

On-site Installation and Infrastructure, Building Hand-Over

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NSS Installation coordinator
NSS Project Division

www.europeanspallationsource.se

2nd April 2019

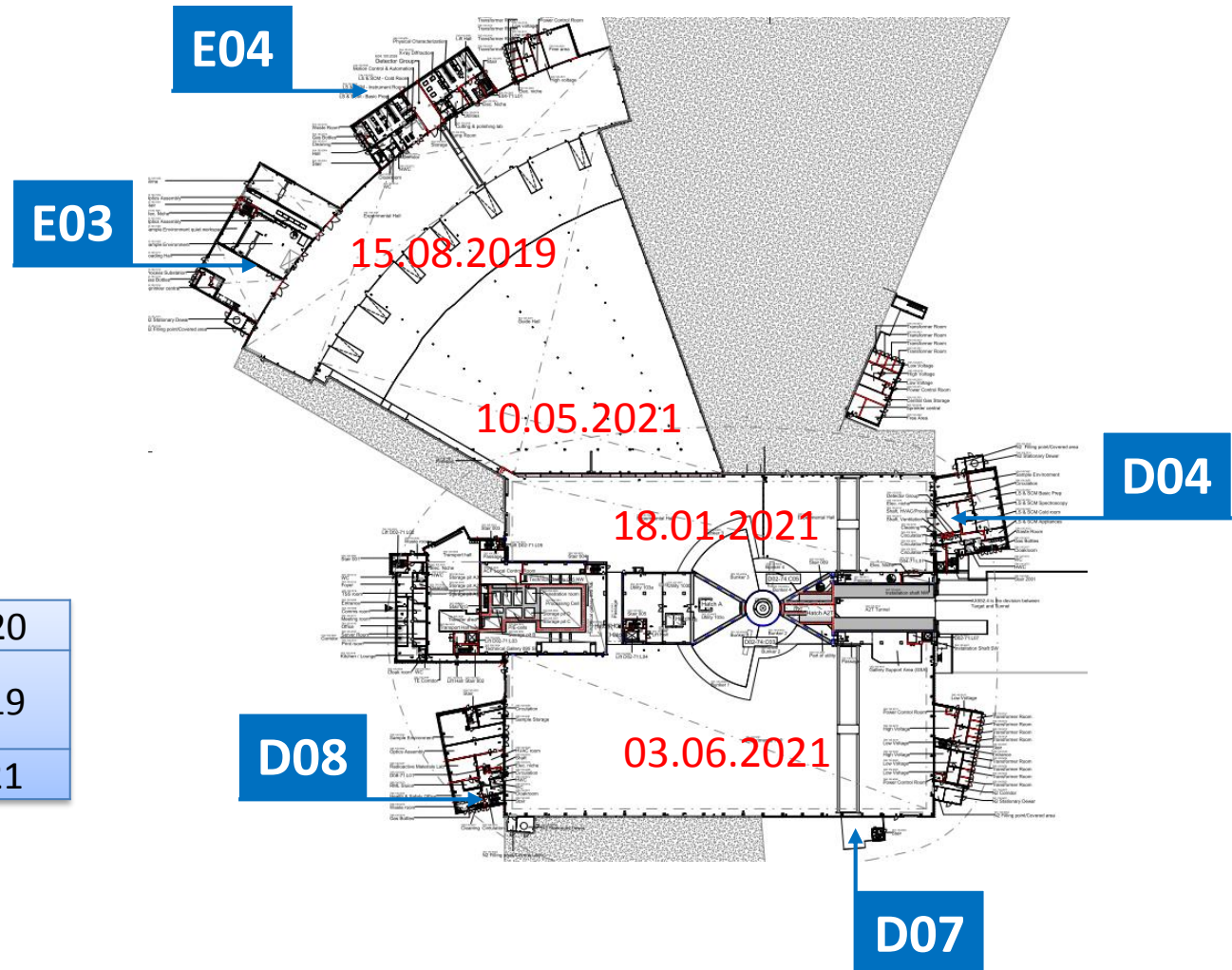
Buildings hand-over (Labs)

E buildings (Labs)

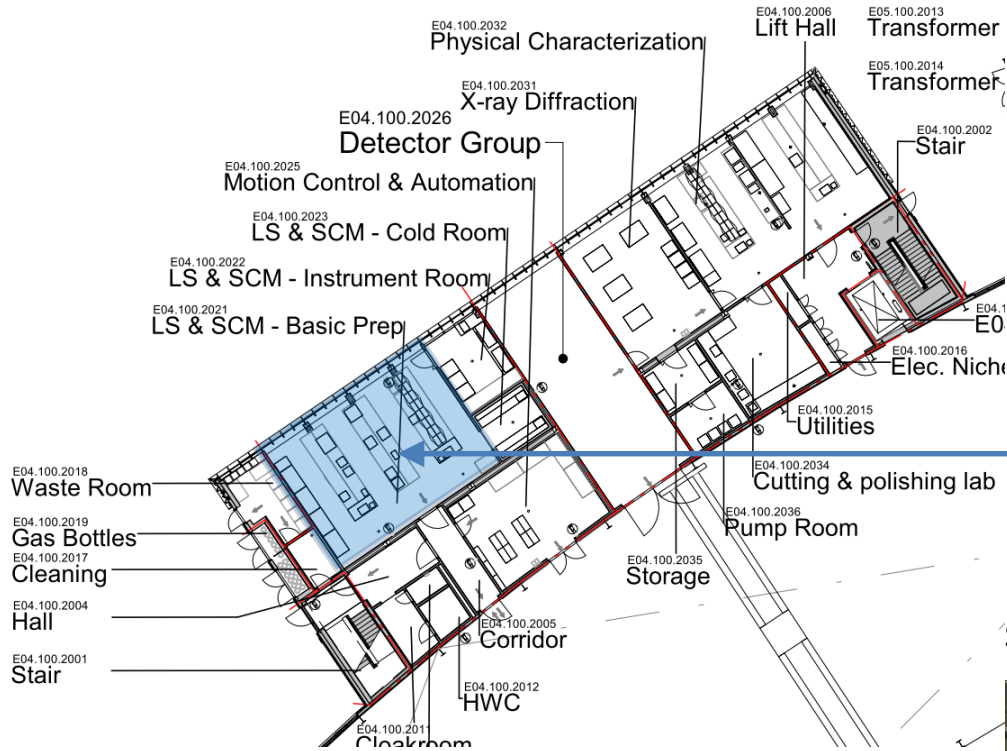
E03	16/Dec/19
E04	02/Dec/19

D buildings (Labs)

D04	04-May-20
D07 (Basement)	15/Aug/19
D08	26/Feb/21



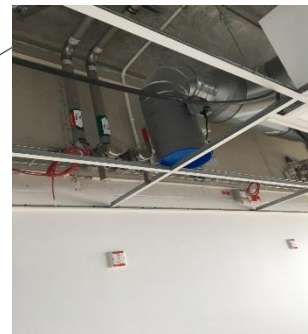
E04 - level 100 (ground floor) – March 2019



Basic Prep room (E04.100.2022)



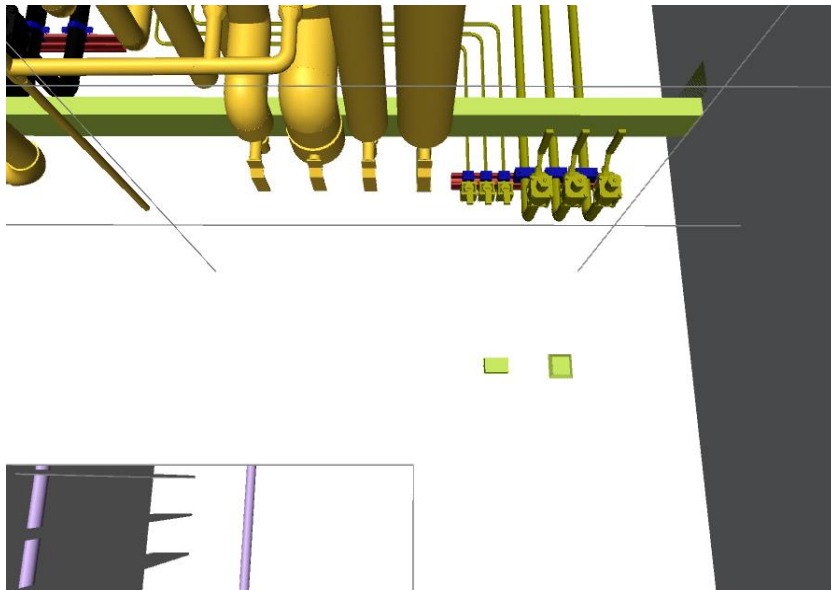
Piping already installed above the suspended ceiling



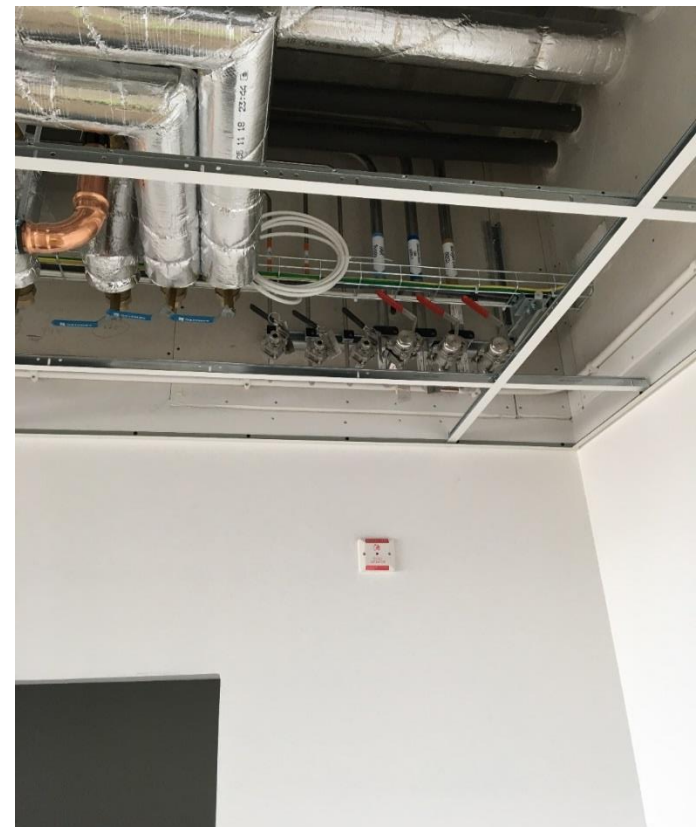
Utilities outlets

3D model and construction works

3D model (Naviswork)



March 2019

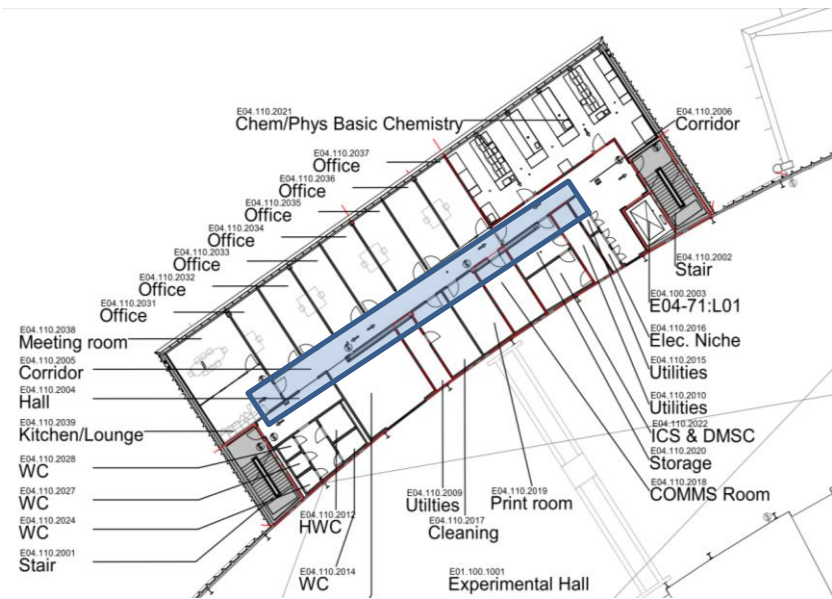


Several utilities outlet already installed:

E04 (first floor floor) – March 2019

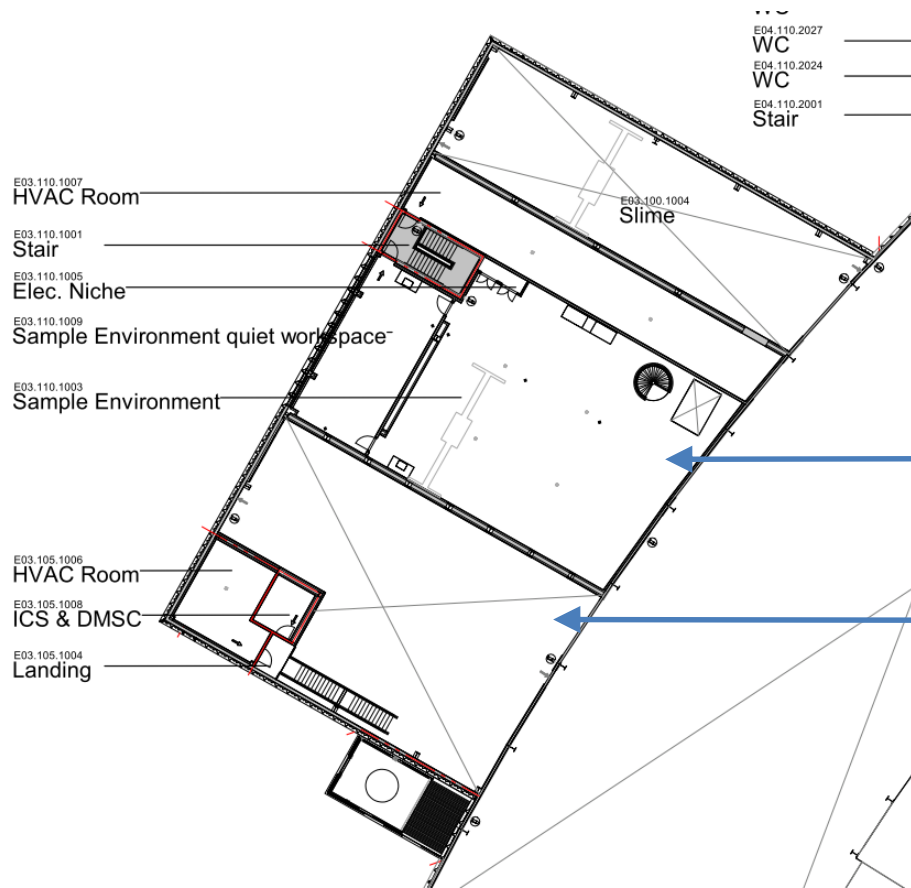


Corridor and offices



3D model and construction status
in March 2019

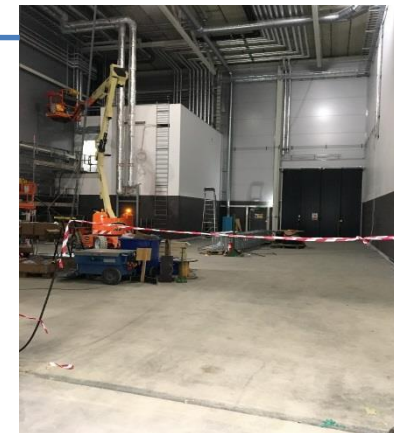
E03 – Level 100 (Ground floor) – March 2019



Sample environment

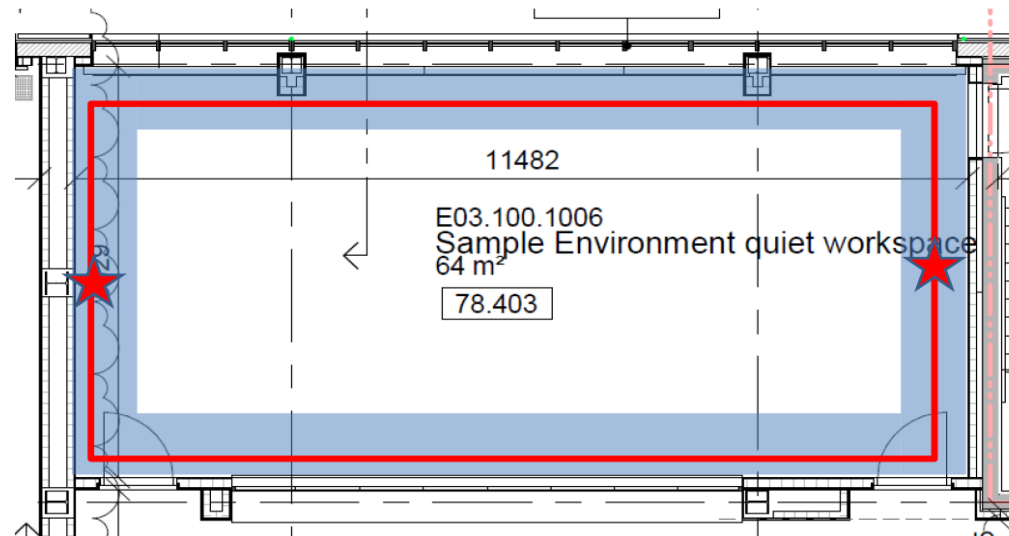


Loading hall



E03 – Level 100 (Ground floor) – NSS installation



Sample environment quiet workplace (E03.100.1006)



Cable trays (electric & data): 400mm



Cooling water and compressed air around the whole room. Two drop-down points 300mm below the suspended ceiling

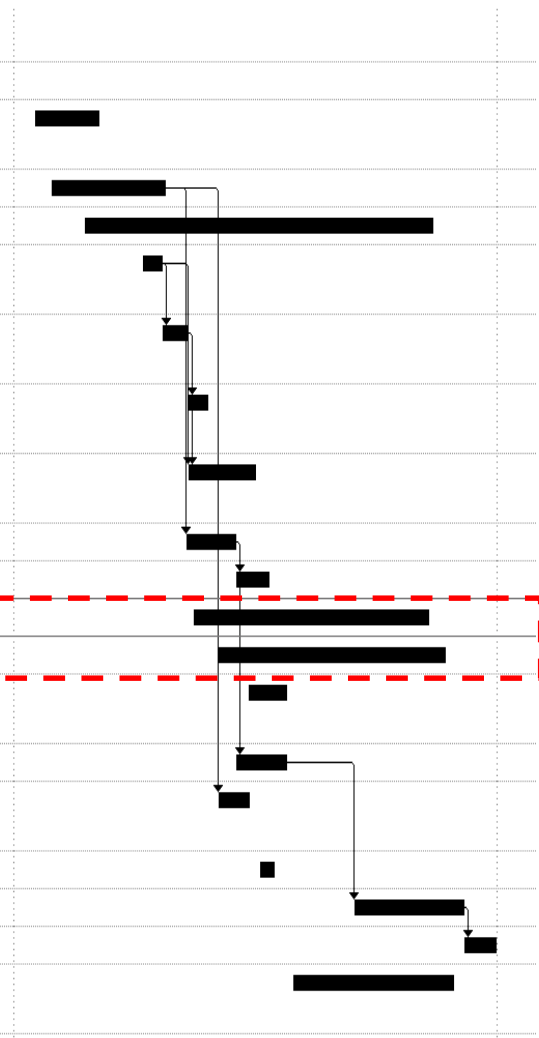


No gases.

NSS schedule including labs installation (synthetic version- **DRAFT**)

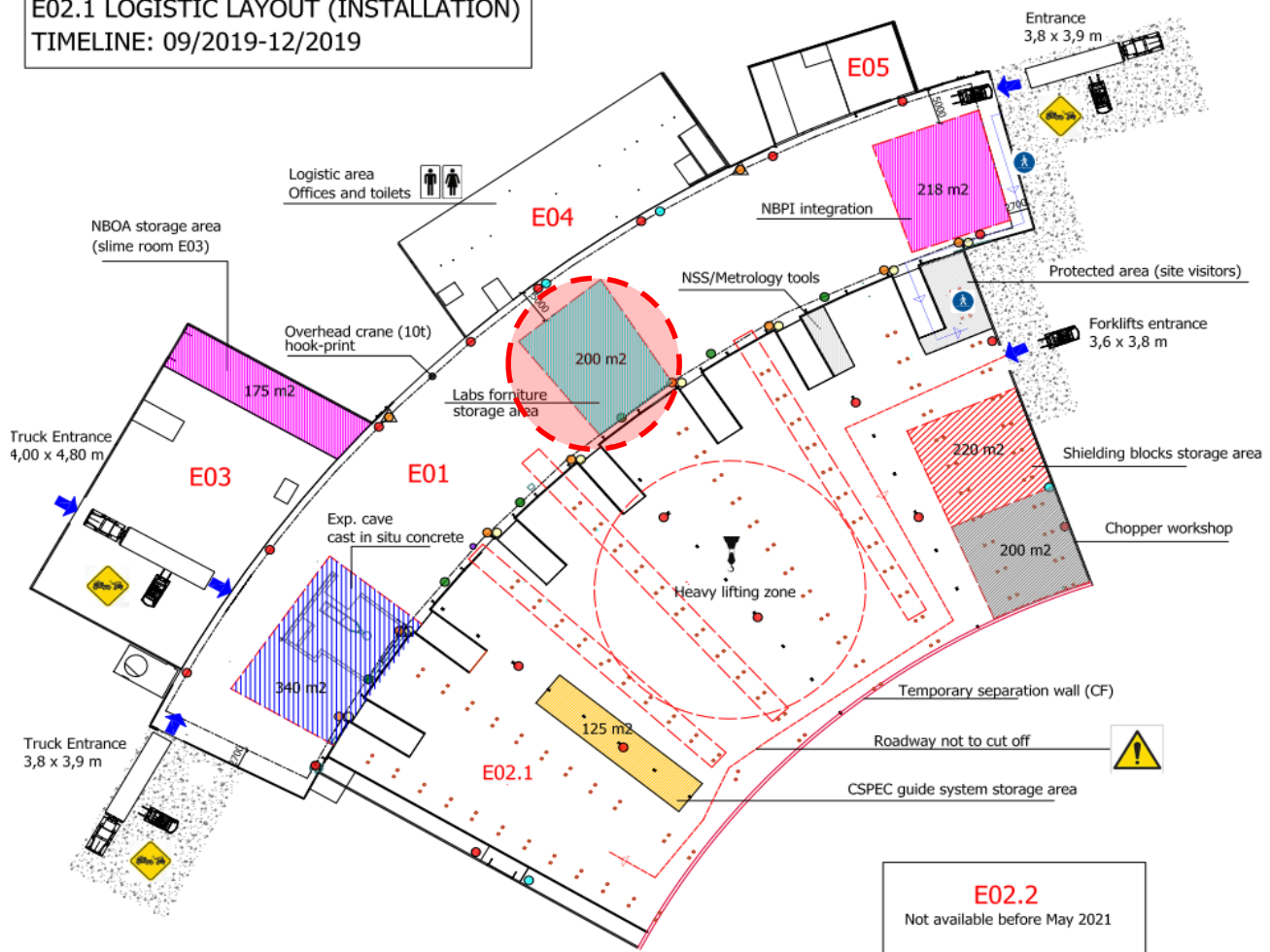








High level integrated schedule with IKK review dates, Partners and Inst. Package Leader							
Description			Area	IRR date (DRAFT)	IRR/TG4	Respons	Install. Pack. Le
Instruments Interface plates on top of the beamline piles W2,W3,W4,W6 (E02.1)	Mon 02/09/19	Fri 25/10/19	E02.1	06.08.2019	IRR 1	NSS	NSS Constr. Engineer
BEER ex cave	Mon 16/09/19	Fri 20/12/19	E01	20.08.2019	TG4.1 (BEER)	BEER	Radim
NBPI integration (including temporary tent)	Mon 14/10/19	Fri 31/07/20	E01	02.09.2019	IRR 2	NSS	Hans
C SPEC guide shielding - lower walls (NSS shielding group)	Mon 02/12/19	Tue 17/12/19	E02.1	16.10.2019	IRR 3	NSS	Zvonko/Senad
BIFROST guide shielding - lower walls (NSS shielding group)	Wed 18/12/19	Wed 08/01/20	E02.1	16.10.2019	IRR 3	NSS	Zvonko/Senad
MAGIC guide shielded - lower walls (NSS shielding group)	Thu 09/01/20	Fri 24/01/20	E02.1	16.10.2019	IRR 3	NSS	Zvonko/Senad
CSPEC neutron guides system and steel support structure	Thu 09/01/20	Wed 04/03/20	E02.1	28.10.2019	TG4.1 (CSPEC)	CSPEC	Fernando
NMX ex. Cave	Tue 07/01/20	Mon 17/02/20	E01	14.11.2019	TG4.1 (NMX)	NSS	Giuseppe
NMX utilities into the ex. cave	Tue 18/02/20	Mon 16/03/20	E01	14.11.2019	TG4.1 (NMX)	NSS	Giuseppe
E04 labs mech/el services and furniture	Mon 13/01/20	Mon 27/07/20	E04	18.11.2019	IRR 4	SANBER	Monica
E03 labs building completions	Mon 03/02/20	Mon 10/08/20	E03	09.12.2019	IRR 5	NSS	Monica
Bunker project: installation of R6 brackets in D02 (D01 and D03 side)	Fri 28/02/20	Mon 30/03/20	D02	16.12.2019	IRR6	NSS	Zvonko/Dawid
BIFROST ex cave	Tue 18/02/20	Mon 30/03/20	E01	10.01.2020	TG4.1 (BIFROST)	BIFROST	Liam
BEER neutron guides system and steel support structure	Mon 03/02/20	Fri 28/02/20	E02.1	15.01.2020	TG4.2 (BEER)	BEER	Radim
Magic steel guides support structure	Mon 09/03/20	Fri 20/03/20	E02.1	20.01.2020	TG4.1 (MAGIC)	MAGIC	Xavier
Magic ex. cave	Wed 27/05/20	Wed 26/08/20	E01	20.01.2020	TG4.1 (MAGIC)	MAGIC	Xavier
Magic utilities into the cave	Thu 27/08/20	Wed 23/09/20	E01	20.01.2020	TG4.1 (MAGIC)	MAGIC	Xavier
NSS instruments power distribution in the E01 hall	Mon 06/04/20	Mon 17/08/20	E01	17.02.2020	IRR7	NSS	NSS El. Engineer









Logistic layout September / December 2019

NSS Project Division
E02.1 LOGISTIC LAYOUT (INSTALLATION)
TIMELINE: 09/2019-12/2019

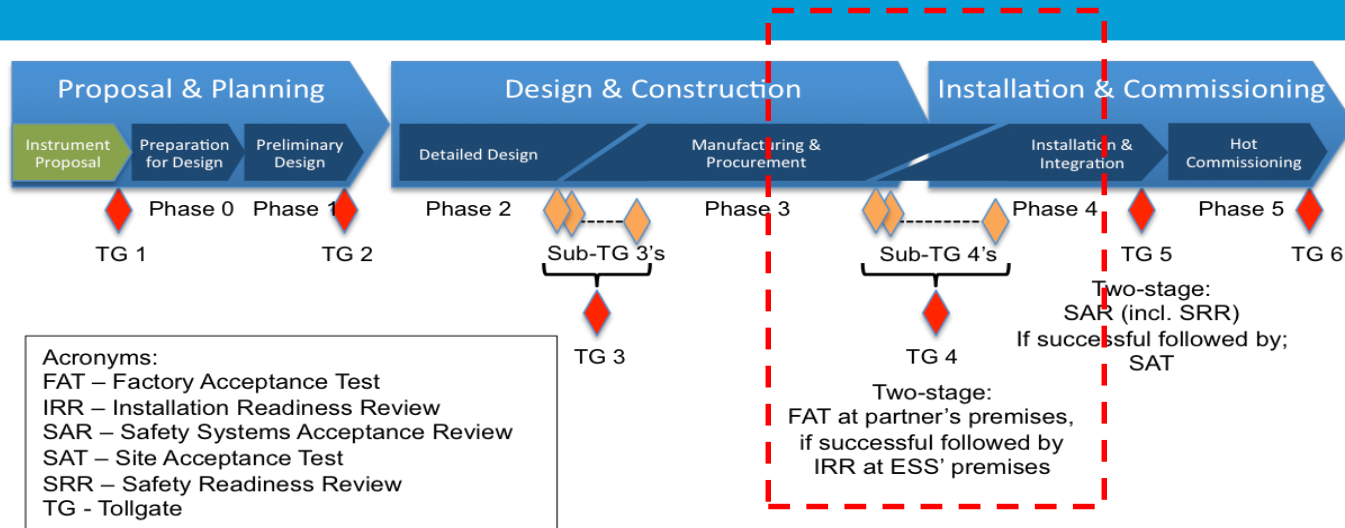


-  Unloading zone
-  Power outlet
3pcs 16A 1-phase
1pcs 16A 3-phase
1pcs 32A 3-phase
-  Cooling water
-  Nitrogen gas, Deionized water
compressed air, n. 2pcs Lan
-  Fume hoods
-  Tap and waste water

	BEER
	LABS (storage)
	C SPEC
	NSS SHIELDING GROUP
	NBOA/NBPI
	CHOPPER GROUP

E02.2
Not available before May 2021

Installation Readiness review

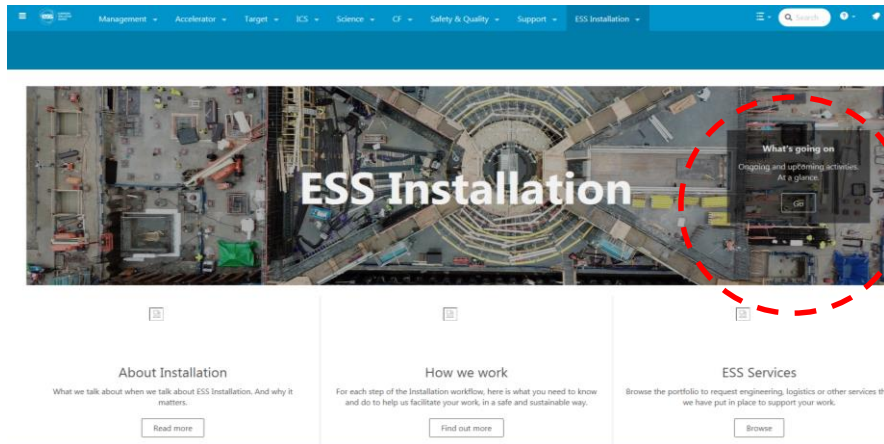


- The purpose with **Installation Readiness Review** is to make necessary preparations have been performed and the supporting documentation are in place for the upcoming installation package.
- Each IRR will correspond to an **Installation Package (I.P.)**. The I.P. is manageable discrete piece of the complete installation.
- Relevant installation package documentation is collected into a “Binder” and shall require NSS approval before the installation can take place.

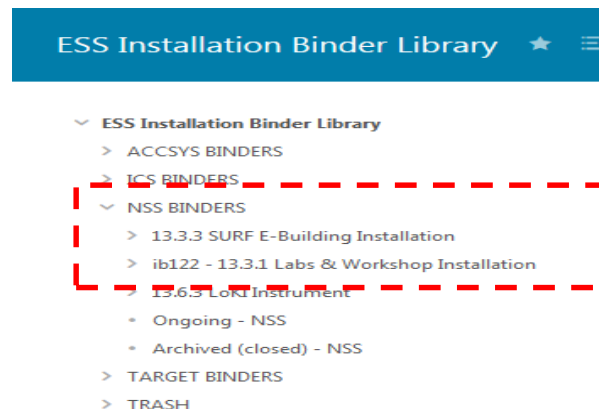
Installation packages (binders)

ESS Installation/What's going on/ESS Installation binder library/Create an Installation binder

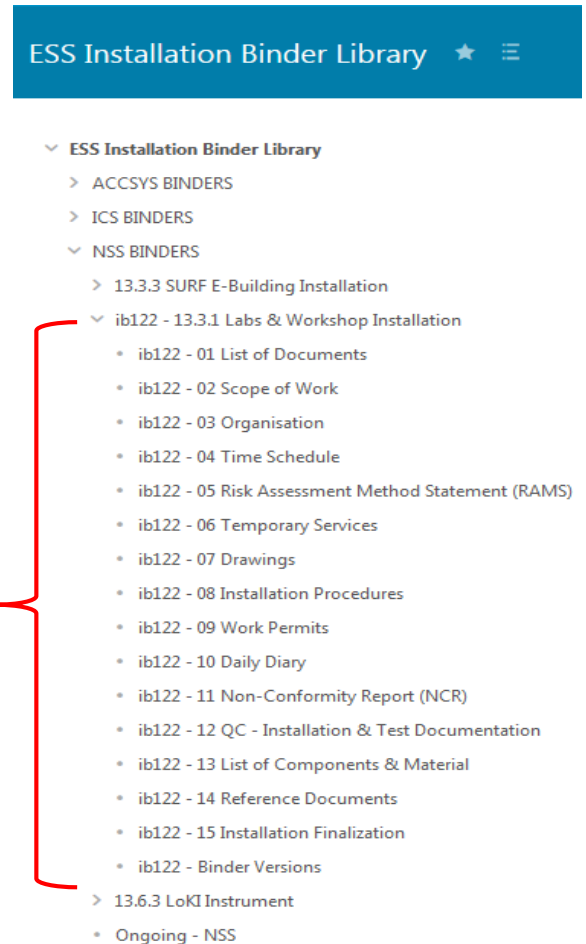
1



2



3



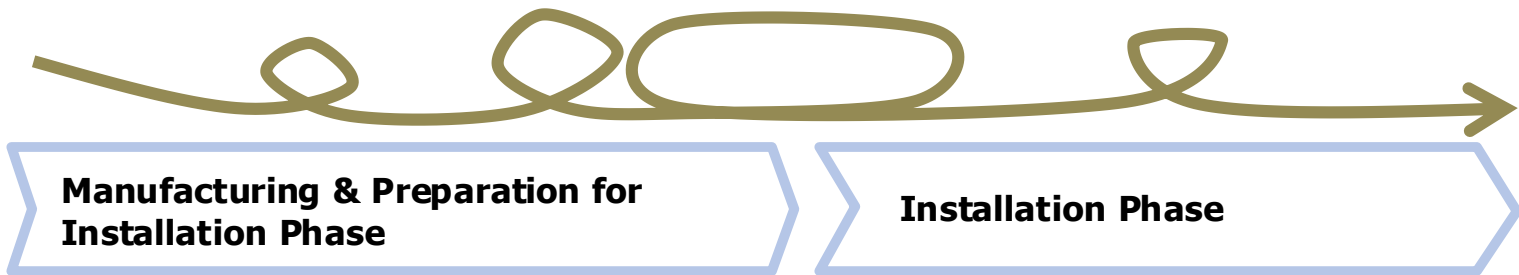
Installation Binder

Purpose : Control of installation Documentation.

Each binder refers to a specific I.P.



- 00 List of Documents
- 01 Scope of work
- 02 Organisation
- 03 Time Schedule
- 04 Work Instructions & Job Hazard Analysis
- 05 Temporary services
- 06 Drawings
- 07 Installation Procedures
- 08 Work Permits
- 09 Daily Diary
- 10 NCR Non Conformity Report
- 11 QC - Installation & Test Documentation
- 12 List of Components & Material
- 13 Reference Documents
- 14 Commissioning plans



▼
CDR

▼
IRR

▼
TRR

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- 14 TRR Test Readiness Review

04. Risk Assessment and Method Statement (**RAMS**)

- Installation sequence
- Transportation route interference check
- Job Hazard Analysis
- Equipment & resources
- Etc.

Template available

Installation Binder

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05. Temporary Services

- Scaffolding;
- Laydown Areas (Storage)
- Site logistics;
- Lifting;
- Temporary Power and fluids;
- ESS workshop support;



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06. Drawings

Only installation drawings!

- Gases;
- Cooling;
- Cane trays;
- P&ID
- Etc.....

- They will be linked to CHES !





Installation Binder

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08. Work Permits

- Certificates
 - Hot work
 - Fork lift
 - Electrical
 - Etc.
- Permits
 - Hot work
 - Electrical work
 - Ladder
 - Etc.

Safety Training Matrix

Training Purpose	■ Trainings provided by ESS-Skanska on site ■ Training provided by external companies											
	HS site Induction	Site orientation training at gate	Safe lifting (slinging/rigging)	Hot work training	Fall protection and rescue training (with harness)	Electrical Safety Instructions, (ESA 14 -, (EN 50110 certificate)	Electrical Safety Training, (How to apply ESA-14 on site)	MEWP (Scissor lift, Skylift, Boom lift)	First Aid course including Electrical Injuries	Forklift truck training	Crane operator training for specific crane	Training and medical examination
Estimated cost (SEK)/person	-	-	2000	3200	2200	6000	-	2500	7000/gr.	3600	3200	4000
Access to site	X											
Work on site (general)	X								X*			
Access to site with vehicle/transport		X										
Performing hot work	X			X								
Performing lifting and coupling work	X		X									
Work on site (Accessing energised areas, performing electrical work)	X								X**			
Accessing energised areas, performing electrical works	X					X***	X****		X			
Working on MEWP	X				X			X				
Operating forklift	X									X		
Operating cranes	X		X								X	
Working with epoxy or other allergenic chemical												X
VALIDITY of courses (duration)	-	-	 (Swedish certificate)	 5 years (Nordic certificate)	 (Swedish certificate)	3 years	3years	5 years (ISO 18878 certificate)	3 years	Swedish BYN or TYA validation	Swedish BYN or TYA validation	 Swedish certificate 5 years
	60-90 min	30 min	0.5 day	1 day	0.5 day	2 day	0.5 day	1 day	0.5 day	1 day per course or few hours if validation in-house		

Roles and Responsibilities (1/2)



ESS Installation Manager (Mikael Jacobsson)

- Overall Site Coordinator

NSS Installation Coordinator (Antonio Bianchi)

- Coordinates NSS installation works

Installation Package Leader (SAD/SULF)

- This person is appointed to lead/manage the installation works
- Responsible/owner of Installation binder.

In-Kind / Contractor (SANBER in case of Labs)

- Responsible for the installation work.
- Responsible for the contents of the installation preparation documents to include into the installation binder.



NSS Installation Coordinator (Antonio Bianchi)

Responsible for

- An IRR is conducted and passed before installation starts for a package;
- Schedule and coordinate Installation packages within project;
- Installation Packages follow rules and regulations, including health and safety regulations
- Coordinate support needs for installation packages;
- Resolve conflicts, including prioritize, between different installation packages within project
- Make sure there's a sign-off for the installation package (before it's regarded complete).



Installation Package Leader (Monika Hartl)

Responsible for

- The installation binder is ready for IRR
- The on site installation for that package
- The installation follow rules and regulations
- Safety and Health during installation

Safety during installation



SWEDISH
WORK
ENVIRONMENT
AUTHORITY



EUROPEAN
SPALLATION
SOURCE

NSS Installations have to comply with Swedish legislation of construction works and a “BAS-U” will be appointed from ESS to lead installation works in order to prevent injuries



Reference provisions from Swedish work environment Authority:

- building-and-civil-engineering-work-provisions-afs1999-3;
- scaffolding-provisions-afs2013-04;
- use-of-lifting-devices-and-lifting-accessories-provisions-afs2006-6;
- who-is-responsible-for-what-within-building-and-construction-adi704-eng;

[Web site](#)

<https://www.av.se/en/work-environment-work-and-inspections/publications/foreskrifter/>

Who is responsible for what within building and construction?



Safety training programs

Safety courses are currently under development.

- [ATEX \(basic\)](#)
- [Crane Operator](#)
- [ESA-14 \(Advanced\)](#)
- [ESA-14 \(Basic\)](#)
- [First Aid: Basic \(incl. electrical injuries\)](#)
- [Hot work](#)
- [Radiation training for personnel working on TS2](#)
- [Use of epoxy](#)



[Safety Training Website](#) under development (on Confluence):

<https://confluence.ess.lu.se/display/ESH/Safety+Training+Program>

(Responsible: Lars Aprin (EH&S Division))

Questions

