCUMENTATION

All Owners manuals and or maintenance information shall be provided in printed form as well as electronic PDF format to the owner and owner representative.

3.9 WARRANTY AND SUPPORT

Unless otherwise noted, Contractor shall guarantee all materials, equipment, etc., two (2) years from date of final Owner acceptance of system. This guarantee shall include all labor, material, and travel time.
Contractor/Integrator and/or manufacturer(s) of system equipment must offer:

1. Technical Support Capabilities (Technician onsite) response time onsite within 4 hours, 24-hours/7-days per week (“24/7”), and 365 days per year.
2. 24-hour turn-around (from receipt of item) for Repair or Replacement of failed components, 7-days per week.

END OF SECTION 28 2300

NEED STAIRWELL PRESSURIZATION SEQUENCES AND EQUIP

SECTION 28 3100 - FIRE ALARM SYSTEM

1. GENERAL

A. SCOPE AND RELATED DOCUMENTS

(1) The work covered by and the intent of this section of the specifications includes the furnishing of all labor, equipment, materials, testing, programming and performance of all operations in connection with the installation of the Fire Alarm System as shown on the drawings, as herein specified and as required by the applicable codes and published University of Kentucky Standards.

(2) The requirements of all other applicable conditions of the Contract, Special Conditions and General Requirements, apply to the work specified in this section.

(3) The complete installation shall conform to the applicable sections of KBC 909.8, NFPA-71, NFPA-72A, B, C, D, NFPA 92 & 92B, Local Code Requirements and National Electrical Code (Article 760). The requirements of any local fire department and the Authority Having Jurisdiction shall also be observed in the system installation and device layout.

(4) The work included in this section shall be coordinated with related work specified elsewhere in these specifications.

(5) This system shall provide mass notification and smoke evaluation functions in addition to typical fire alarm functions. Provide a UL 864 listed controls system for the smoke control systems. All applicable components controlling these systems shall be UL listed for use in smoke control applications.

(6) Provide a fireman's control panel in accordance with the International Building Code and NFPA. The following equipment shall be controlled by the fireman's control panel:
a. All smoke control fans
b. Automatic door openers in all vestibules

(7) This section specifies a system or a component of a system being commissioned as defined in Section 01 9100 Commissioning. Testing of these systems is required, in cooperation with the Owner and the Commissioning Authority. Refer to Section 01 9100 Commissioning for detailed commissioning requirements.

B. QUALITY ASSURANCE

(1) Every component, device, transmitter, software, etc., that are included in the work, to make up a complete Fire Alarm System shall be listed as a product by the manufacturer under the appropriate category by the Underwriters' Laboratories, Inc. (UL), and shall bear the "U.L." label.

(2) The system power, signal and controls wiring shall be UL listed for Power Limited Applications per NEC 760. All circuits shall be marked in accordance with NEC Article 760.

(3) The fire alarm system shall be manufactured by Simplex/JCI, Notifier or Edwards.

(4) Major equipment and system startup and operational tests shall be scheduled and documented in accordance with Section 01 9100 Commissioning.

C. GENERAL

(1) Furnish and install a complete digital multiplex Fire Alarm System as described herein and as shown on the plans; to be wired, connected, completely tested, and left in first class operating condition. The system shall use individually-addressable digital multiplex device circuit(s) with individual device supervision, appliance circuit supervision, incoming normal and stand-by power supervision. In general, systems shall include a control panel, manual pull stations, automatic fire detectors, horns, flashing lights, annunciator (if indicated), interface with campus notification system, raceways, all wiring, connections to devices, connections to valve tamper switches, water flow switches and mechanical controls, outlet boxes, junction boxes, and all other necessary materials for a complete, operating system. All hardware, software, programming, devices and connections to the campus central monitoring system shall be provided under this contract. All functions available at the central monitoring station shall be included.

(2) The fire alarm control panel shall allow for loading or editing of any special instructions or operating sequences as required. No special tools, modems, or an off-board programmer shall be required to program the system to facilitate future system expansion, building parameter changes, or changes as required by local codes. All instructions shall be stored in a resident non-volatile programmable memory.

(3) All panels and peripheral devices shall be the standard product of a single manufacturer and shall display the manufacturer's name of each component. Any catalog numbers specified under this section are intended only to identify the type, quality of design, materials, and operating features desired.

(4) The listing of specific catalog numbers and equipment parameters is not intended to limit competition among other manufacturers that propose to supply equivalent equipment and services.

(5) Equipment submissions for shop drawing review must include a minimum of the following:

a. Complete descriptive data indicating UL listing for all system components.

b. Complete sequence of operations of the system.

c. Complete system wiring diagrams for components capable of being connected to the system and interfaces to equipment supplied by others.

d. A copy of any state or local Fire Alarm System equipment approvals.

e. An Autocad (latest version) produced wiring diagram illustrating the basic floor plan of the building, showing all system wiring and equipment, as well as zoning boundaries and schedule of zone legends as intended to appear on annunciators. Provide three CD-Rom copies of as-built drawings and all system operational software at close of project, to be included in operation and maintenance manuals.

(6) No work shall be done until the drawings are approved by the Kentucky Department of Housing, Buildings and Construction.

D. OPERATION

(1) The system alarm operation subsequent to the alarm activation of any manual station, automatic detection device, or sprinkler flow switch shall be as follows:

a. 1) The appropriate initiating device circuit indicator (red color) shall flash on the control panel until the alarm has been silenced at the control panel. Once silenced, this same indicator shall latch on. A subsequent alarm received after silencing shall flash the subsequent zone alarm indicator on the control panel and resound alarms and flashing signals. These same conditions shall occur at any remote annunciator.

2) A pulsing alarm tone shall occur within the control panel until silenced.

b. All alarm indicating appliances shall sound in a temporal code pattern until silenced by an alarm silence switch at the control panel (or the remote annunciator, if any).

c. All doors normally held open by door control devices shall close. Doors shall also be released in the event of incoming normal power failure.

d. A supervised signal to notify the local fire department or an approved central station (as required by local codes) shall be activated.

e. A supervised signal sent to the mechanical control system(s) shall activate, shut down or reconfigure the air handling systems as required by NFPA or as otherwise indicated herein. Provide necessary interlock wiring as required to control mechanical equipment.

f. The Contractors shall coordinate with each other as necessary to provide all required auxiliary contacts, DDC systems interfaces, equipment, etc., as needed to shut down or otherwise control air handling systems per NFPA and all applicable codes.

g. The system shall be wired with two circuits to all Notification devices so that when an alarm is acknowledged, silencing the audibles, the visual units shall continue in operation until the main control panel has been reset. If local codes require other than this arrangement, the system shall be wired in accordance with the code that is applicable.

(2) The alarm indicating appliances shall be capable of being silenced only by authorized personnel operating the alarm silence switch at the main control panel or by use of a similar key operated switch at the remote annunciator (where remote units are provided). A subsequent alarm shall reactivate the signals. Operation of the alarm silence switch shall be indicated by trouble light and audible signal.

(3) The alarm activation of any elevator lobby shaft, pit or equipment room smoke detector shall, in addition to the operations listed above, cause the elevator cabs to be recalled according to the following sequence:

a. If the alarmed detector is in any location or on any floor other than the main level of egress, the elevator cars shall be recalled to the main level of egress.

b. If the alarmed detector is on the main egress level elevator lobby, the elevator cabs shall be recalled to the pre-determined alternate recall level.

c. Provide auxiliary contacts within the base of each elevator lobby smoke detector, with each separate landing to be wired back separately to the elevator controller. Coordinate all equipment terminations and sequence of operation with the elevator installer. The use of digital to analog controllers to accomplish this function will be acceptable, if in compliance with codes.

(4) The activation of any standpipe water valve tamper switch or sprinkler zone valve tamper switch shall activate a distinctive system supervisory audible signal and illuminate a "Sprinkler Supervisory Tamper Switch" indicator at the system controls (and the remote annunciators). There shall be a distinction in the audible trouble signals between valve tamper switch activation and opens or grounds on fire alarm circuit wiring.

a. Activating the trouble silence switch will silence the supervisory audible signal while maintaining the "Sprinkler Supervisory Tamper" indicator showing the tamper contact is still activated.

b. Restoring the valve to the normal position shall cause the audible signal and visual indicator to pulse at a fixed rate.

c. Activating the trouble silence switch shall silence the supervisory audible signal and restore the system to normal.

(5) The activation of the campus or local mass notification system shall cause all building notification strobes to flash and shall broadcast the emergency message via all building fire alarm speakers.

(6) The alarm activation of any duct mounted smoke detector shall cause the control panel to indicate and report a supervisory trouble only. It shall not sound the general building alarm. It shall initiate an HVAC system shutdown as described above.

(7) Include with the control panel, as an auxiliary function, a built-in test mode that, when activated, will cause the following operation sequence:

a. The city connection circuit shall be disconnected.

b. Control relay functions shall be bypassed.

c. The control panel shall show a trouble condition.

d. The panel shall automatically reset itself.

e. Any momentary opening of an initiating or indicating appliance circuit shall cause the audible signals to sound for a minimum of two seconds to indicate the trouble condition.

(8) A manual evacuation switch shall be provided to operate the system indicating appliances and/or initiate "Drill" procedures.

(9) Activation of an auxiliary bypass switch shall override the automatic functions either selectively or throughout the system and initiate a trouble condition at the control panel.

(10) Include any and all detection equipment and interface relays as required to provide a 100% code approved and supervised pre-action Fire Suppression system. Coordinate with the Fire Protection installer as required.

(11) Mass Notification: Receipt of an IP-based multicast message from the campus Single wire InformaCast System shall activate all speakers in the facility and broadcast the delivered voice message. Live voice messages will also be delivered in activation of the mass notification microphones located at the fire alarm control panel and fire alarm annunciator panels.

(12) Smoke Evacuation: Manual operation of activation of any designated smoke detector shall initiate the smoke evacuation system.

a. Open all electrically operated vestibule doors
b. Start all smoke evaluation fans
c. Send an inhibit signal to the stand by automatic transfer switch to remove non-essential loads from the generator. Signal shall not include any intentional delay.

(13) Fire Pump Monitoring: System shall monitor the status of the fire pump controller. When fire pump is connected to generator power and the controller is calling for the pump to fun – the fire alarm shall send an inhibit signal to the stand by automatic transfer switch to remove non-essential loads from the generator. Signal shall not include any intentional delay.

E. SUPERVISION

(1) The system shall contain Class "B" (Style "B") independently supervised initiation circuits as required for the zoning indicated. Circuits shall be arranged so that a fault in any one zone shall not affect any other zone. The alarm activation of any initiation circuit shall not prevent the subsequent alarm operation of any other initiation circuit.

(2) There shall be supervisory initiation circuit(s), as required, for connection of all sprinkler valve tamper switches. Wiring methods which require any fire alarm initiation circuits to perform this function shall be deemed unacceptable; i.e., sprinkler and standpipe tamper switches (N/C contacts) shall NOT be connected to circuits with fire alarm initiation devices (N/O contacts). These independent initiation circuit(s) shall be each labeled "Sprinkler Supervisory Tamper Switch" and shall differentiate between tamper switch activation and wiring faults. Provide individual annunciation for the main post indicator valve and each tamper switch as indicated by the zoning schedule on the plans or as otherwise required by codes. For these circuits and all exterior underground copper circuit wiring, provide proper surge suppression and protection for circuit.

(3) There shall be independently supervised and independently fused indicating appliance circuits as required for alarm audible signals and flashing alarm lamps.

(4) All auxiliary manual controls shall be supervised so that all switches must be returned to the normal (automatic) position to clear system trouble.

(5) Each independently supervised circuit shall include a discrete (amber color) "Trouble" indicator to indicate disarrangement conditions, per each circuit.

(6) The incoming power to the system shall be supervised so that any power failure shall be audibly and visually indicated at the control panel and the annunciator. A green color "power on" indicator shall be displayed continuously while incoming power is present.

(7) The system batteries shall be lead-acid type, supervised so that disconnection or failure of a battery shall be audibly and visually indicated at the control panel (and the annunciator).

(8) Wiring to a remote annunciator (if provided for system) shall be supervised for open and ground conditions. An independent annunciator trouble indicator shall be activated and an audible trouble signal shall sound at the control panel.

F. MONITORING

(1) The control panel shall be equipped with a network connection or communications interface for the campus-wide central monitoring system as required. Provide all hardware, software, programming, devices and connections to the campus central monitoring system as required to activate all functions available at the central monitoring station. Primary and secondary communication channels shall be provided per Code.

G. POWER REQUIREMENTS

(1) The control panel shall receive 120 VAC power via a dedicated circuit. The incoming circuit shall have suitable overcurrent protection within the control panel, as well as at the circuit source. If additional circuits are required for this or other control units, they shall be provided by the Contractor.

(2) If the facility is equipped with an emergency standby power generator, the fire alarm equipment shall be connected to this system, per N.E.C.

(3) The system control panel and auxiliary equipment, such as power supplies shall be provided with sufficient battery capacity to operate the entire system upon loss of normal 120 VAC power in a normal supervisory mode for a period of time as required by codes for the building occupancy. There shall be reserve battery capacity to drive all alarm appliances for five minute indication at the end of this period. The system shall automatically transfer to the standby batteries upon power failure. All battery charging and recharging operating shall be automatic. Batteries, once discharged, shall recharge at a rate that will provide a minimum of 70% capacity in 12 hours, or sooner if required by codes.

(4) All circuits requiring system operating power shall be 24 VDC and shall be individually fused at the control panel.

(5) Power supplies for Notification signals, whether in the main panel or within remote power supply cabinets, shall be designed to provide a minimum of 20% spare capacity for future signals.

H. PERIPHERAL DEVICES

Note: On fully digital multiplex systems, provide addressable devices, bases or modules for devices listed herein. Each device shall be an individual address on the system. Addressable bases or modules shall be U.L. listed for the device served.

(1) MANUAL PULL STATION

a. Manual stations shall be double action and shall be constructed of high impact, red lexan or cast metal with raised white lettering and a smooth high gloss finish. The manual pull station shall have a hinged front with key lock. Stations shall be keyed alike with the fire alarm control panel. When the station is operated, the handle shall lock open in a protruding manner. Furnish one key for each manual station to owner at close of project, during instruction period. Install within 60" of each exit, per code, whether indicated on the drawings or not.

(2) CEILING-MOUNTED SMOKE DETECTORS, PHOTOELECTRIC TYPE

a. Furnish and install where indicated on the plans or required, ceiling-mounted smoke detectors. Provide separate outlet-box mounted base with auxiliary relay, or standard base, as required.

b. Smoke Detectors shall be listed to U.L. Standard 268 and shall be compatible with their control equipment. Detectors shall be listed for this purpose by Underwriters' Laboratories, Inc. The detectors shall obtain their operating power from the fire alarm panel supervised detection loop. Loss of the operating voltage shall interrupt the supervisory circuit of the fire alarm detection loop and cause a trouble signal to be generated at the control panel. Detectors shall be capable of being reset at the main control panel.

c. No radioactive materials shall be used. Detector construction shall provide mounting base with twist-lock detector head. Contacts between the base and head shall be of the bifurcated type using spring-type, self-cleaning contacts. Removal of the detector head shall interrupt the supervisory circuit of the fire alarm detection loop and cause a trouble signal at the control panel. Detector design shall provide full solid state construction, and compatibility with other normally open fire alarm detection loop devices such as heat detectors, pull stations, etc.

d. To minimize nuisance alarms, voltage and RF transient problems, suppression techniques shall be employed as well as a smoke verification circuit and an insect screen. The detector head shall be easily disassembled to facilitate cleaning.

e. Remote LED alarm indicators shall be installed where required.

f. Smoke detectors (and all other system electronics) shall be shielded to protect circuitry from EMI problems generated by power fields, cellular phones, etc.

g. Special Note: The Contractor installing smoke detectors shall use care in the final positioning of all devices. They shall not be installed closer than 36" from an air diffuser or return grille, closer than 24" from a ceiling/wall intersection, or similar location that would diminish detector performance. Refer to and comply with NFPA 72E, "Standard On Automatic Fire Detectors".

h. Provide smoke detector at each fire alarm system control component, as required by code.

(3) AUDIBLE UNITS

a. Audible signals shall be delivered by speaker. Each audible assembly shall include separate wire leads for in/out wiring for each leg of the associated signal circuit. T-tapping of signal device conductors to signal circuit conductors will not be accepted. Each audible device shall produce a minimum sound pressure level of 92db at 36" on axis. Locate as indicated or required. All audible tones for same function shall be identical, per NFPA. Provide sufficient audible units to comply with code for required coverage and voice intelligibility. Provide temporal coded signals.

b. Audible units and visual units shall be wired to separate Notification circuits, allowing for silencing of audibles with alarm acknowledgment, continuing operation of strobes until system reset. Addressable devices may be used to fulfill this requirement.

c. Dual Fire Alert Strobe Devices

1) The unit shall be complete with a tamper resistant lexan lens with “FIRE” lettering and clear lense for the fire alarm signal. Mount the fire alarm devices on the wall at no less than 80” AFF. “ALERT” lettering shall appear on the amber colored lens of the strobe designated for the emergency alert system. The Alert strobe shall be just above the fire strobe in the same enclosure for new installations. For existing installations install the alert strobe next to the existing fire strobe on the wall surface mounted.

2) All strobes shall be addressable, ADA approved and capable of a flash at the required synchronized 1 flash per second. Xenon strobe shall provide 4-wire connection to insure properly supervised in/out system connection. Unit shall be complete with all mounting hardware including back box. Audio/visual unit shall be UL listed for its intended purpose. Provide amber lenses for the alert devices.

(4) VISUAL UNITS

a. Stand-alone visual indicating units shall be xenon type strobe matching audio-visual units. These devices shall be UL listed and be or wall mounted. A high-impact clear lens shall project out from backplate for fire notification. Lettering, if any, shall be oriented upright to the standing viewer. Candela output values of all visual units shall be selected for the covered spaces geometry and size, complying with A.D.A. and NFPA.

b. Provide system-wide synchronization of all visual devices, so that all strobes flash at the same rate and at the same time, complying with A.D.A.

(5) DUCT SMOKE DETECTORS

a. Duct smoke detectors shall be of the solid state photoelectric type, operating on the light scattering photodiode principle. The detectors shall ignore invisible airborne particles or smoke densities that are below the set alarm point. No radioactive materials shall be used. The basic construction of duct smoke detectors shall be the same as that previously described for ceiling-mounted smoke detectors. Duct housing couplings shall be slotted to insure proper alignment of the sampling and exhaust tubes. Detector shall have an alarm status LED visible through a transparent cover, panel or in housing.

b. The Contractor shall furnish air duct smoke detectors with template to the sheetmetal or air handling unit installer for installation. Coordinate length of sampling probe required and furnish appropriate length. Probe tube shall be located in accord with manufacturer's

recommendations, to give maximum sampling rate of airflow. Provide multiple detectors, as required, if a single device will not provide adequate sensing due to duct size or air velocity. Wire multiple detectors on a single air handling system as a single zone or address unless otherwise required by prevailing codes. Field verify quantity of detectors needed to provide NFPA-compliant coverage of the air handling unit and provide as required.

c. Detector supervised power and alarm wiring (from F.A. control panel) is to be provided by the Contractor. Interlock wiring from auxiliary contacts to stop or otherwise control air handling unit fan motor(s) is to be provided by the Contractor. Provide auxiliary contacts as required. Zone wiring and indication for air duct smoke detectors shall be maintained separate from area detection devices. Detector shall be capable of being reset at the main control panel, and at a local test/reset station.

d. Where air duct smoke detectors are located in other than Mechanical Rooms or in spaces not easily visible, a remote alarm/power indicating LED key reset station shall be installed. These remotes shall be ganged together, if required, and labeled accurately as to which unit is reporting an alarm condition.

e. Where air duct smoke detectors are indicated to be furnished at concealed air handling units above ceilings or smoke damper locations, furnish as outlined above. Also provide remote indicating alarm LED flush in corridor wall at 7'-0" A.F.F. immediately below installation, or as close as practical to installation. The Contractor is to provide control wiring, E.P. switches, etc., as required to operate smoke dampers, as well as the required operating circuit. Coordinate all requirements with the installer of smoke dampers.

f. Ionization - type detectors shall not be utilized for air duct smoke detection.

g. All air duct smoke detector installations and materials shall be in accord with U.L., NFPA, and any other applicable codes.

(6) BEAM DETECTORS

a. Beam detectors shall be of the photoelectric type with infrared light source. UL lighted to Standard 268. Construct with coded signal to eliminate interference from artificial and natural lighting.

b. Detectors shall have adjustable delay and at least 8 sensitivity settings. Detector shall produce a trouble signal if observation is 50% or higher.

c. Provide remote indicator and test point mounted in an accessible area within view of the detectors.

(7) DOOR HARDWARE

a. Door holders shall be FM 998 approved.

b. All door hardware shall be Yale, Von Duprin or Dorma and door keying shall be compatible with the UK Yale or Best master keying system.

c. Install a smoke detector on each side of any door equipped with a hold open device.

(8) END OF LINE RESISTOR

a. End-of-line devices (if required) shall be flush-mounted, located at 7'-0" A.F.F. in corridor walls or as indicated.

(9) REMOTE POWER SUPPLY UNITS FOR PERIPHERAL

a. Provide remote power supply(ies) as required for proper system operation.

b. Remote power supplies shall be provided with local intelligence compatible with the digital multiplex network, so they have a unique address, providing the ability to monitor the supply for loss of power, shorts, grounds and other supervisory functions.

c. Where required by the fire alarm system manufacturer, remote power supplies shall be provided that will provide sufficient current to drive audio/visual or other required devices.

d. These units shall be located in electrical closets, mechanical rooms or similar spaces. They shall not be installed in finished areas, storage rooms, etc., without the permission of the Engineer. All locations shall be indicated on the shop drawing submissions.

e. Provide dedicated 120 volt power circuit(s) from nearby panelboards as required, whether indicated on the plans or not.

I. INSTALLATION

(1) Provide and install the system in accordance with the plans and specifications, all applicable codes and the manufacturer's recommendations. All wiring shall be in a completely separate conduit system from power wiring or other raceway systems. Minimum conduit size shall be 3/4" trade size. Maximum wire fill shall be 40%, for any raceway system.

(2) All junction boxes shall have coverplates painted red and labeled "Fire Alarm". A consistent wiring color code shall be maintained throughout the installation. The number of wiring splices shall be minimized throughout. Excessive wire splicing (as determined by the Engineer), shall be cause for rejection of the work.

(3) All conductive cabling associated with this system that extends beyond the building envelope shall be provided with surge suppression. Suppression installed shall be approved by the fire alarm equipment manufacturer and in accordance with Division 26 specifications.

(4) Installation of equipment and devices that pertain to other work in the contract shall be closely coordinated with the appropriate tradesmen or other contractors.

(5) The Contractor shall clean all dirt and debris from the inside and the outside of the fire alarm equipment after completion of installation.

(6) The manufacturer's authorized representative shall provide on-site supervision of installation, and shall perform the initial "power-up" of the system after he has thoroughly checked the installation.

(7) Operation and maintenance manuals submitted for this project shall list names, license numbers, and telephone numbers of at least two installers that are employed full time by the supplier/manufacturer to install and test fire alarm systems in the installation location.

(8) A floor plan drawing indicating fire alarm devices and wiring only, shall be provided by the manufacturing company for job site use. These drawings shall be approved by the State Fire Marshal's Office or Local Authority Having Jurisdiction, as appropriate and in accord with code requirements. A copy of this drawing shall be submitted to the Engineer for his review, approval and project records.

J. WIRING LEGEND

CIRCUITS (Unless Otherwise Specified or Required by Equipment)	WIRE SIZE-AWG	WIRE COLOR	EOL Value
ALARM CIRCUITS WIRES Stations Smoke Detectors Heat Detectors Waterflow Switch Tamper Switch-Trouble Only	# 18	ORANGE(pos.) BLUE(negative)	3.3KOHM
TROUBLE CIRCUIT WIRING	# 18	BROWN	
COMMON ANNUNCIATOR WIRES	# 18	VIOLET	
POINT ANNUNCIATOR WIRES	# 18	PINK WITH BRADY TAG	
120VAC WIRING	# 12	BLACK WHITE (Neutral)	
24VDC	# 14	RED (Positive) BLACK (Negative)	
PARALLEL SIGNAL WIRES	# 14	RED (Positive) BLACK (Negative)	15K OHM
SERIES SIGNAL WIRES	# 14	YELLOW	NONE
DOOR HOLDER	# 14	BLUE WHITE (Neutral)	
FAN SHUT DOWN WIRES	# 14	SELECTED BY CONTRACTOR	
ELEVATOR CONTROL WIRES	# 14	SELECTED BY CONTRACTOR	
TELEPHONE WIRES	# 22	TWISTED/SHIELDED	22K OHM
SPEAKER WIRES	# 18	TWISTED	15K OHM

Notes

1. All wire shall be stranded, tinned copper unless otherwise indicated.
2. All shielding is tinned copper braid with additional aluminum sheath unless otherwise noted.
3. All wiring for data lines and voice risers must be Belden 9574, or an equivalent unless otherwise noted on drawings.

K. TESTING

(1) Functional Performance Tests: System functional performance testing is part of the Commissioning Process as specified in Section 01 9100. Functional performance testing shall be performed by the contractor and witnessed and documented by the Commissioning Authority.

(2) The completed fire alarm system shall be fully tested in accordance with NFPA-72H and NFPA-92B by the contractor in the presence of the Owner's representative and the Local Fire Marshal. Upon completion of a successful test, the Contractor shall certify the test results in writing to the Fire Marshal, Owner, General Contractor, Architect and Engineer. Provide one week's written advance notice of the test to all concerned parties.

(3) All auxiliary devices the fire alarm system is connected to, including tamper switches, flow switches, elevator controls, remote receiving stations, etc., shall be fully tested for proper operation where interfacing with the fire alarm system.

(4) Demonstrations and Training: Training of the owner’s operation and maintenance personnel is required in cooperation with the Commissioning Authority. The instruction shall be scheduled in coordination with the Commissioning Authority after submission and approval of formal training plans. Refer to Demonstration and Training, Section 01 7900, for contractor training requirements. Refer to Section 01 9100 and the Commissioning Plan for further contractor training requirements.

(5) The Contractor shall provide a minimum of three hours of instructional time to the Owner in the operation and maintenance of all equipment and components. A receipt shall be obtained from the Owner that this has been accomplished, and a copy forwarded to the Engineer. Provide additional training time if required by the Owner at no charge to the contract or as direct charge to the Owner.

L. BUILDING MAP

(1) Building map shall be provided adjacent to the main control panel and shall consist of floor plans inked on mylar with color coded zones. Zone indications shall depict the exact zone number and alphanumerical labeling as shown on the FACP zone labels. Building map shall be a detailed floor plan with all room numbers, fire alarm zones, detectors, horns, alarm initiators, flow switches, sprinkler heads, sprinkler zones, and all other devices shown. "Zone No." shall be in 1/4" high letters. Maps shall be properly oriented and shall be 1/16" = 1' scale or 1/32' = 1' scale with written exception of the owner. Provide durable aluminum frames and all required mounting hardware and mount where indicated on plans. Aluminum frame must be such that it can be removed, disassembled and reassembled to allow replacement or revisions to the mylar. The layers of the map in the frame from back of the frame to the front of the frame shall be as follows:
   a. 1/8" Plexiglas
   b. white backing mat
   c. pastel backing color layers for zones
   d. inked mylar with floor plan, room #s, fire alarm zones, detectors, horns, alarm initiators, flow switches, sprinkler heads, sprinkler zones, and all other devices.
   e. Spacer mat to allow mylar to be suspended from top of frame and reduce washboarding.
   f. 1/8" ultraviolet blocking plexiglass
   g. 1/8" clear Lexan to prevent scratching

(2) Building map(s) shall be installed, complete with "as built" corrections before system is left in operation and before the University will consider the project for substantial completion. Before this system is left operational and reports to the UK Central Station, this map(s) must be in place.

M. WARRANTY

(1) The Contractor shall unconditionally guarantee (except for vandalism or misuse) the completed fire alarm system wiring and equipment to be free from inherent mechanical, software and electrical defects for a period of one year from the date of substantial completion.

(2) The equipment manufacturer shall make available to the Owner a maintenance contract proposal to provide a minimum of two inspections and tests per year in compliance with NFPA-72H and NFPA-92B guidelines.

END OF SECTION 28 3100