FS Integration/Installation Planning February 2020

Detector Integration, Control Drawings and Consortia Interfaces

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Interface Control Documents

- Interface Control Documents (ICDs) identify where and how a consortium interacts with another consortium
- This is the foundation that allows for respective designs to progress and come together correctly
- Component designs that are not yet complete honor the ICD
- An ICD is both a tool to your success and a deliverable of reviews
- At a minimum ICDs address mechanical and electrical interfaces
  - Thankfully we have a good start on ICDs and we are near the finish line

Interface Control Documents

- Use EDMS as an in work location and cut down on email
- Meet with Terri and Kyle to ask questions in advance of April 17th, 2020
- What if the scope is not yet clear?
  - This is a good reason to have a strong ICD
- Ask yourself what would need to happen for you to be comfortable approving this?

What About the Drawings?

- To the right is from 2019
- Simple figures, schematics and drawings will support your ICD
- Where you have a mechanical interface, it is a good idea to put it in a drawing
  - This is how we put models to work
- Drawings will start in draft form and are only as strong as the involvement of leader's

Characteristics of Interface Drawings

- Define critical interface dimensions and tolerances
- Define 'stay clear' areas for assembly and performance
- Complex interfaces identify:
  - Components
  - Responsibilities
  - Installation Sequence
- In the interest of efficiency, more than one interface may be shown on a drawing (i.e. more than two consortia are shown)

Interface Drawing Process

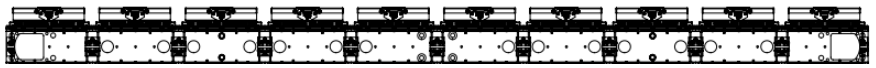
- Identifying the drawings we need and starting them is the goal
- Input from technical leads and respective engineers will be used from start to finish
- Drawings in draft form will be distributed to small groups for review and markup
- Then uploaded to EDMS
- Iterating to resolve interferences, conflicts and scope gaps is part of the process

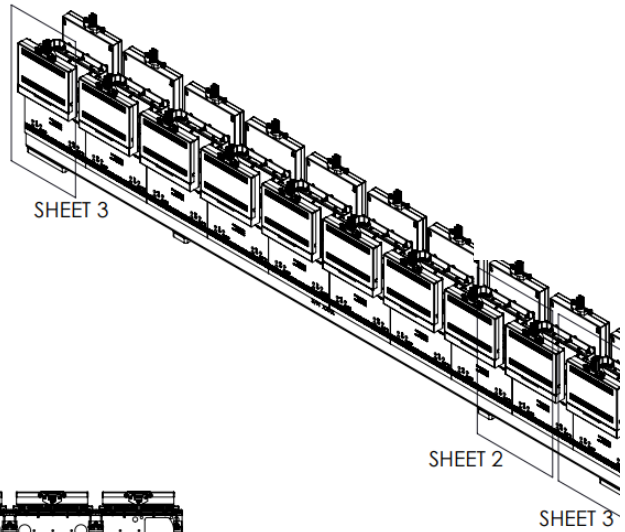
Example Drawings 2088736

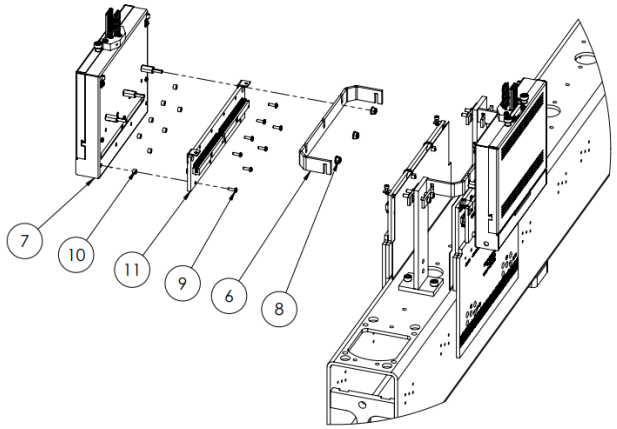
- We have options…

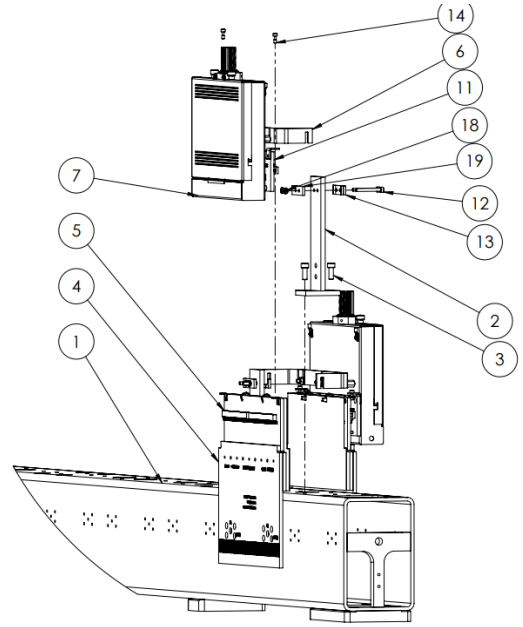
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	DESIGN	PROCUREMENT
1	8760012	APA HEAD TUBE	1	APA	APA
2	8760088	CE TEE MIDDLE	9	APA	CE
3	8757A176	M6-1.0 x 16mm SHCS A2-70 SS SILVER PLATED	22	APA	CE
4	8760104	X BOARD - HEAD	20	APA	APA
5	8760145	CR PCB ASSEMBLY	20	APA	APA
6	8760085	CE BRACKET	20	APA	CE
7	DUNE-400	DUNE COLD ELECTRONICS CE_BOX_ASSY	20	CE	CE
8	MCMASTER_94710A101	18-8 STAINLESS NYLON-INSERT FLANGE LOCKNUT, M4-0.7mm	60	CE	CE
9	MCMASTER_95911A218	THREAD-LOCKING PAN HEAD PHILLIPS SCREW, M3-0.5 x 10	160	CE	CE
10	MCMASTER_92871A005	18-8 STAINLESS UNTHREADED SPACER, 4mm LONG, M3 SCREW SIZE	160	CE	CE
11	8757B241	CE TO CR ADAPTER BOARD ASSEMBLY	20	APA	APA
12	8757A224	M4-0.70 x 35 SHCS A2-70 SS SILVER PLATED	22	APA	CE
13	8760092	CE CLAMP BAR MIDDLE	9	APA	CE
14	8757A244	CAPTIVE SCREW 6-32 x 0.375" LONG, HEX DRIVE SS SILVER PLATED	40	APA	APA
15	8760087	CE TEE ENDS	2	APA	CE
16	8760187	CE BRACKET CLAMP BAR END PEM NUT	2	APA	CE
17	8760091	CE BRACKET CLAMP BAR END	2	APA	CE
18	PENN ENGINEERING	SP-M4-2 SELF-CLINCHING NUTS - TYPES S, SS, CLS, CLSS, SP - METRIC	22	APA	CE
19	8760186	CE CLAMP BAR MIDDLE PEM NUT	9	APA	CE

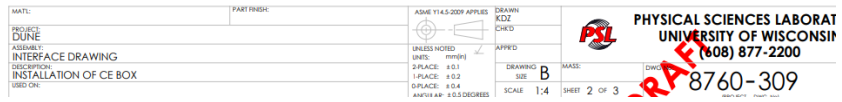
NOTES:
- HEAD TUBE COMPONENTS ARE HIDDEN FOR CLARITY











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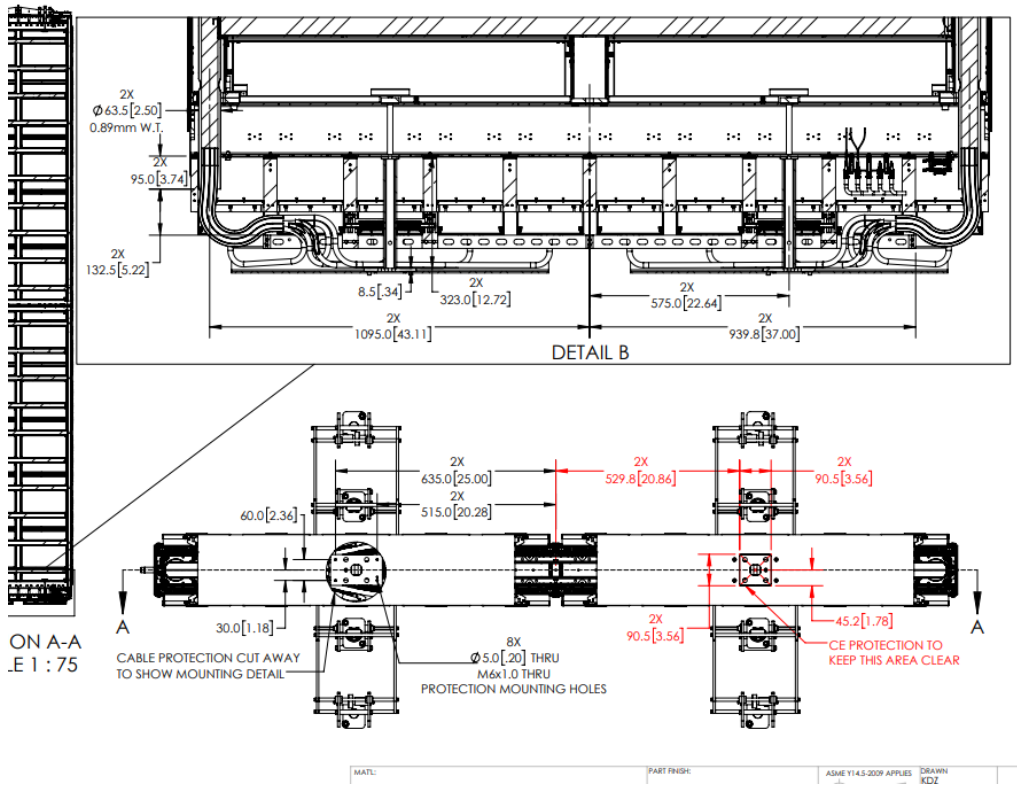
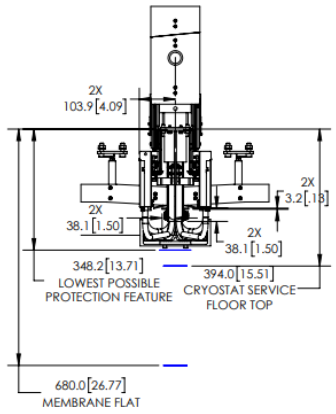
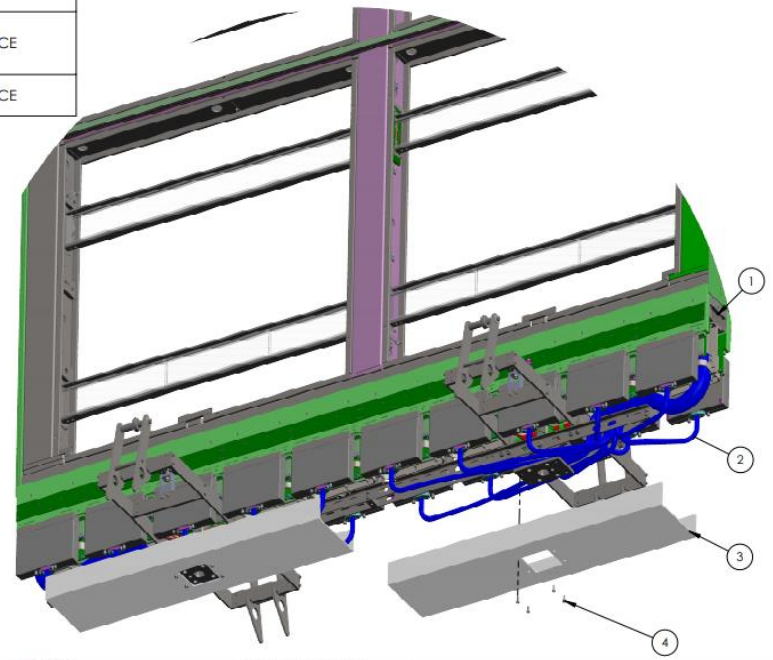
ITEM NO.	PART NUMBER	DESCRIPTION	QTY.	CONSORTIUM
1	8760185	APA PAIR	1	APA
2	CE cable bundle section with bend_10-190829	CE CABLE BUNDLE LOWER THRU CONDUIT	2	CE
3	1630T421_6061 ALUMINUM U-CHANNEL_1630T421-190829	#1630T42_6061 ALUM U CHANNEL 3" x 8" x 36"L	2	CE
4	MC-616-NA-190829	#MC-616-NA_M6-1.0 x 16 SHCS, A2SS, SILV PLATE	8	CE







EDMS: 2088736

PHYSICAL SCIENCES LABORATORY

Example Drawings 2088735

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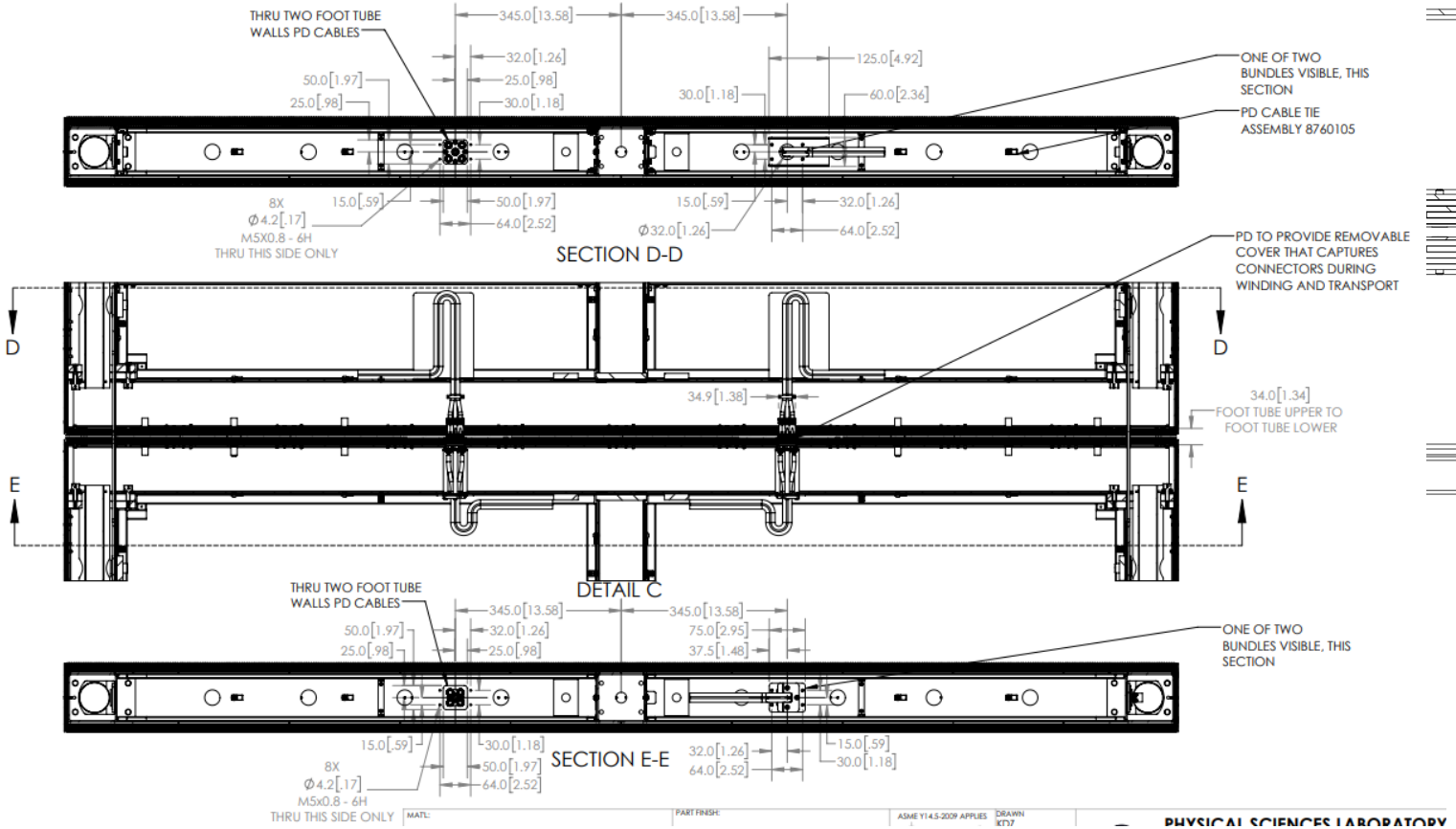

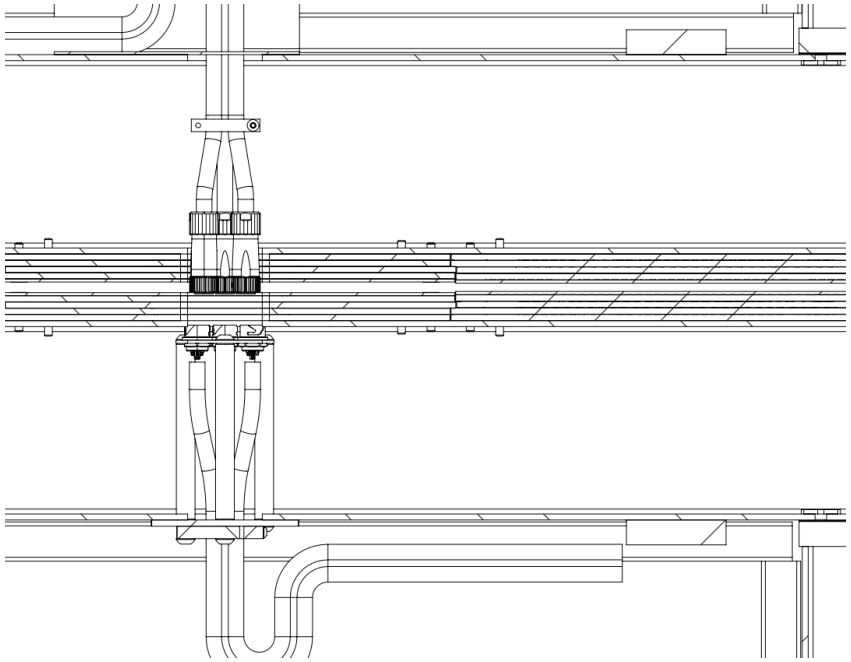

Example Drawings 2088735

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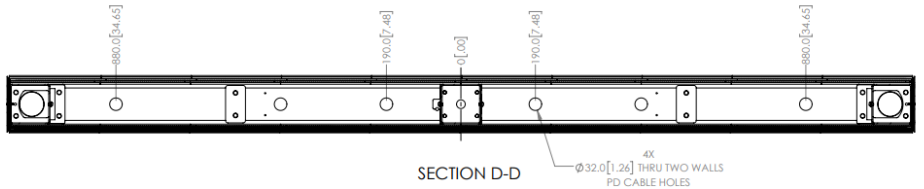

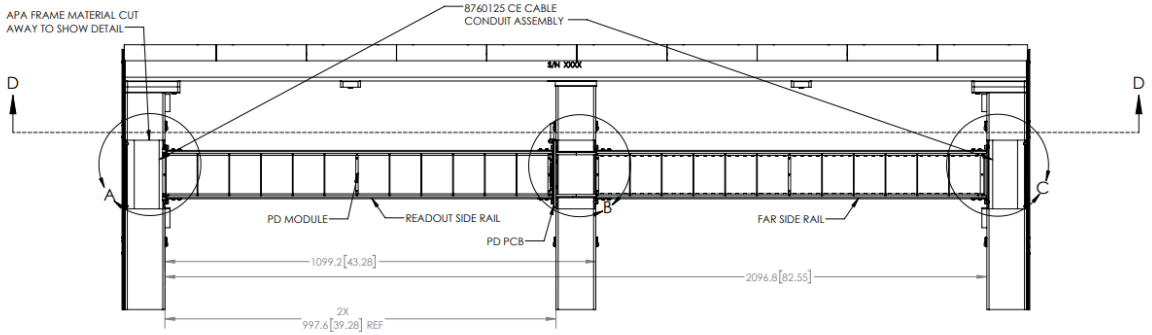

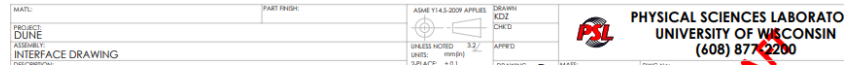

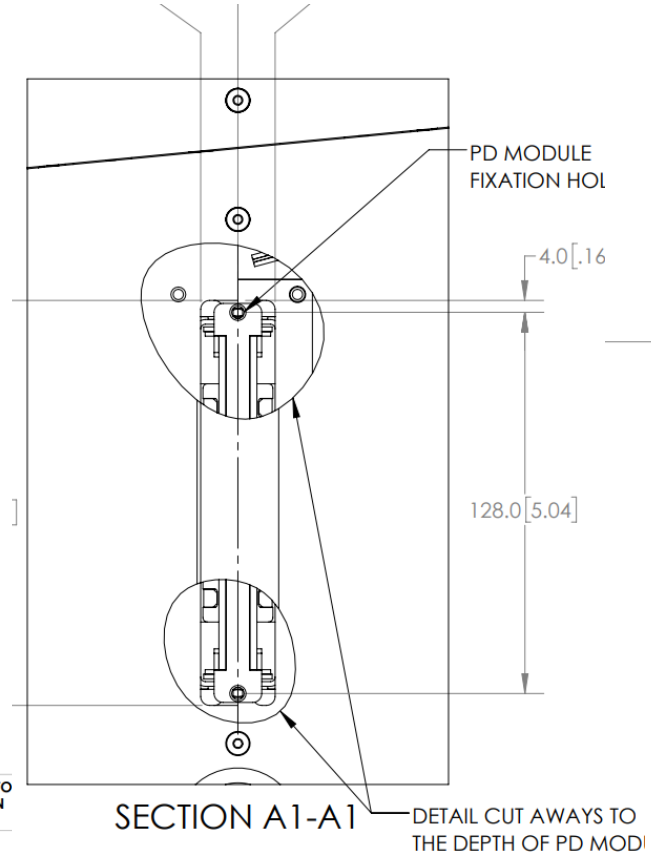

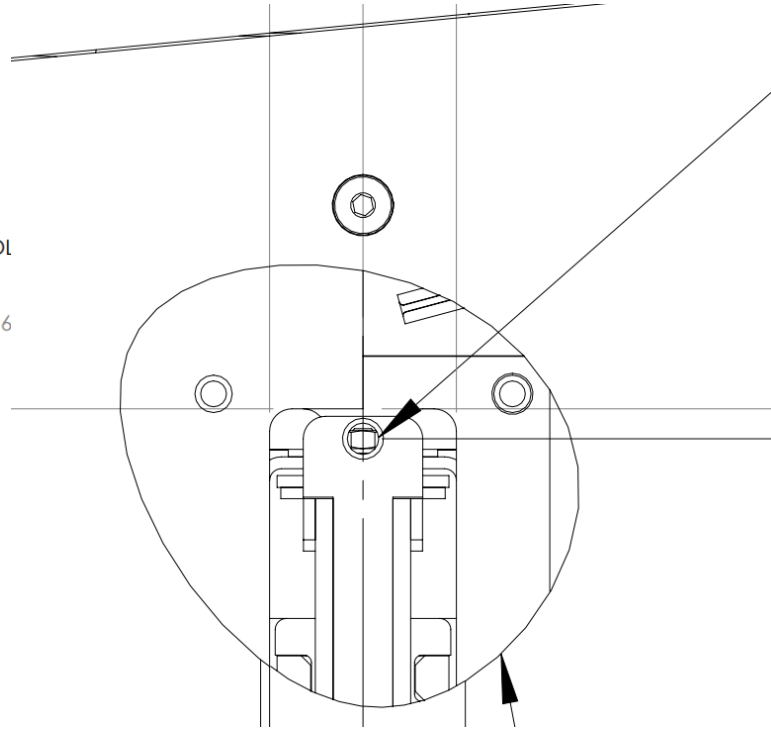

Example Drawings 2088721

- We have options…