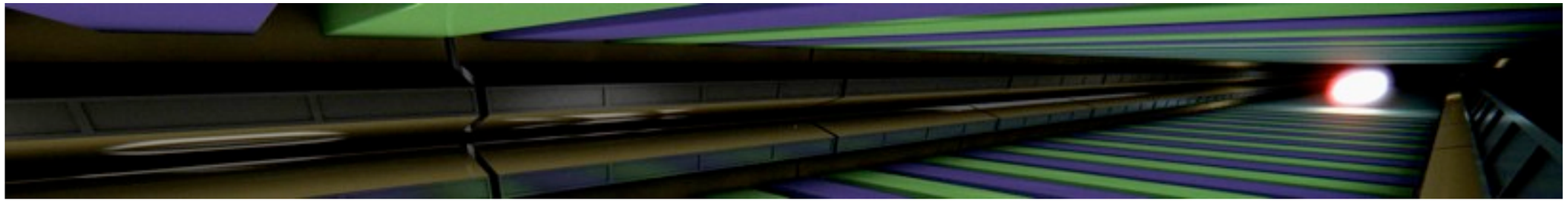


Photon Systems
Progress Report

Tobias Haas

PPR1-2012

19 April 2012

Topics

- Regular Technical Meeting
- Experimental Hall floor planning
  - layout
  - services
- XHQ Labs
- Installation Schedule
- Temporary lab space in HERA-S
- Things next and things to worry about!

PPR Format

- More time for talks and discussions
- Still
  - What has been achieved since the last PPR (Nov 2011)?
  - What are your next plans?
  - What are your concerns?
- Financial information is *NOT* requested during the presentation.

- Let’s see how this works

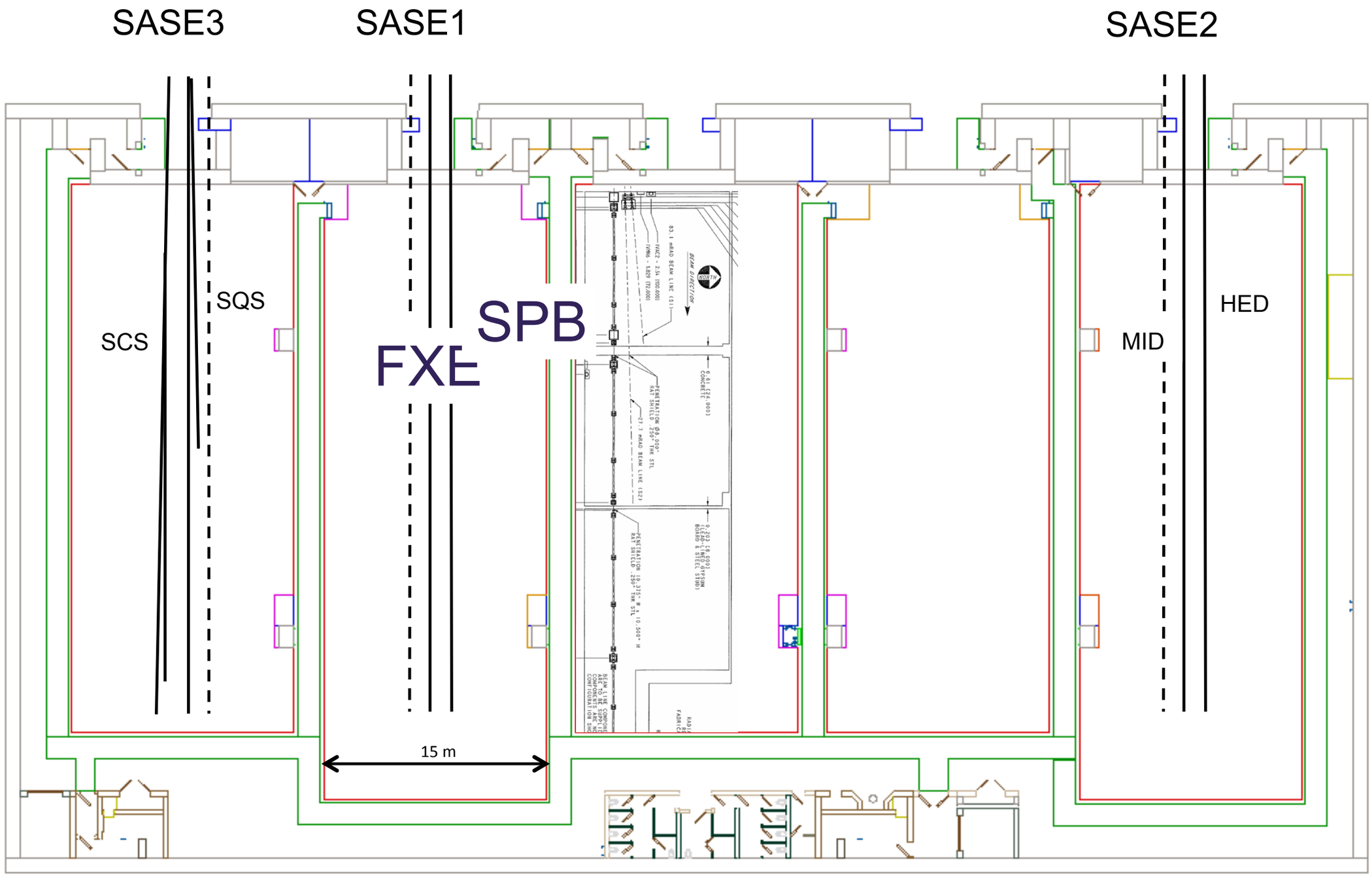
Photon Systems Technical Meeting Format

- Friday 9:00 - 11:00
- Bi-weekly
- Strict time limit
- Agenda agreed in advance
- Minutes
- Decisions
- Action items with owners and dates

PSTM Topics

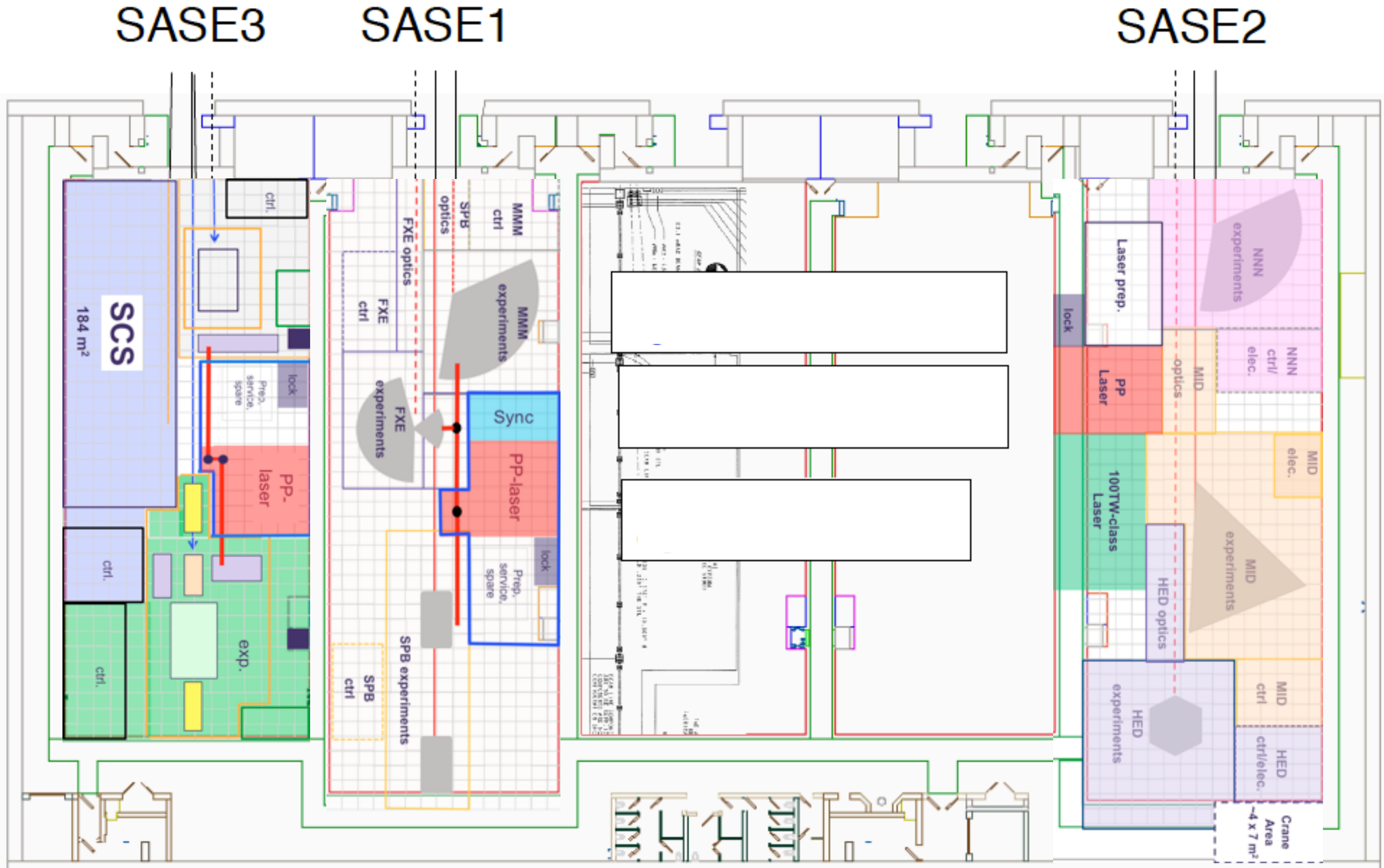
- Experimental Hall Floor allocation
- TGA planning
  - power
  - air/water
- XHQ Labs
- Engineering resources for instruments
- ...

Beam line allocation



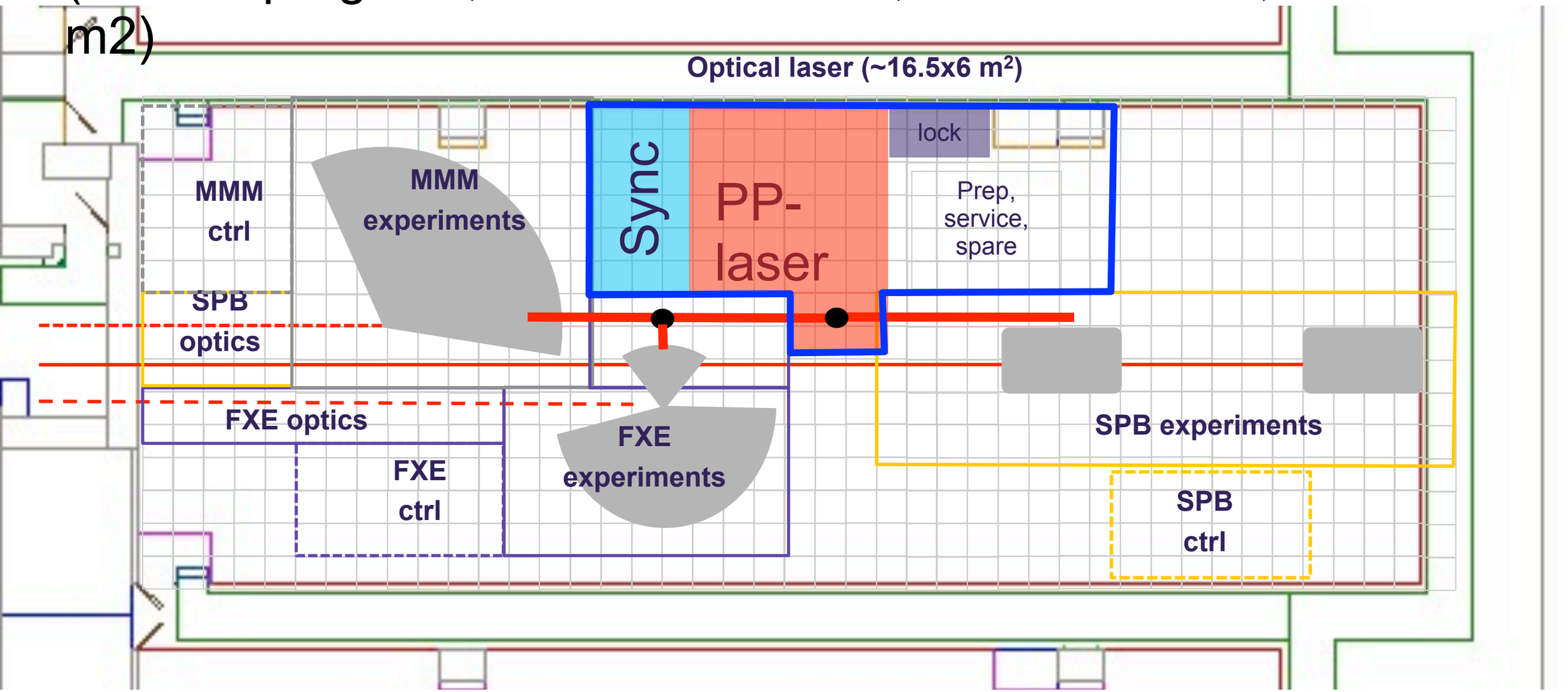
From TC meeting, February 4, 2011

Experimental Hall



Conceptual floor plan for SASE 1 instruments

(work in progress, MMM= 80-90 m2, FXE= 87.5 m2, SPB= 95 m2)

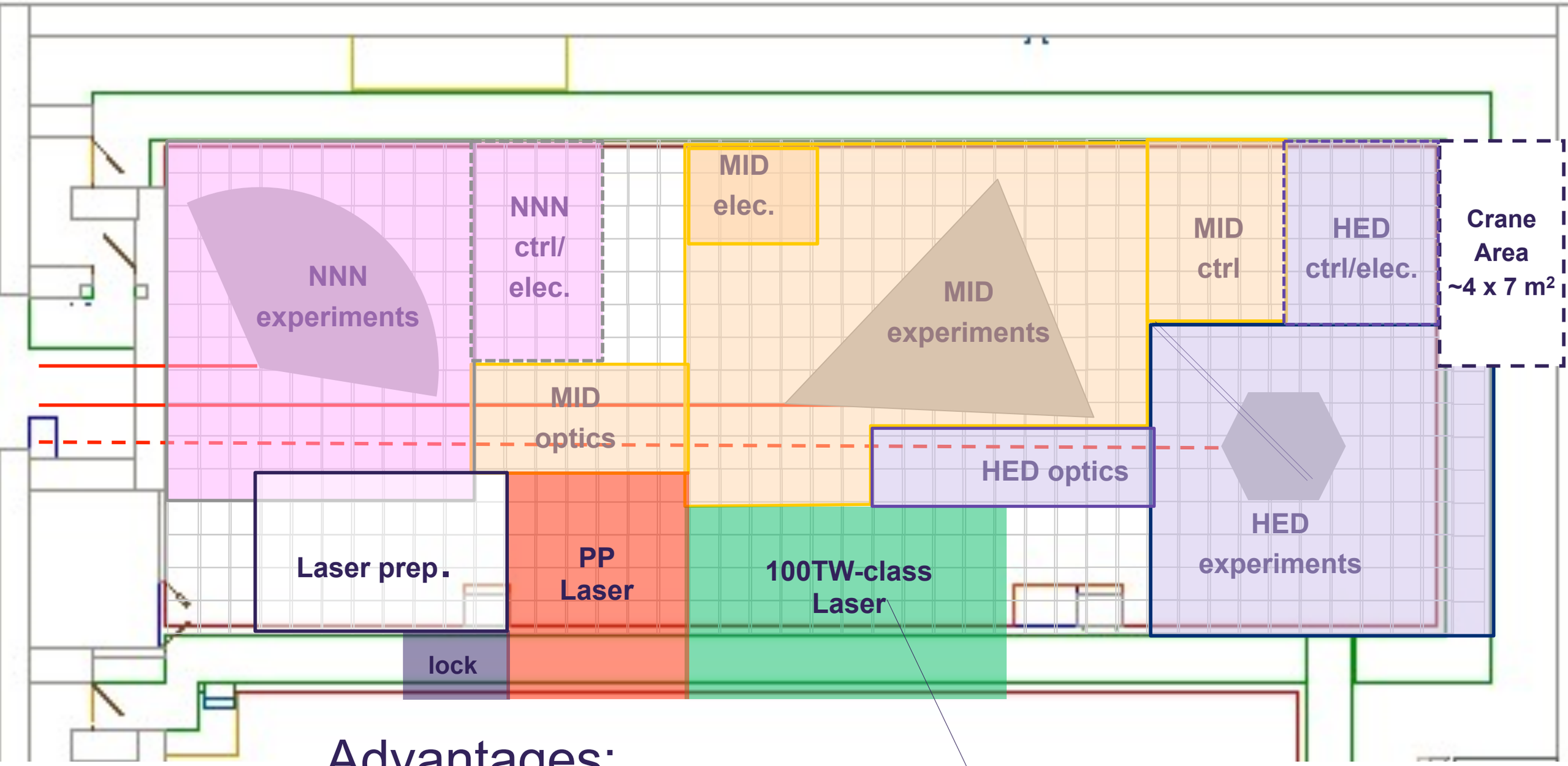


Some numbers (boxes 1x1 m²)

- Total SASE 1 floor space: ~43x15 m² (2 x 1.4 m separation of incoming x-ray beams)
- Control: 4x6m2, Electronics: 4x2 m2, optics: beam 50 cm from wall, 0.1 m x-ray wall t.)

Conceptual floor plan for SASE 2 instruments

(rough outline as of Jan 5, 2012)



Advantages:

Access to HED & MID optics ensured

No invasion of neighbor “U” area

Almost space filling at SASE-2

SASE 3

Floor plan A 19/01/2012

Total: 15 x 36 = 540 m²

93 m²

SCS2/SQS2

Laser: 6x12=72m²

184 m²

SQS

2x4=8m²

lock

Prep, service, spare

PP-laser

exp.

7x13= 91m²

ctrl.

1.1 4.4 m m

SCS

184 m²

ctrl.

ctrl.

4x8=32m²

422m

432m

442m

452m

experimental chamber

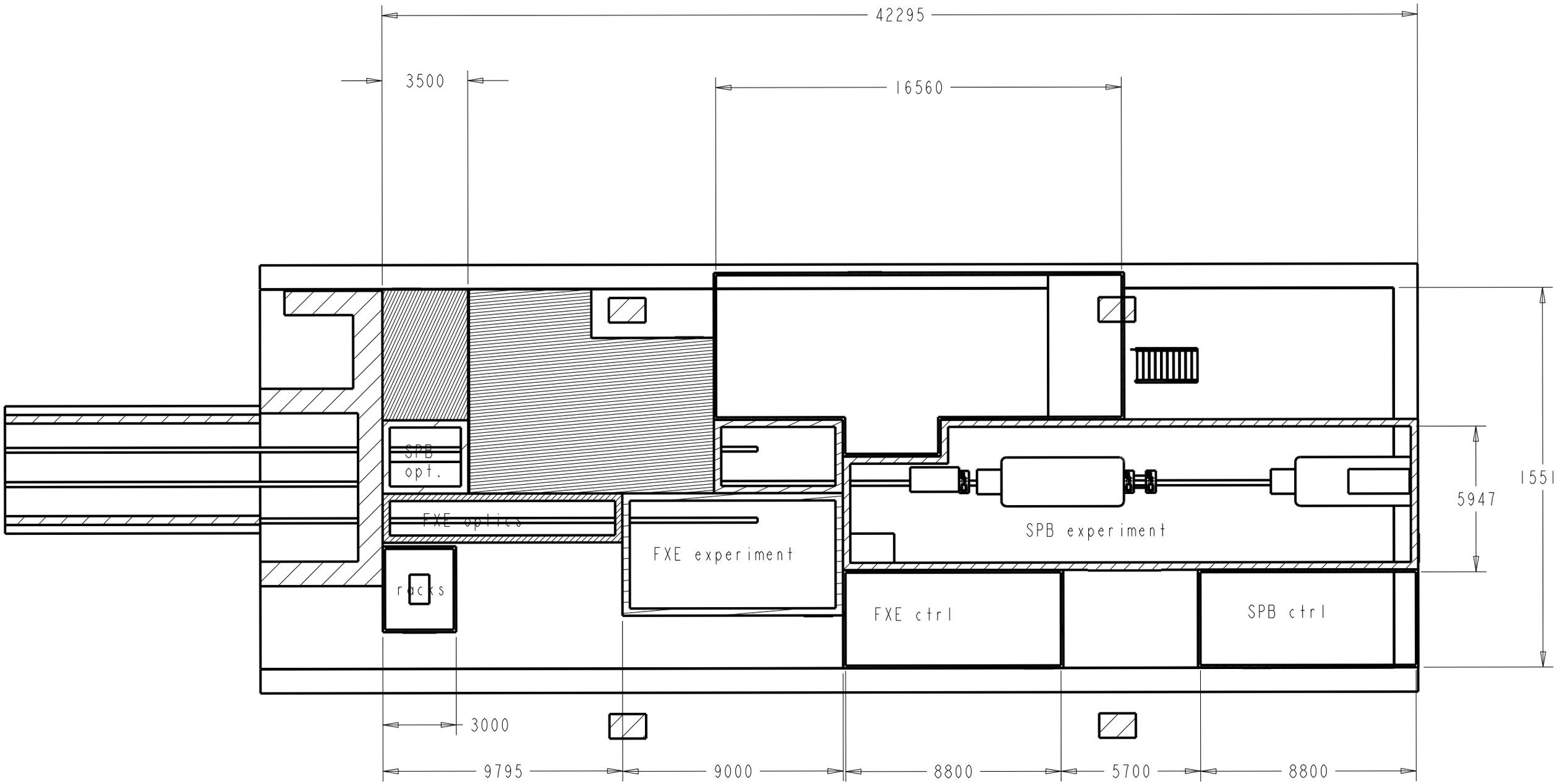
KB optics

Laser table

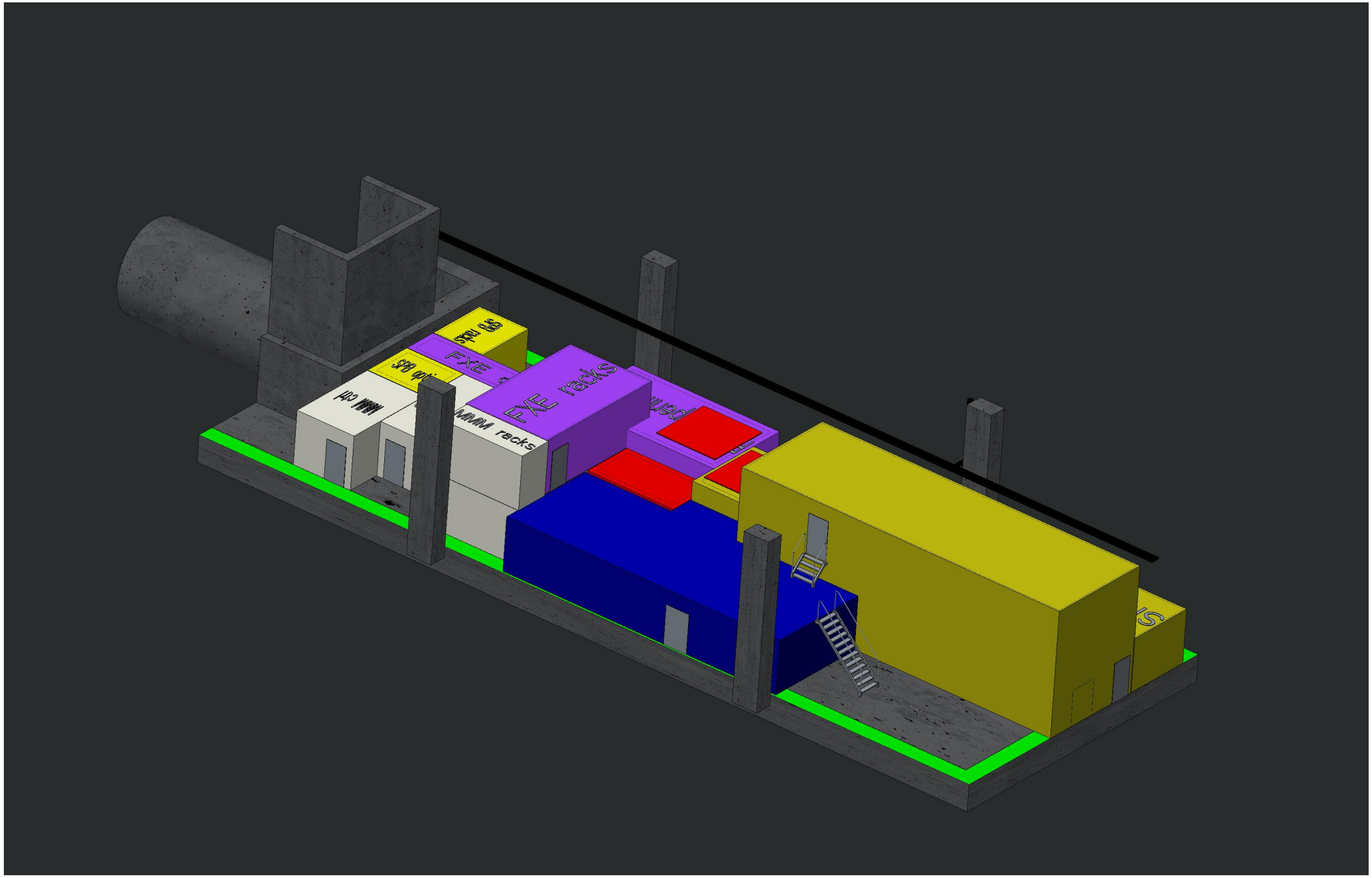
diagnostics

rack room

SASE1 Layout

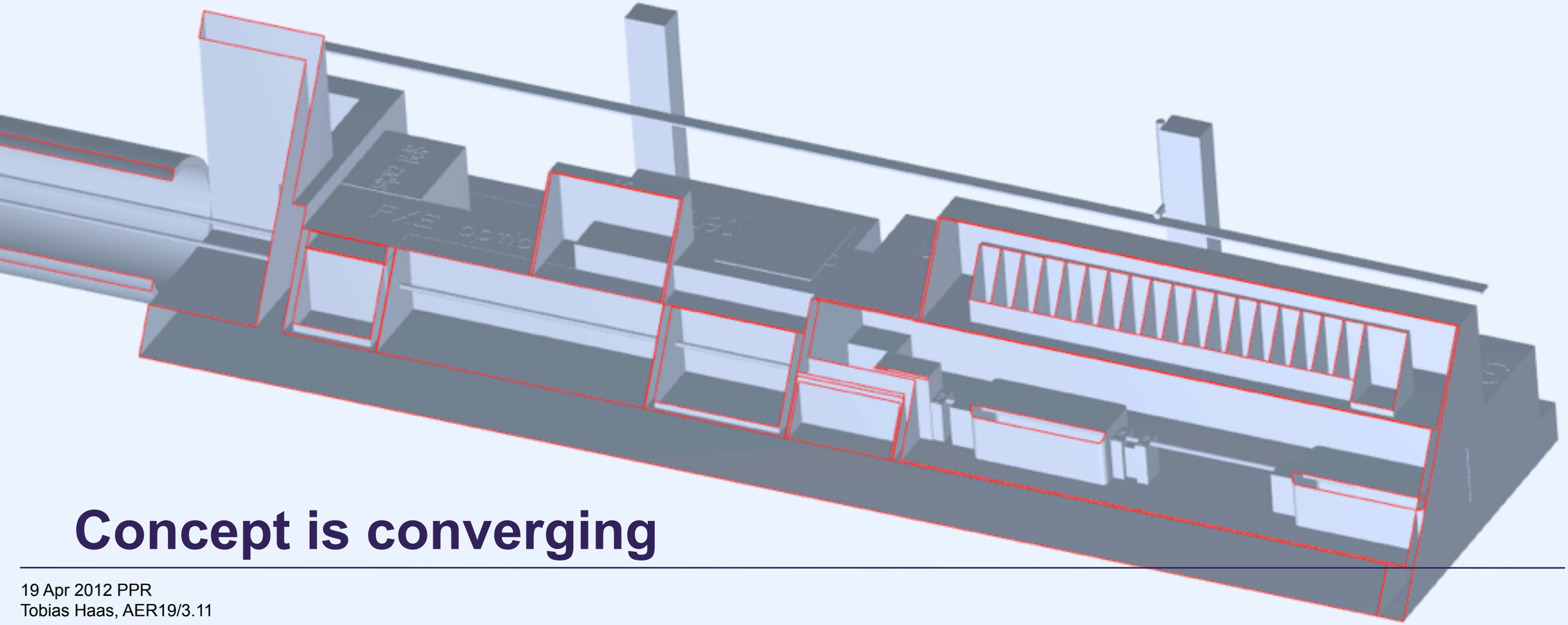


SPB Mirrored layout



Layout remarks

- Racks on top of instrument hutch
- Media distribution along pillar axis
- Access to hutches from the top via crane
- Space for third instrument is quickly shrinking to zero



Concept is converging

Power/Rack estimates

- Method:
  - WP84 estimate: motors, pumps, detectors numbers
  - WP76 estimate: WP84 + rest of Beckhoff + DAQ + det.cooling
- Compared numbers and good agreement found

- Electrical power breakdown
  - 98kW = motors - 5kW, pumps - 19.5kW, rest of Beckhoff - 11kW, DAQ - 32kW, DAQ extension - 30kW
  - ≤ 10kW missing (fume cupboard, lights, power bars, webcams, displays)
- Need 110kW of electrical power

- Water cooling 80% of power in 98kW
- Need 80kW of water cooling power

- Expt. Hutch air-conditioning 13.5kW heat load x 2.5
- Need 30kW of air-conditioning

C.Youngman for WP76

- Rack space needed

What	SPB	SFX	Tunnel	Optics
Beckhoff	2	1	0,3	0,1
Cooling	1	4	-	-
E-racks	5	4	0,3	0,3

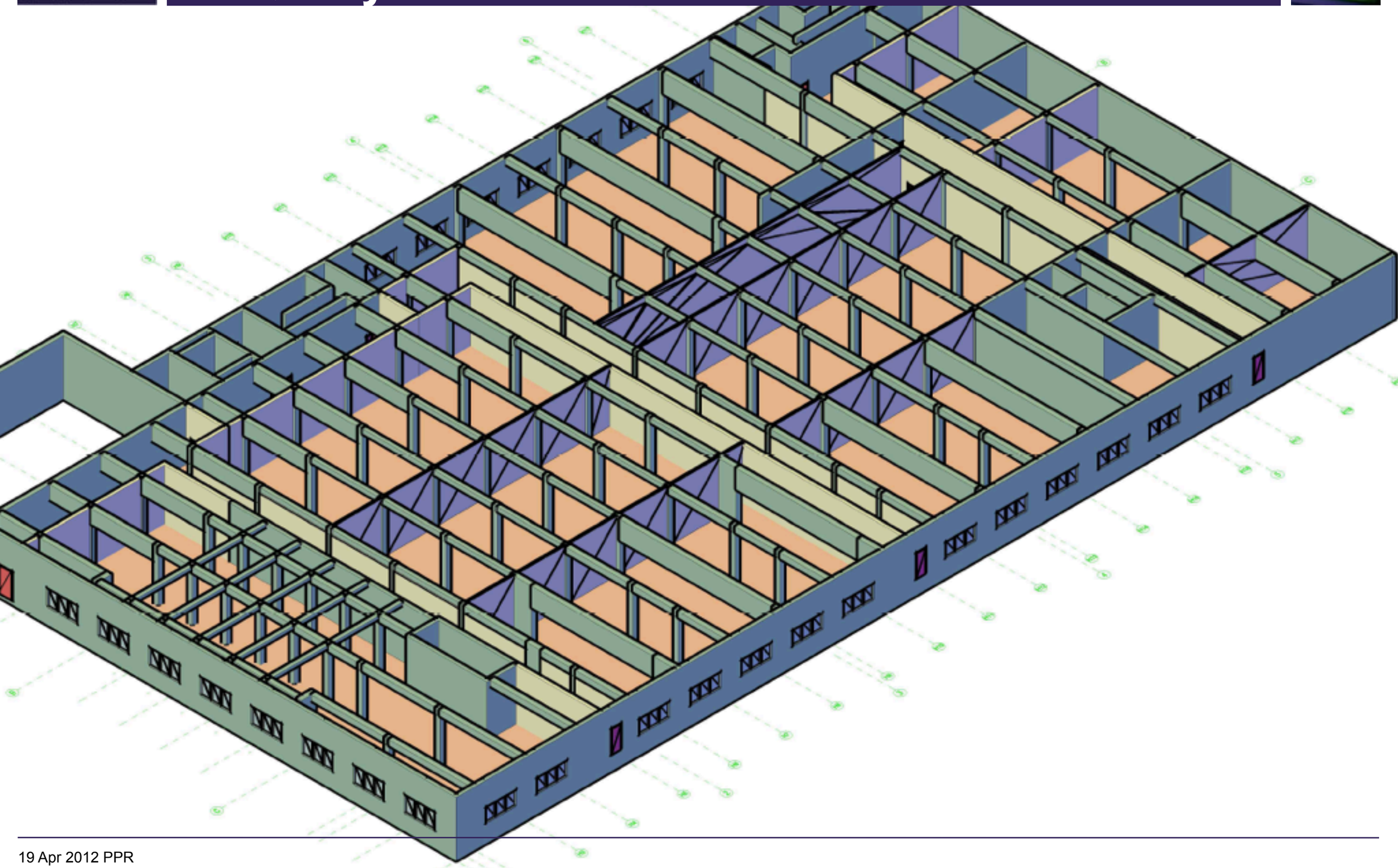
- **How to proceed suggestion:**
  - **TC check through input spreadsheets**
  - **TC decide on safety factors**

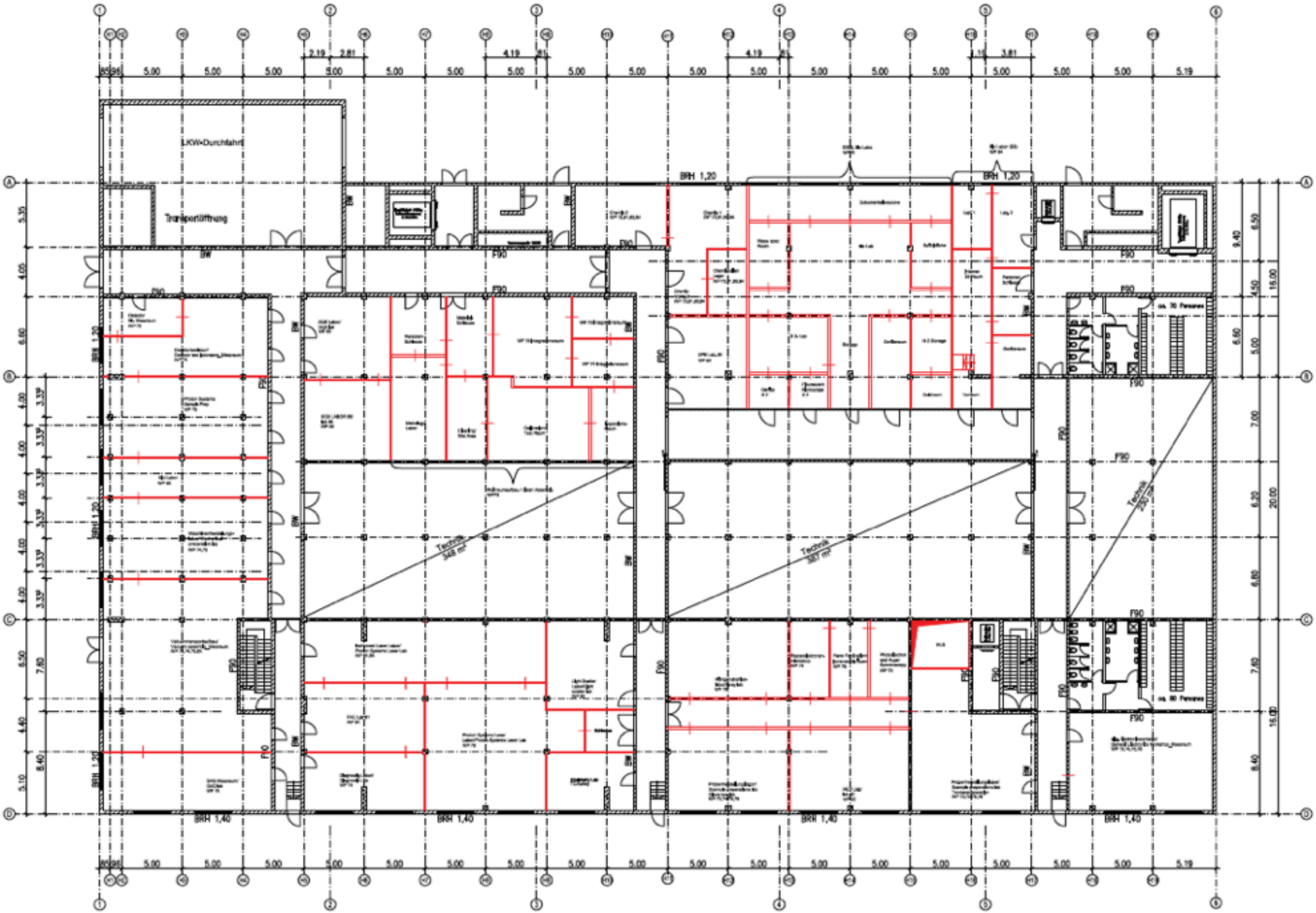
Next Steps

- Fix beam port allocation
- Produce room books for the experimental areas
- Further detail
  - hutches
  - media distribution
  - access
- Integrate instrument and infrastructure planning

European XFEL

XHQ: Layout lab floor





LKW-Durchfahrt
Transportöffnung
BRH 1,20
BRH 1,40
F90
BW
Technik
348 m²
Technik
387 m²
Technik
230 m²
ca. 70 Personen
ca. 80 Personen

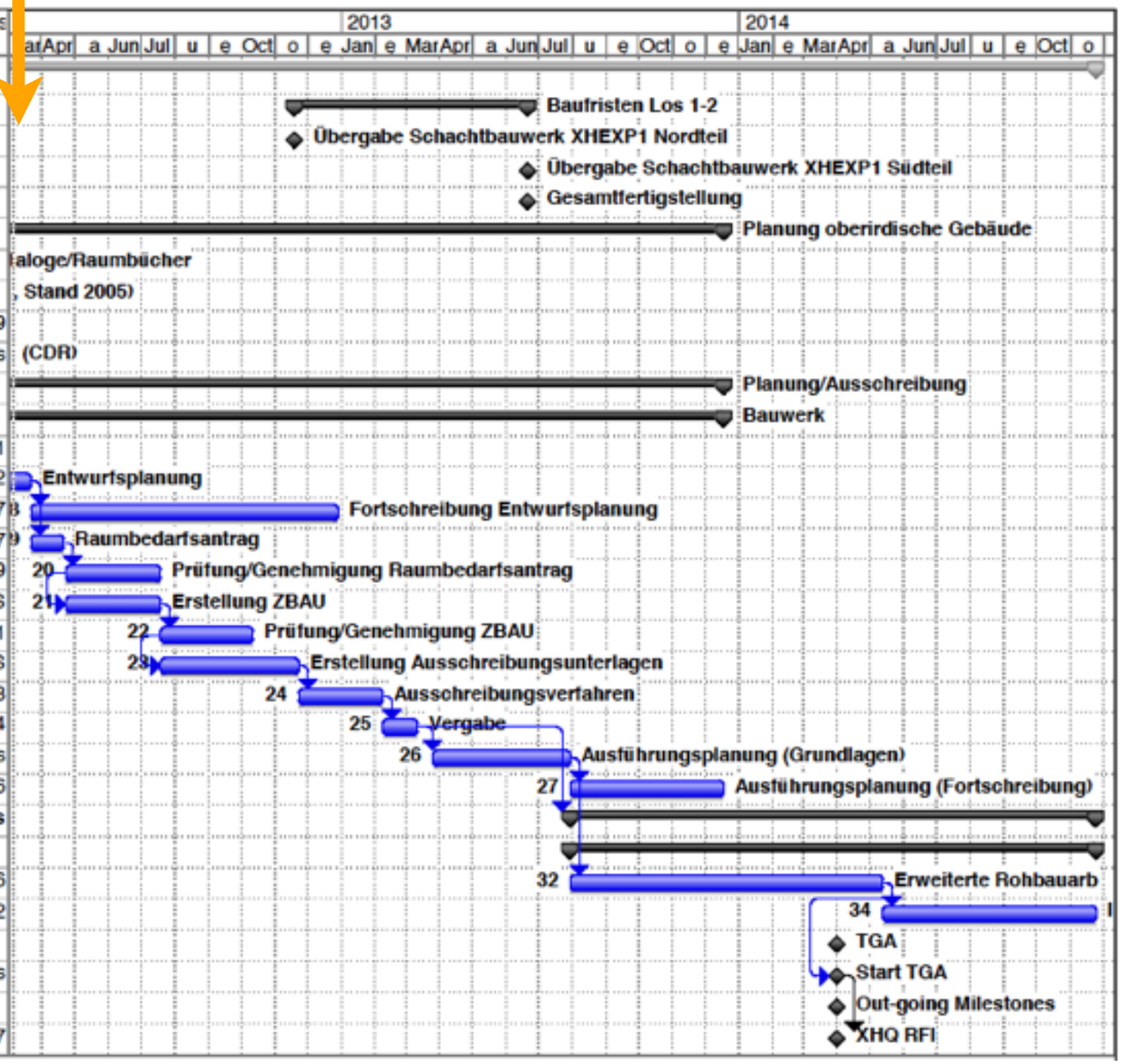
Next Steps

- Public result presentation by planners (probably) 5 May
  - consistent picture
    - ➔building
    - ➔TGA
    - ➔labs
    - ➔cost
- Go into the next planning phase

Time Schedule

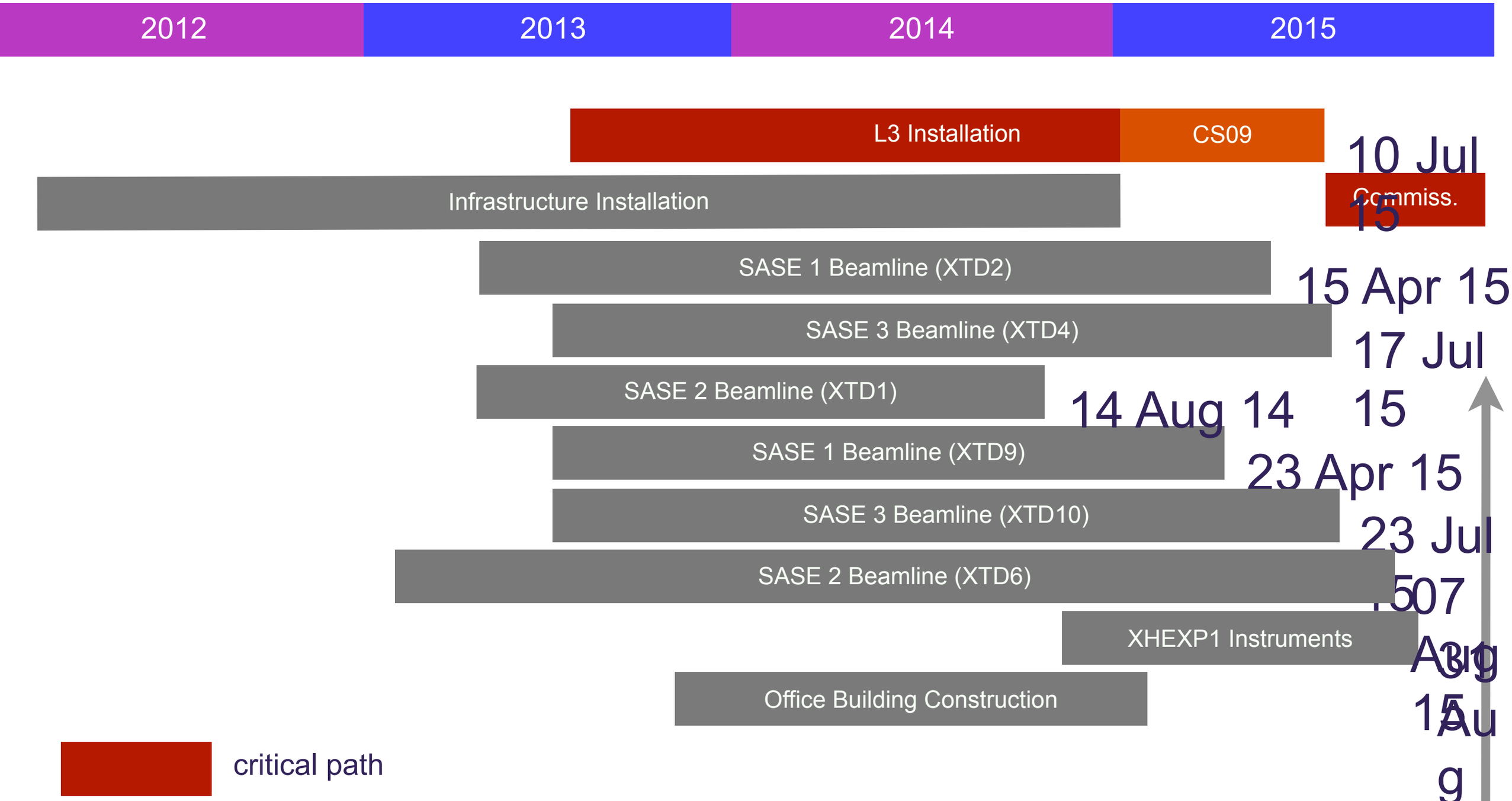
we are here

ID	Task Name	Duration	Start	Finish	Predecessors
0	**WP-48_Los8_XHQ**	**912 dys**	**Wed 20.04.11**	##########	
1	**Baufristen Los 1-2**	**144 dys**	**Mon 19.11.12**	**Fri 21.06.13**	
2	Übergabe Schachtbau	0 dys	Mon 19.11.12	Mon 19.11.12	
3	Übergabe Schachtbau	0 dys	Fri 21.06.13	Fri 21.06.13	
4	Gesamtfertigstellung	0 dys	Fri 21.06.13	Fri 21.06.13	
8	**Planung oberirdische Gel**	**672 dys**	**Wed 20.04.11**	**Tue 17.12.13**	
9	Aktualisierung Anforde	20 dys	Wed 20.04.11	Thu 19.05.11	
10	Aktualisierung 3d-Moc	20 dys	Wed 20.04.11	Thu 19.05.11	
11	Redaktionsschluß	0 dys	Fri 20.05.11	Fri 20.05.11	10;9
12	Abstimmung/Freigabe	15 dys	Tue 26.07.11	Mon 15.08.11	16FS+15 dys
14	**Planung/Ausschreibu**	**652 dys**	**Fri 20.05.11**	**Tue 17.12.13**	
15	**Bauwerk**	**652 dys**	**Fri 20.05.11**	**Tue 17.12.13**	
16	Vorplanung I	30 dys	Fri 20.05.11	Mon 04.07.11	11
17	Entwurfsplar	155 dys	Tue 16.08.11	Wed 21.03.12	12
18	Fortschreibu	193 dys	Thu 22.03.12	Fri 28.12.12	17
19	Raumbedarf	20 dys	Thu 22.03.12	Fri 20.04.12	17
20	Prüfung/Gen	60 dys	Mon 23.04.12	Wed 18.07.12	19
21	Erstellung ZI	60 dys	Mon 23.04.12	Wed 18.07.12	20SS
22	Prüfung/Gen	60 dys	Thu 19.07.12	Thu 11.10.12	21
23	Erstellung A	90 dys	Thu 19.07.12	Thu 22.11.12	22SS
24	Ausschreibu	50 dys	Fri 23.11.12	Thu 07.02.13	23
25	Vergabe	22 dys	Fri 08.02.13	Mon 11.03.13	24
26	Ausführungs	85 dys	Tue 26.03.13	Mon 29.07.13	25FS+10 dys
27	Ausführungs	100 dys	Tue 30.07.13	Tue 17.12.13	26
29	**Bauwerk**	**340 dys**	**Tue 30.07.13**	**Mon 24.11.14**	25FS+10 dys
31	**Ausführung**	**340 dys**	**Tue 30.07.13**	**Mon 24.11.14**	
32	Erweiterte Rohba	200 dys	Tue 30.07.13	Mon 12.05.14	26
34	Innenausbau	140 dys	Tue 13.05.14	Mon 24.11.14	32
36	**TGA**	**0 dys**	**Tue 01.04.14**	**Tue 01.04.14**	
37	Start TGA	0 dys	Tue 01.04.14	Tue 01.04.14	32FS-30 dys
39	**Out-going Milestones**	**0 dys**	**Tue 01.04.14**	**Tue 01.04.14**	
40	XHQ RFI	0 dys	Tue 01.04.14	Tue 01.04.14	37



Next Step: “Raumbedarfsantrag” (until 20 Apr 12)

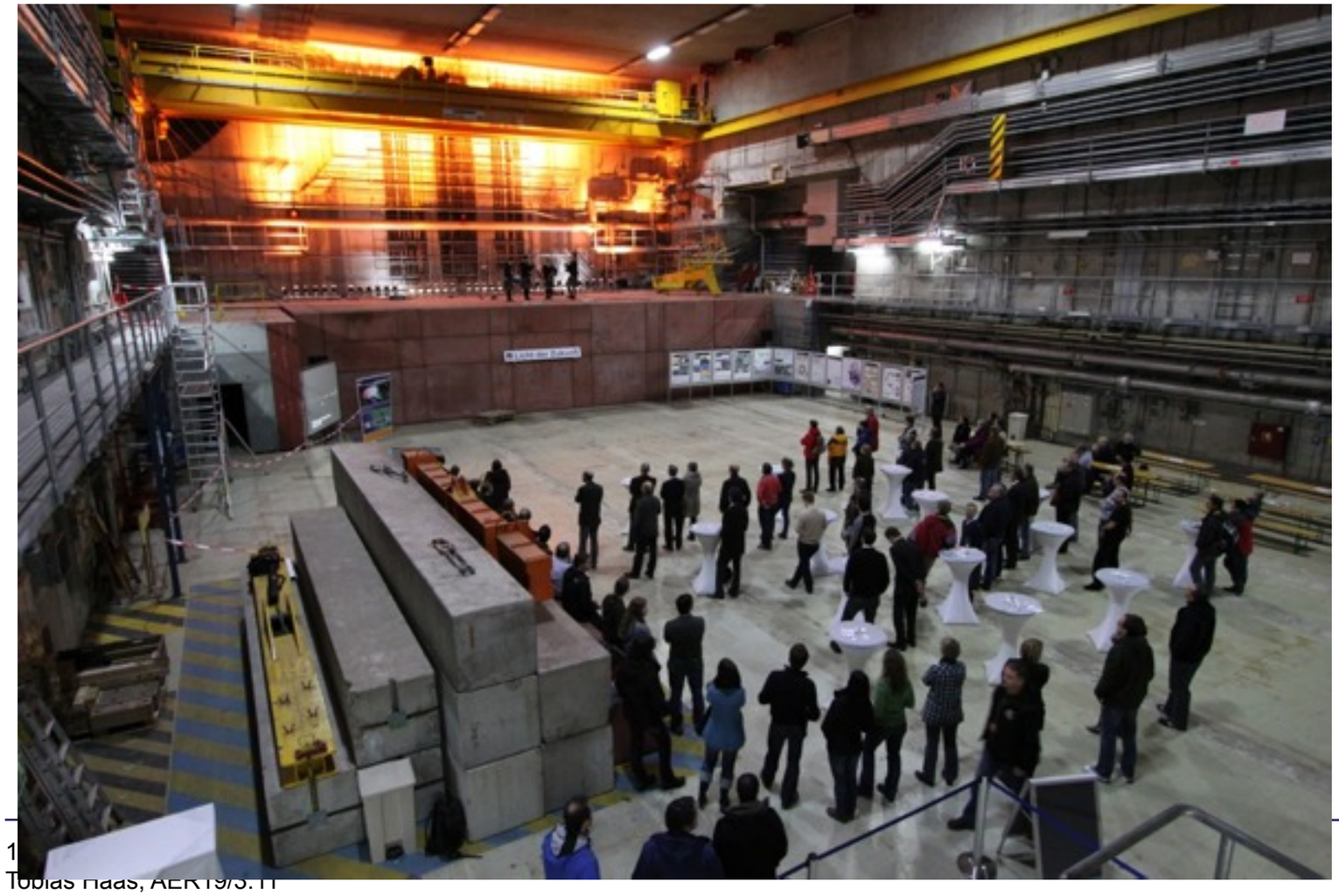
Project Installation Time Schedule



December ’15: First SASE possible

Other important topics

- Move into HERA-S for temporary labs has started
  - WP73, WP74, WP75 are the first occupants
  - Instruments will follow
- Had a nice party on 2 March
- Floor in hall will fixed next - then we are done!!!




European
XFEL

Things next and things to worry about

- Build up of instrument engineering group:
  - Very, very slow
- Cable and electronics planning
  - we are in the process of hiring
- Refine the installation schedule
  - REMEMBER: First activities in XTDs are only 1 year away
- Get XHQ going
- Agree on a take over of the barracks in Schenefeld