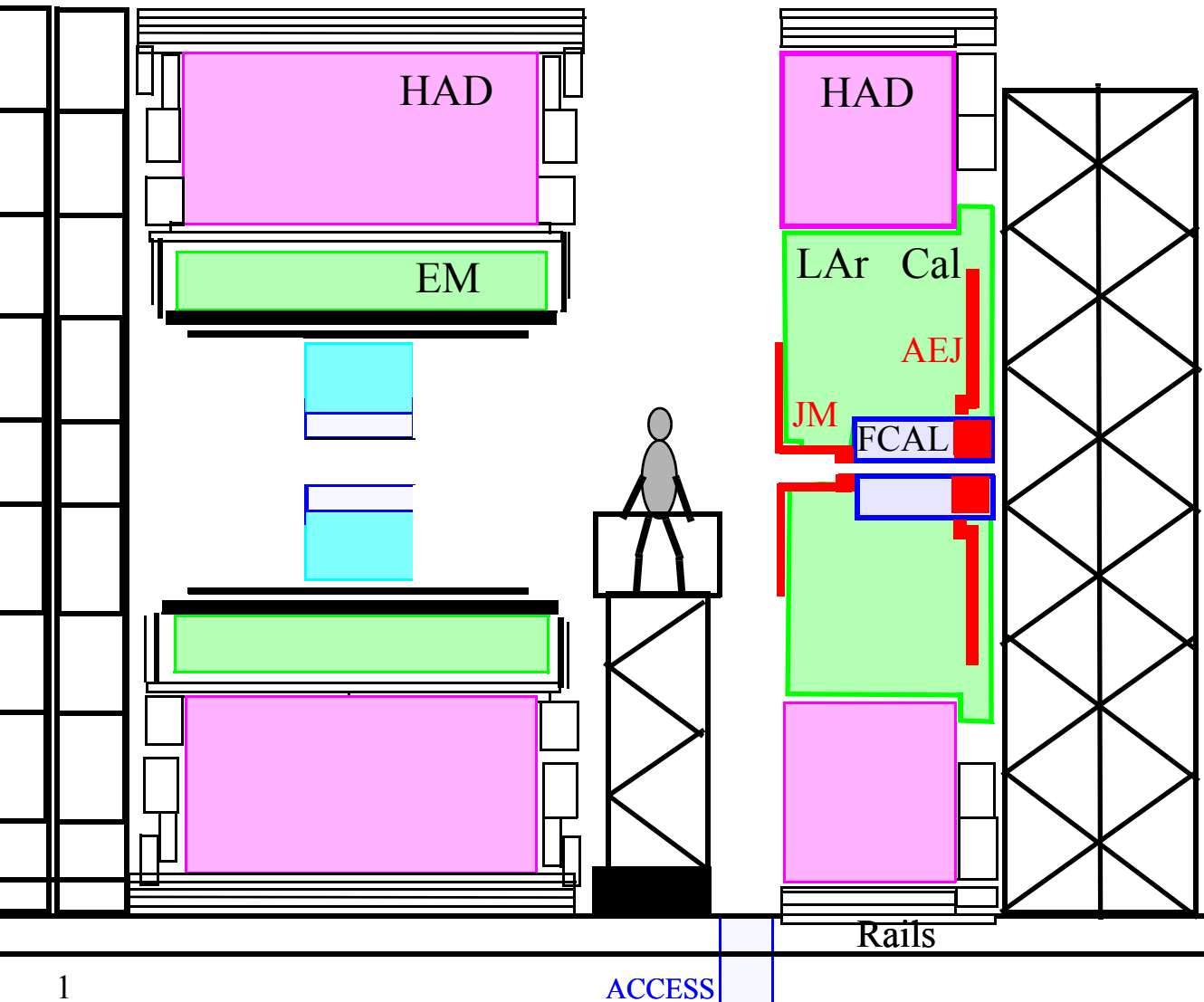
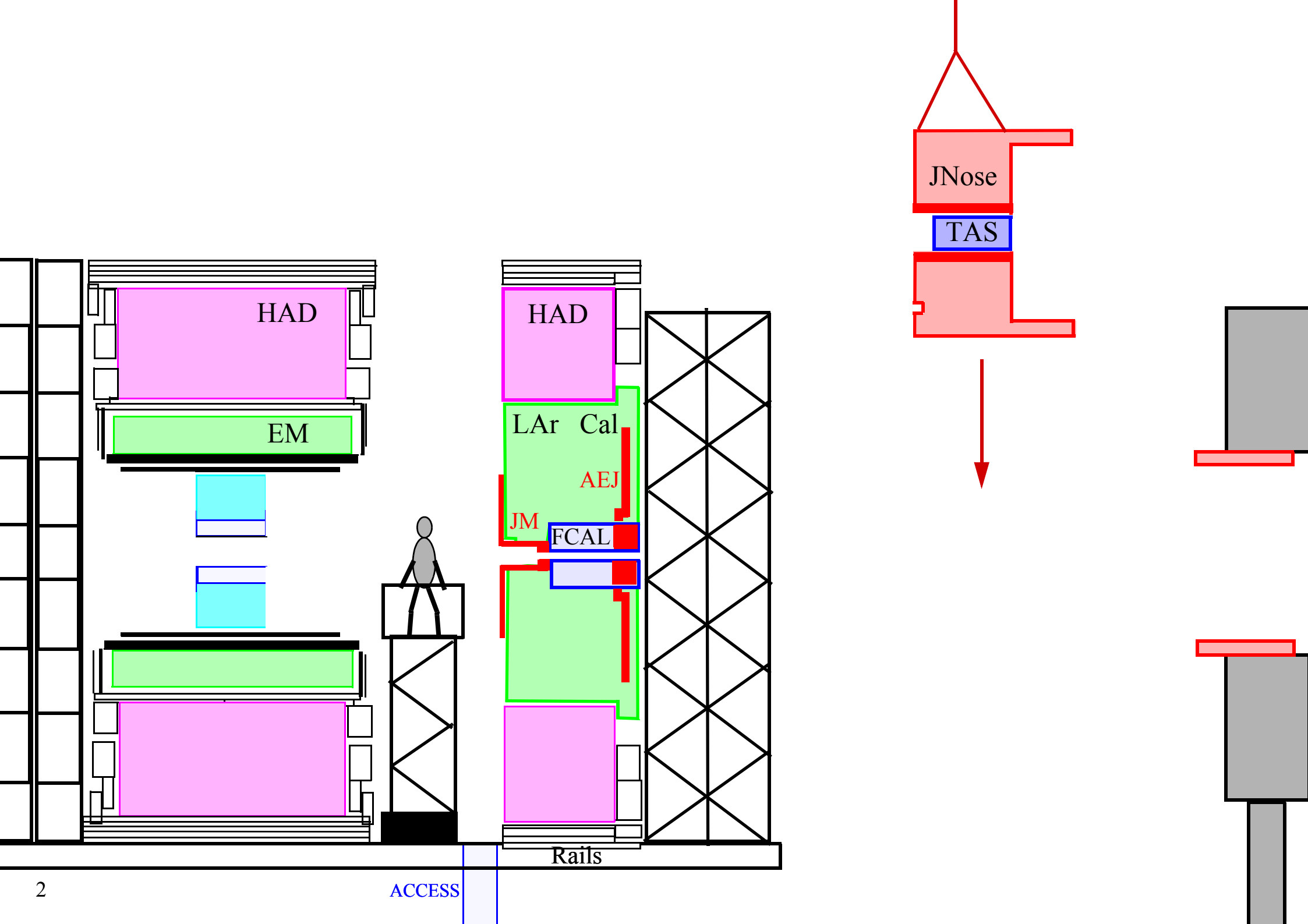
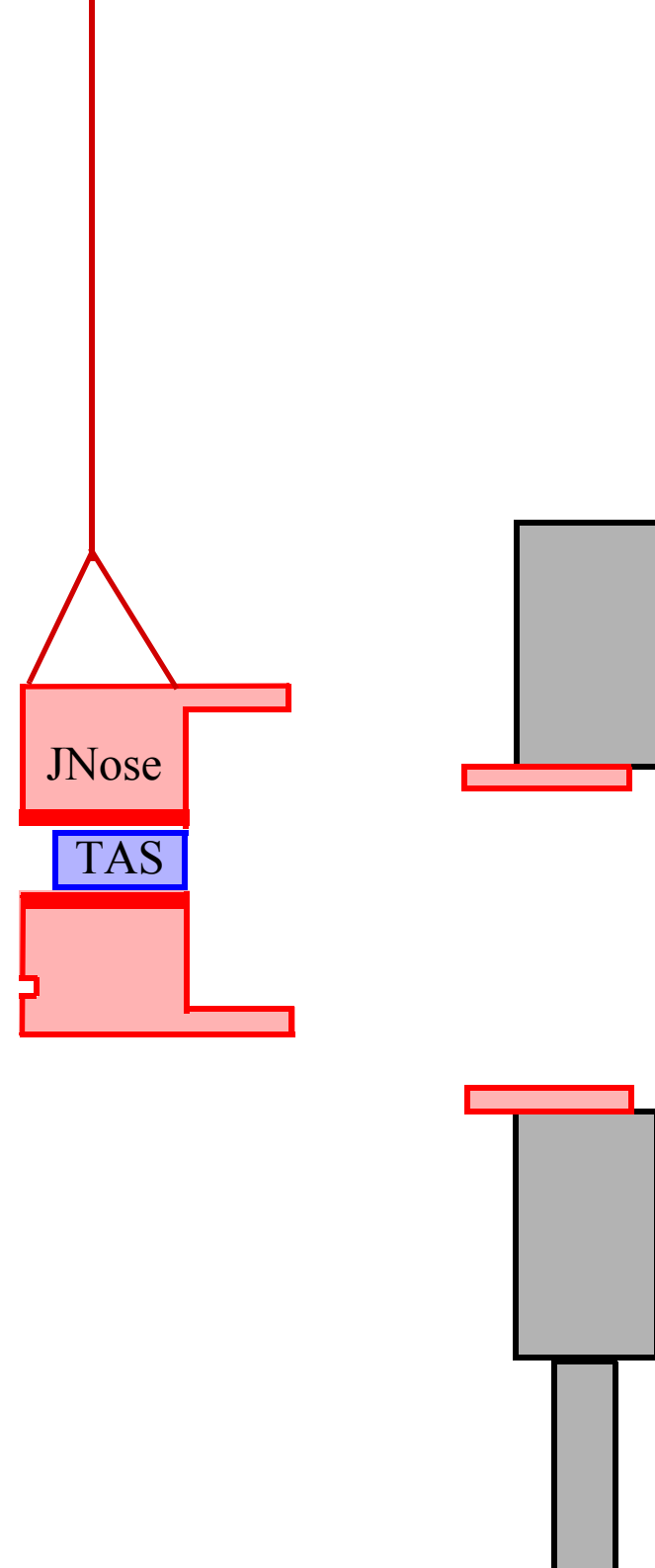
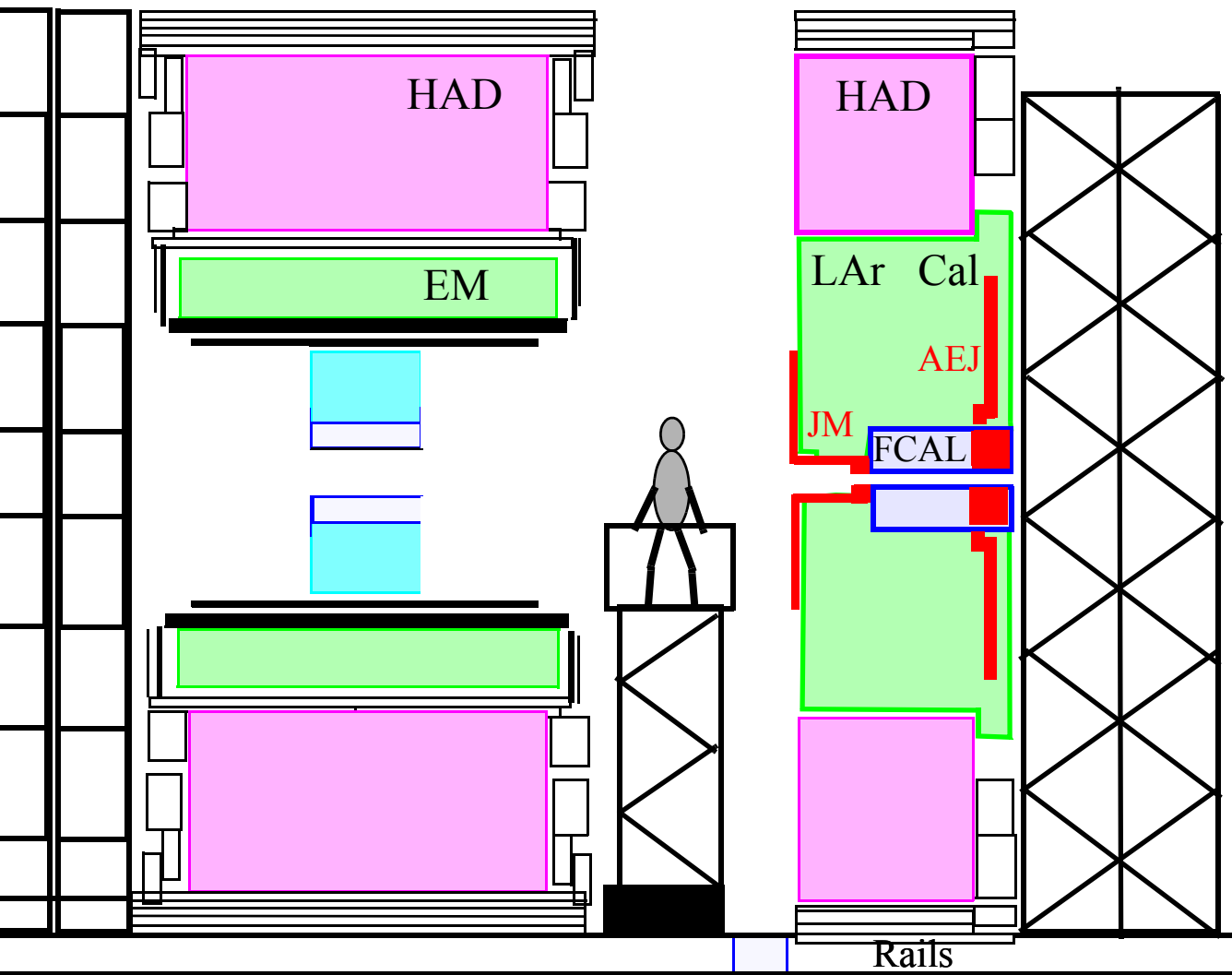


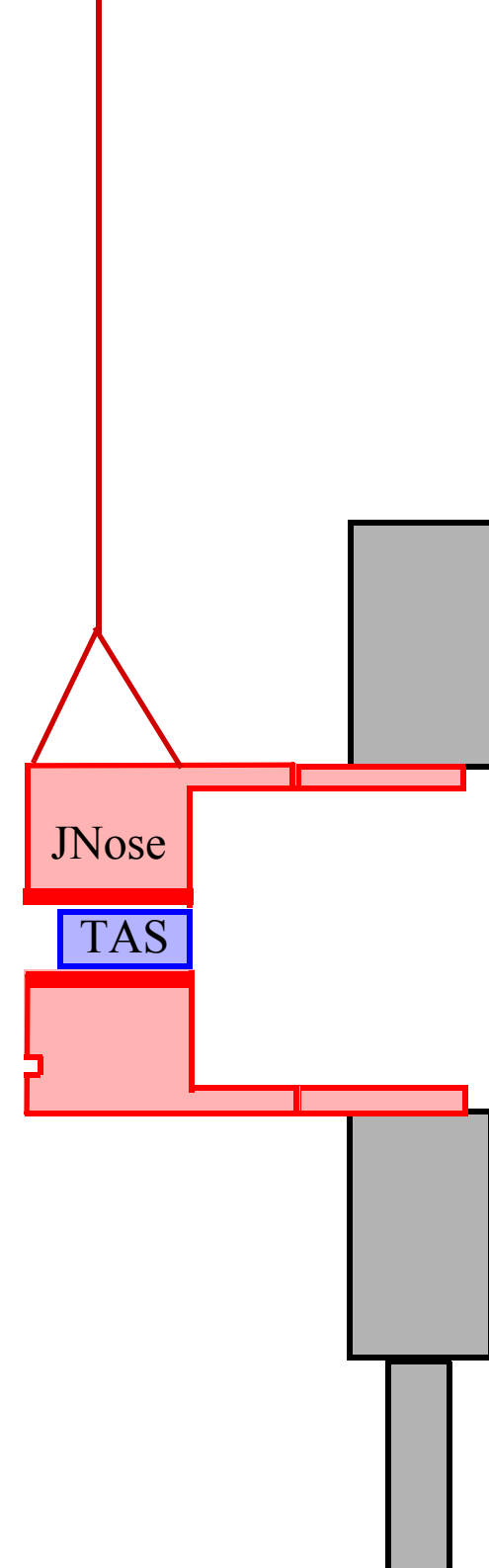
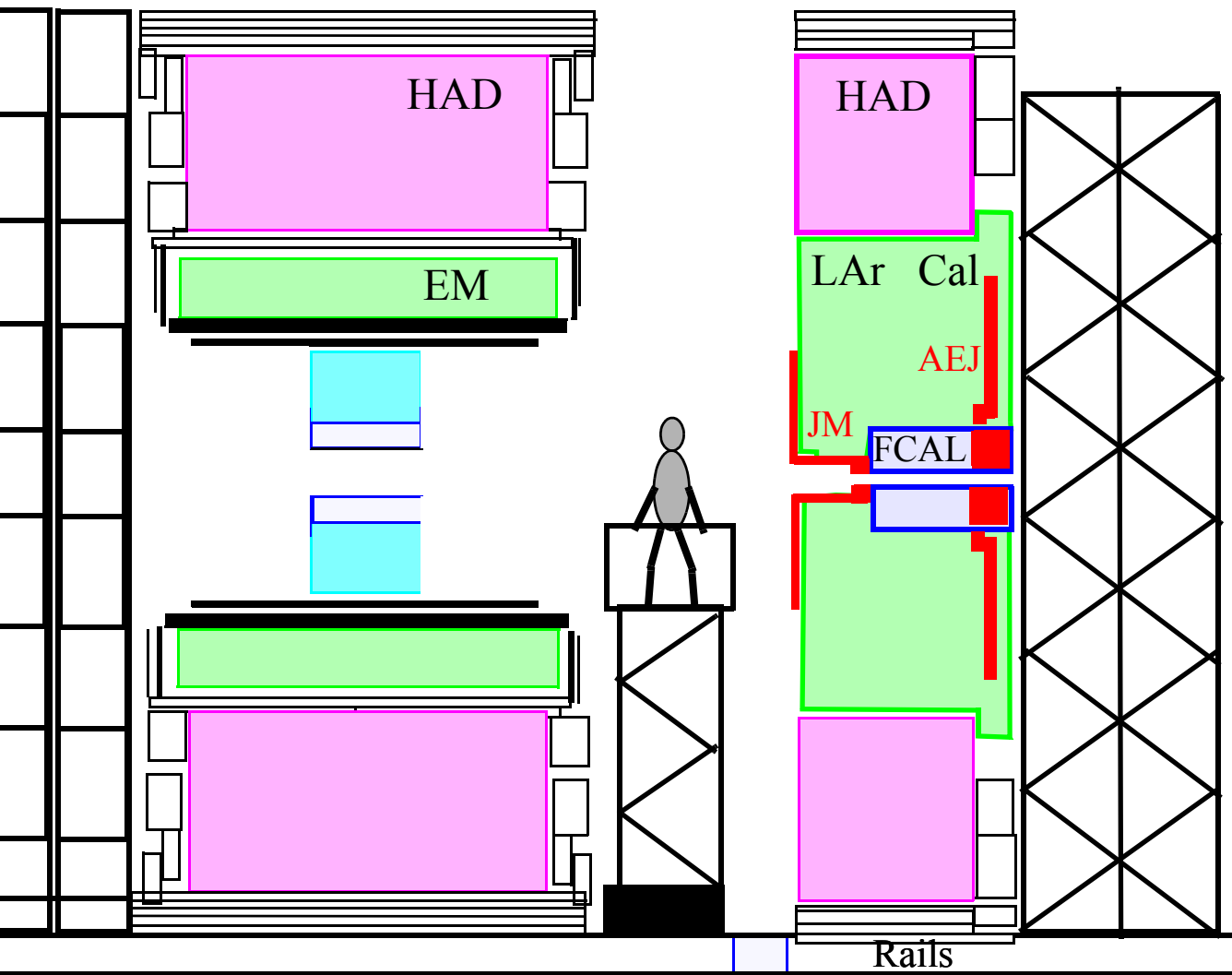
# Side A

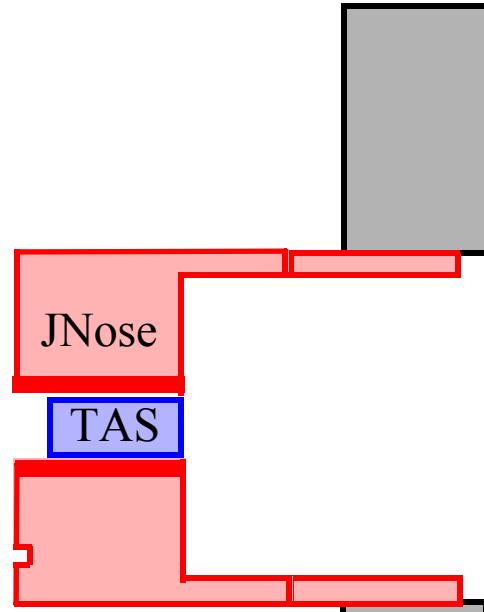
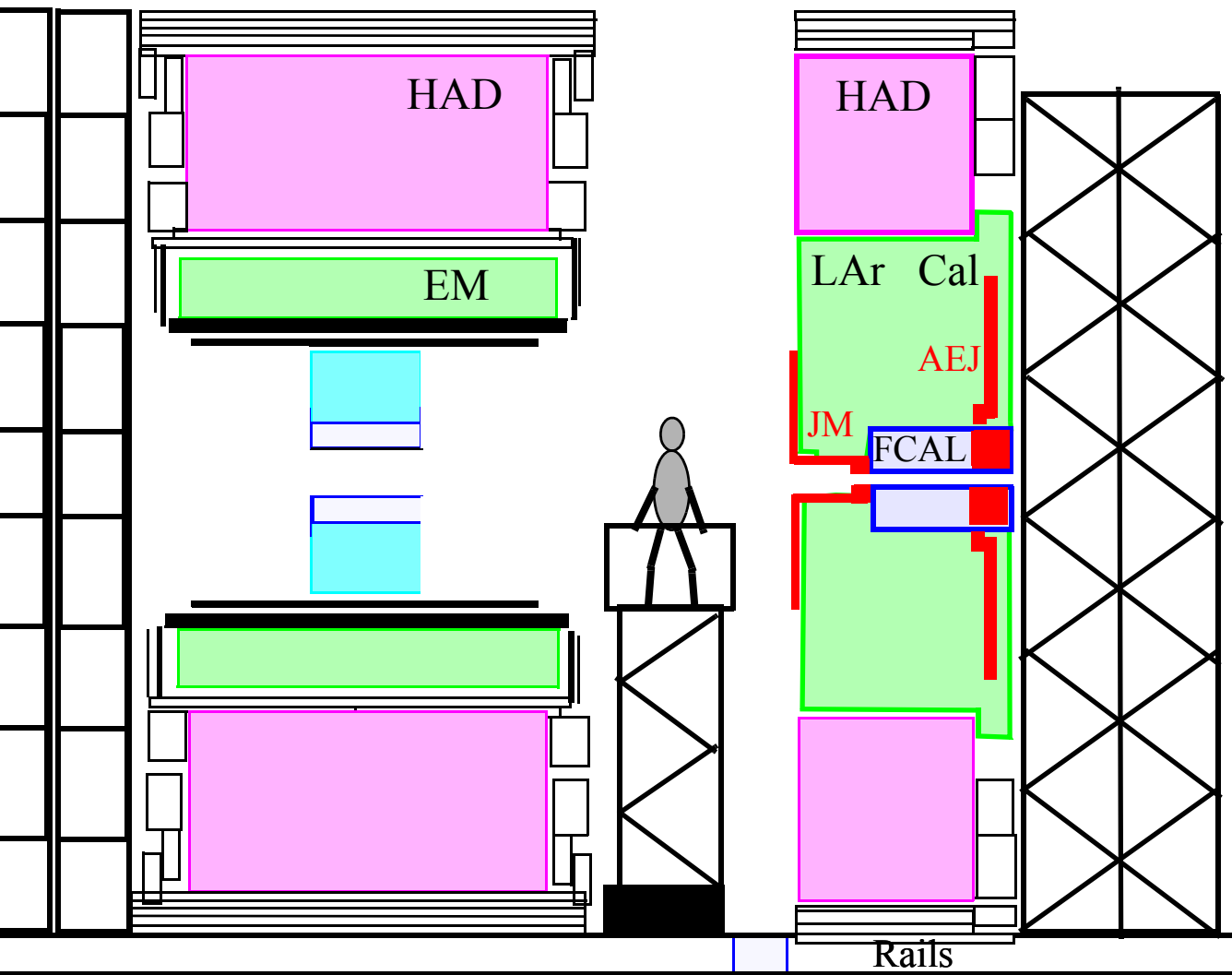
The scenario starts with the installation of the JN monobloc in December 2006 !



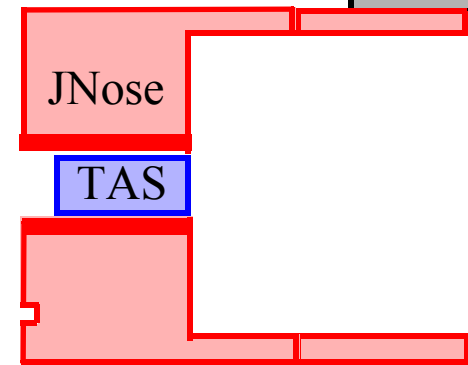
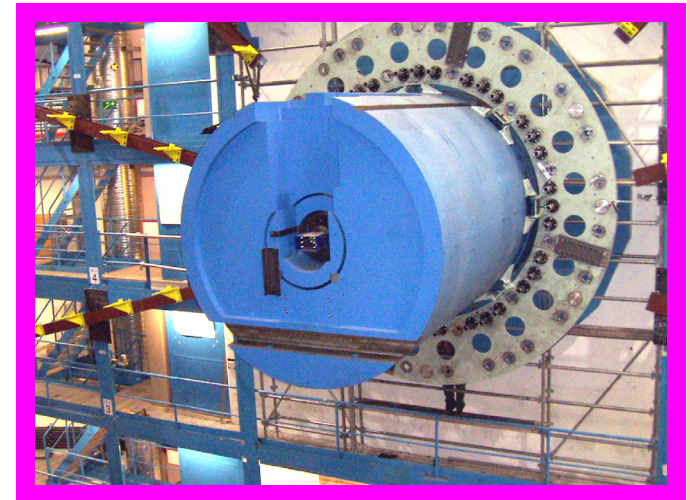
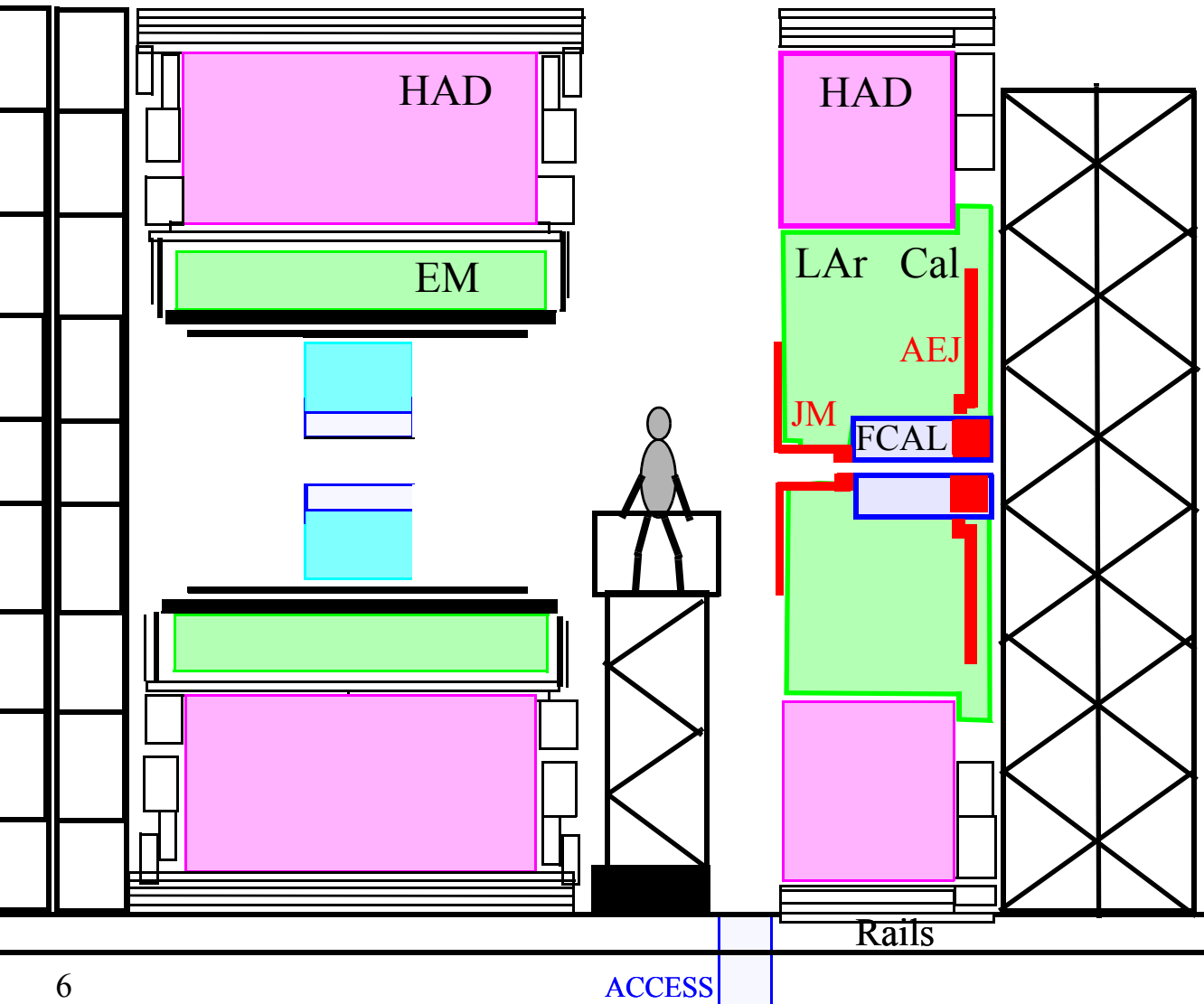


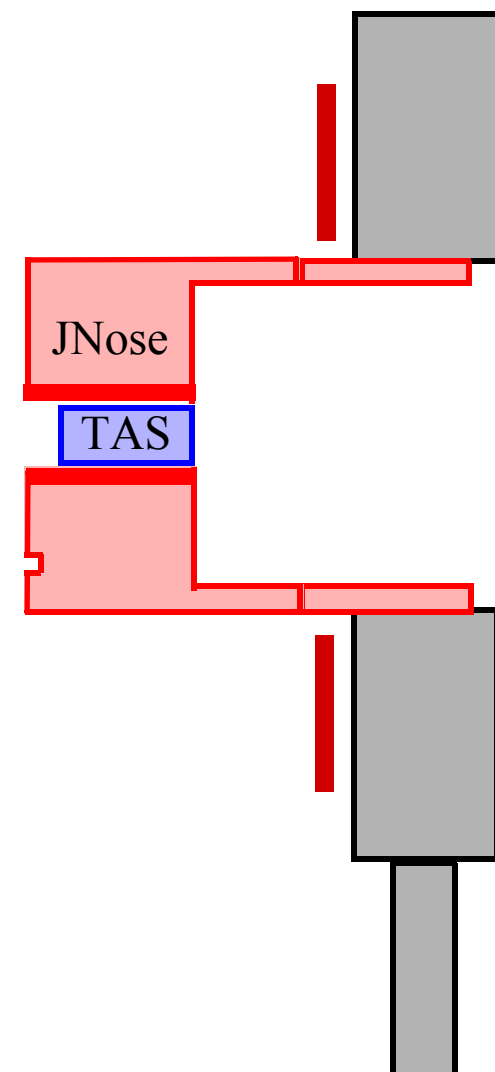
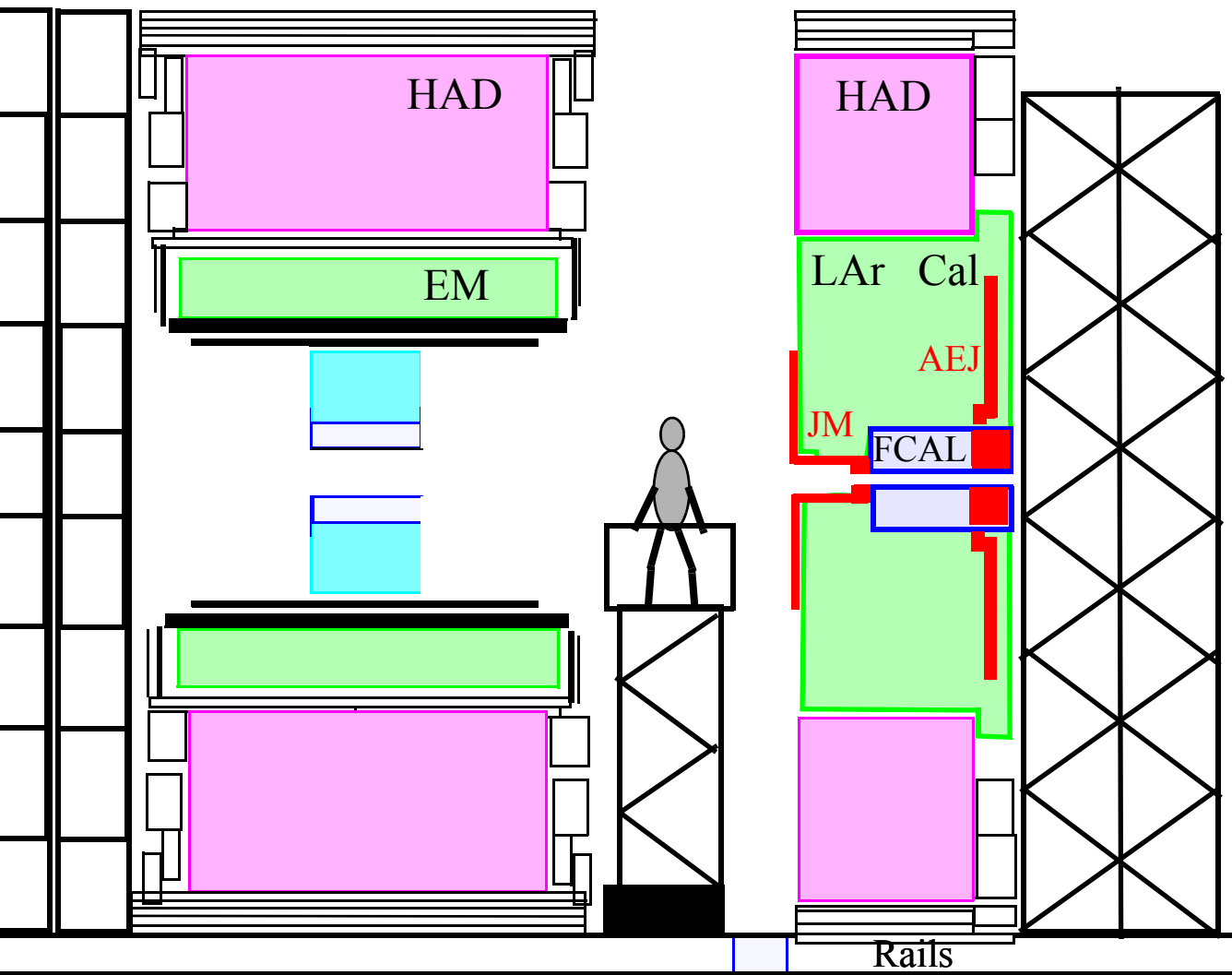




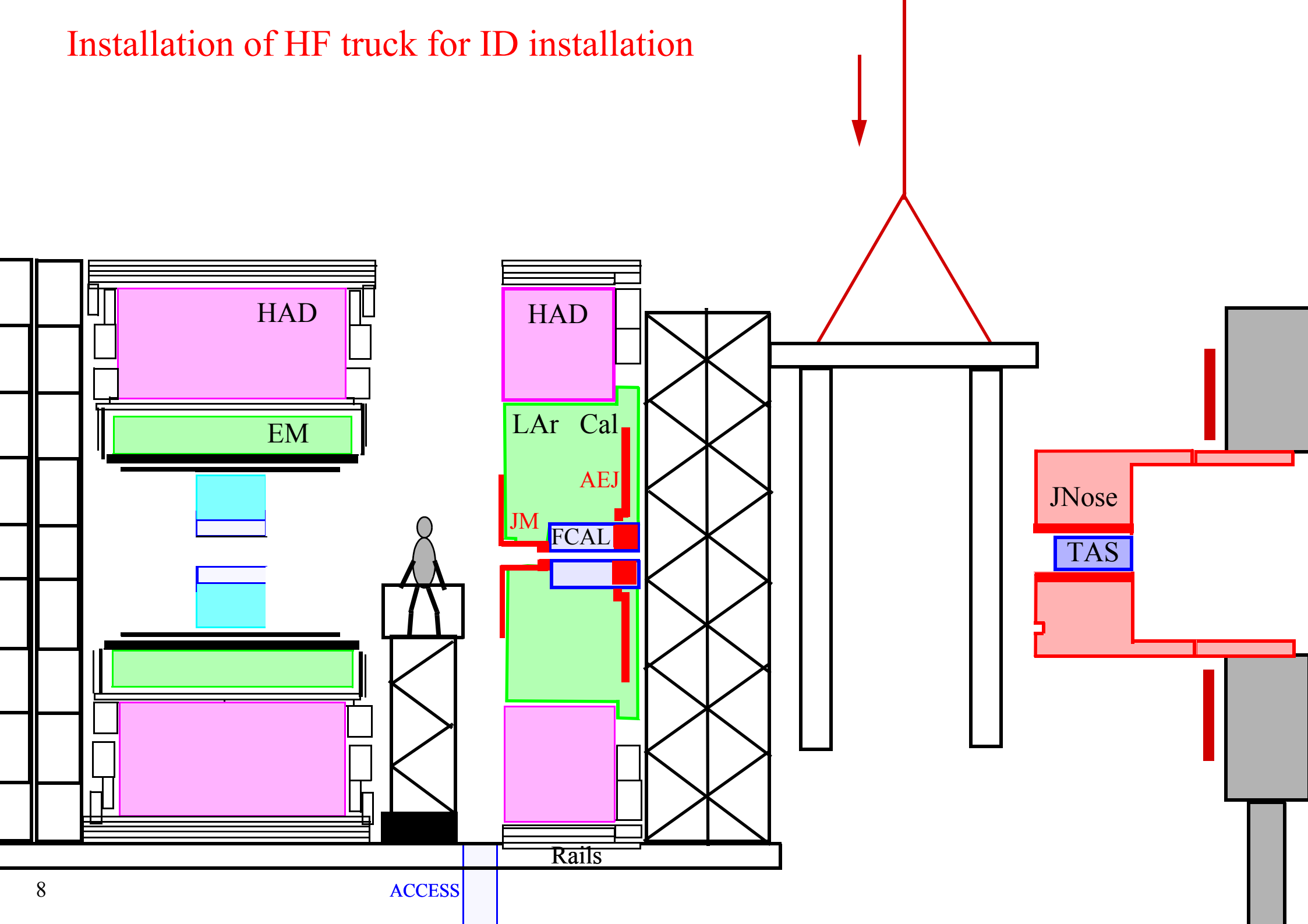


# Installation of tooling for BW

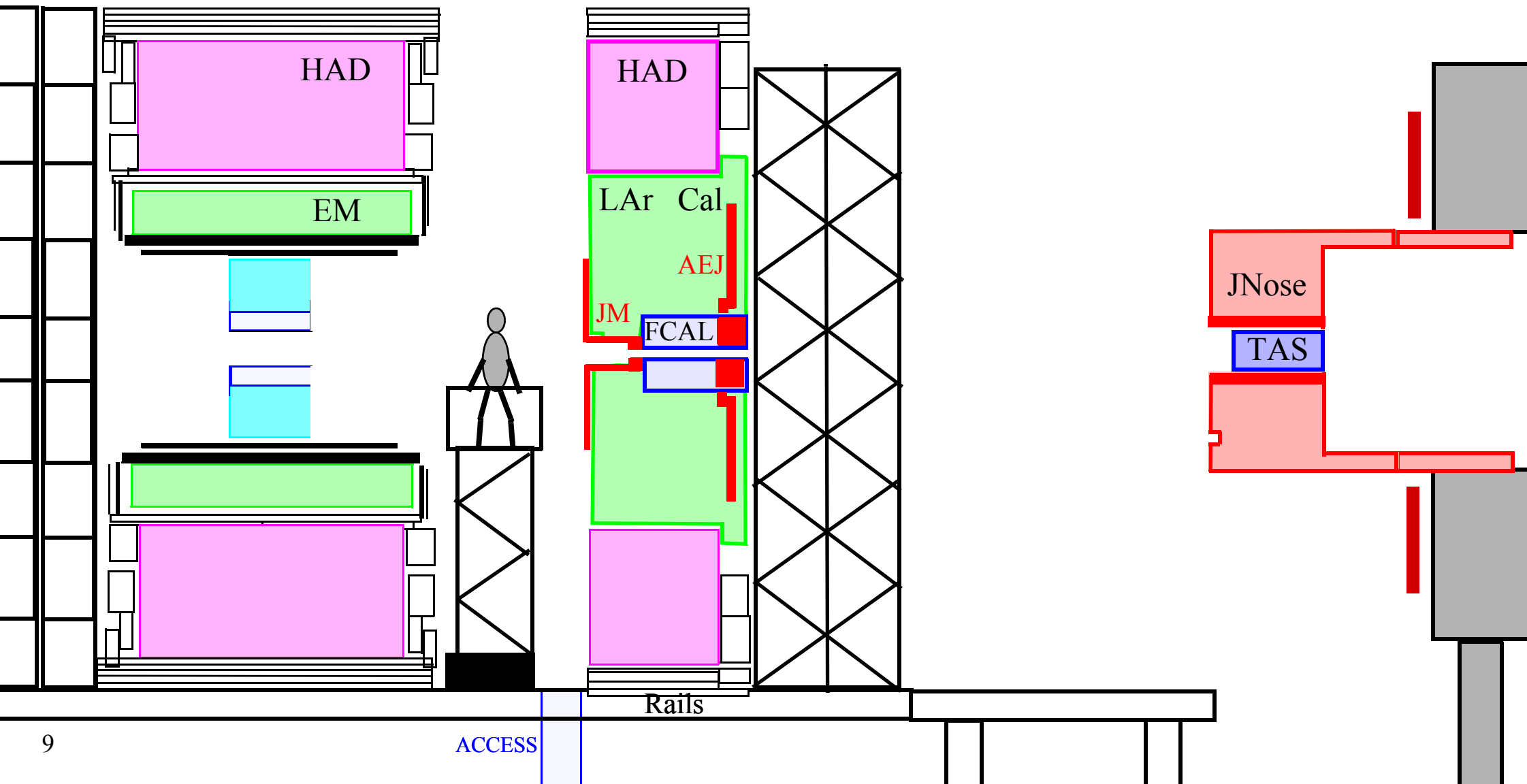




# Installation of HF truck for ID installation







HAD

EM

HAD

LAr Cal

AEJ

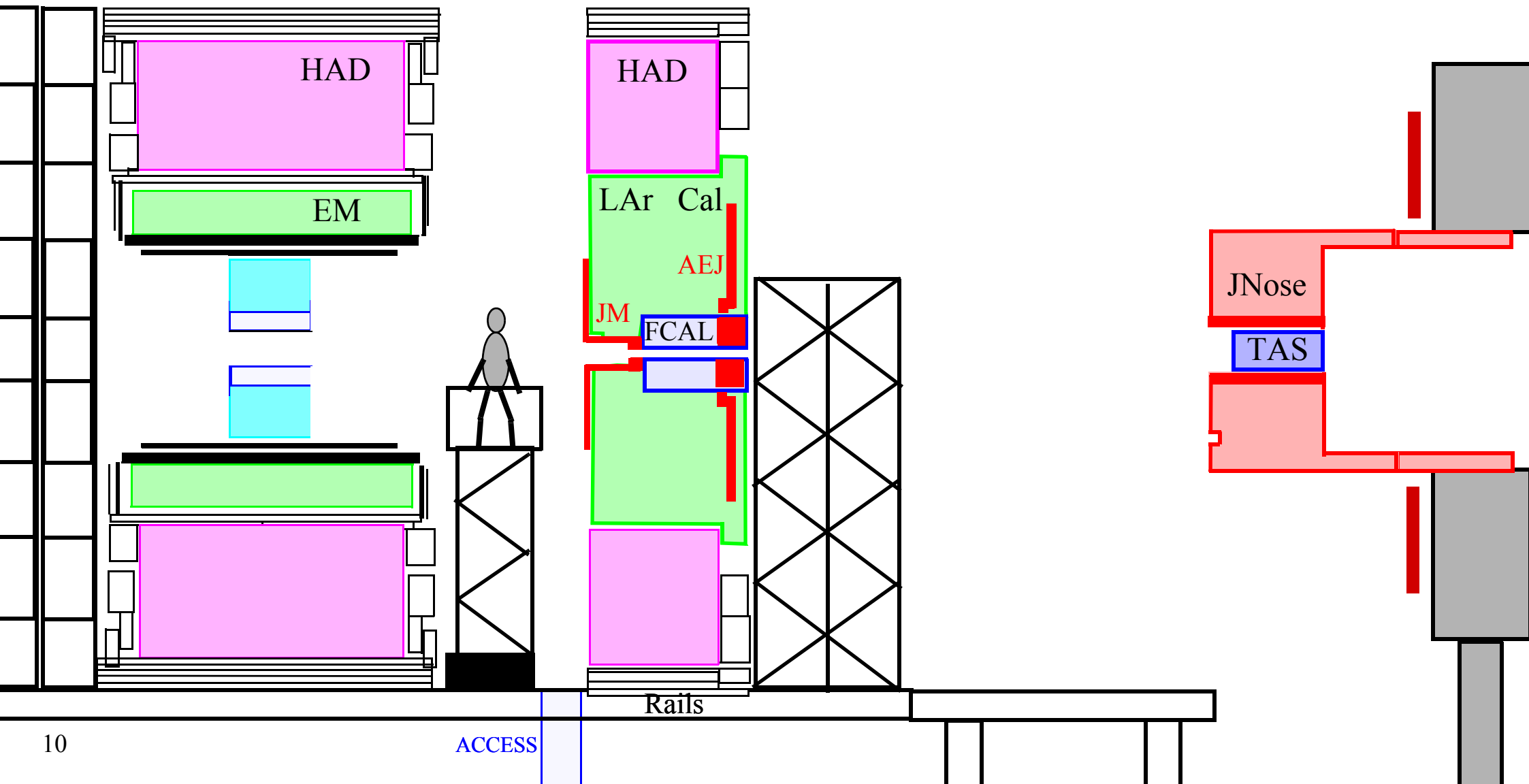
JM

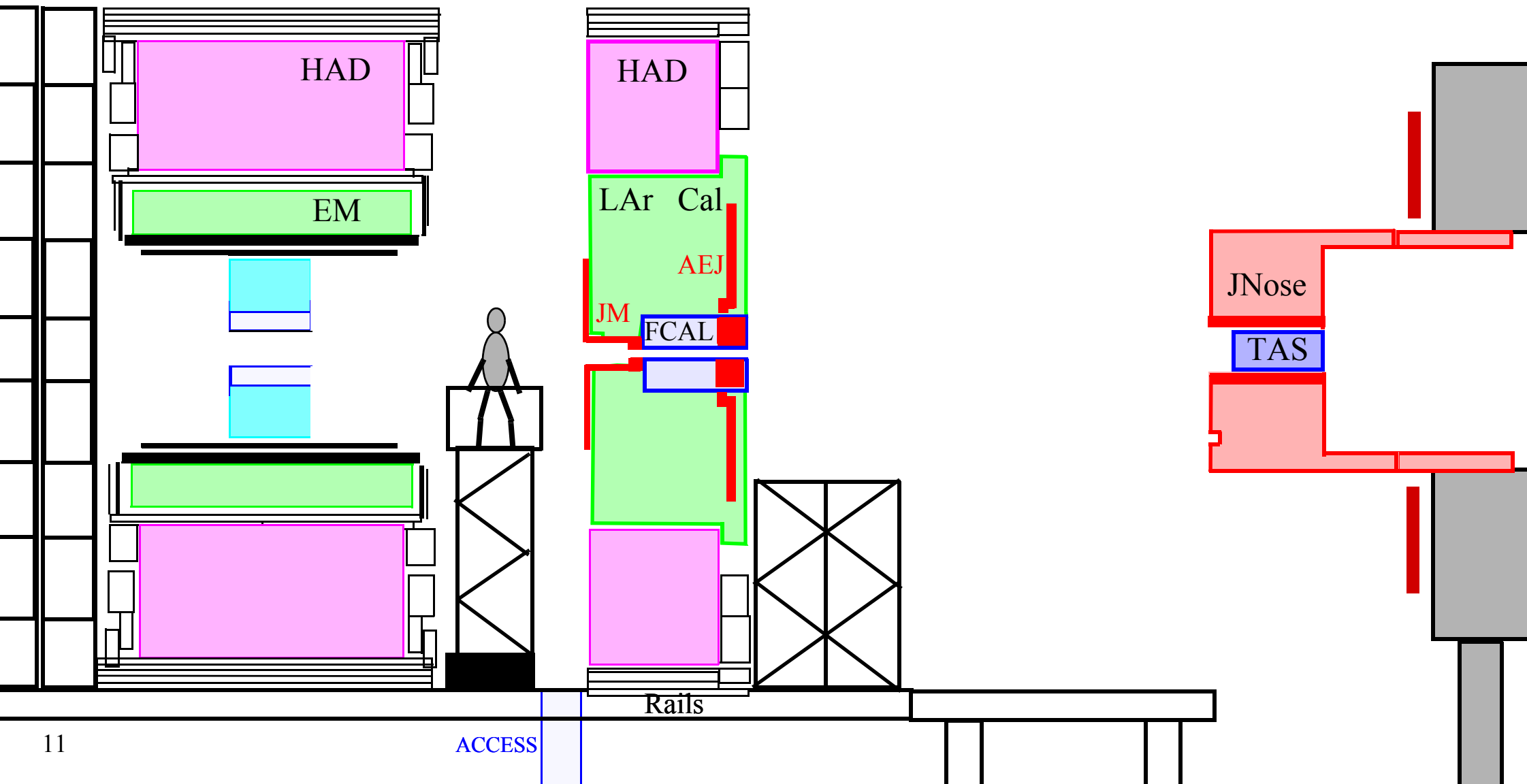
FCAL

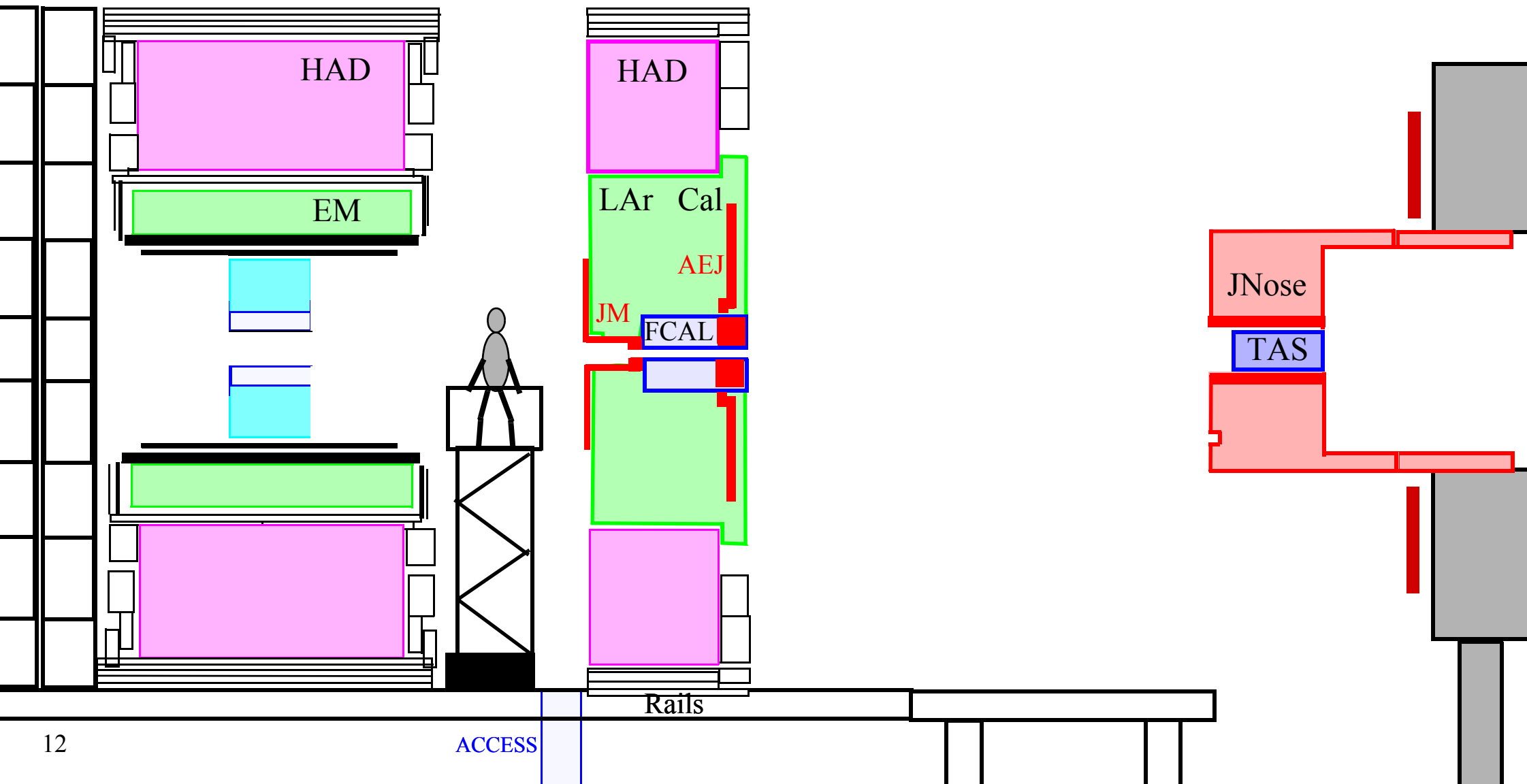
JNose

TAS

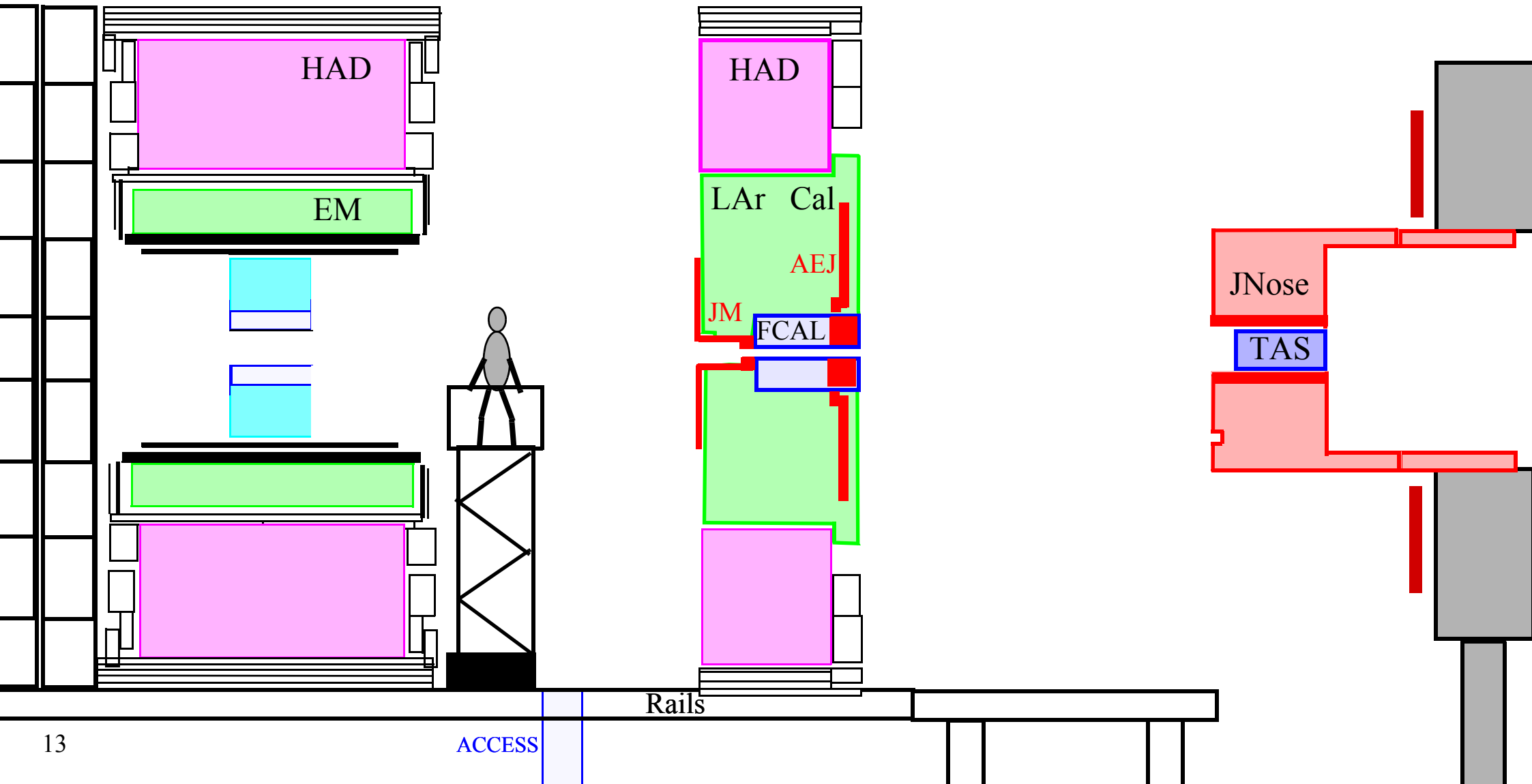
# Removal of scaffolding

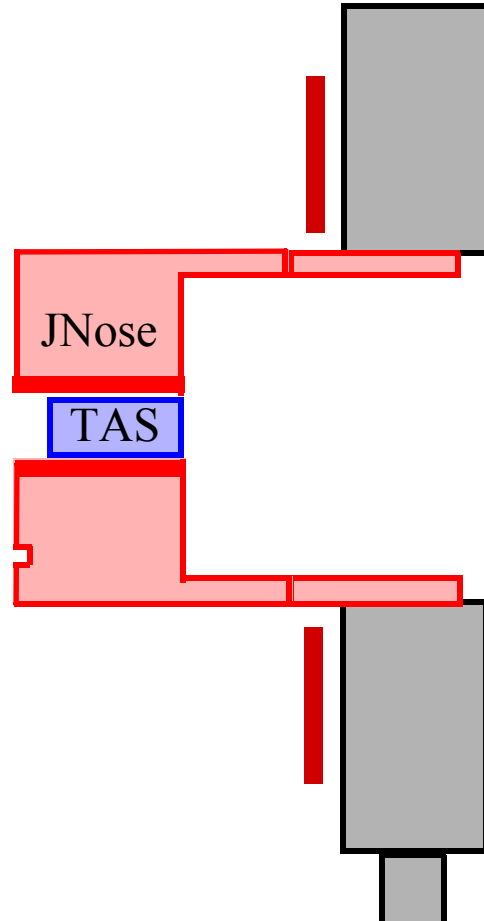
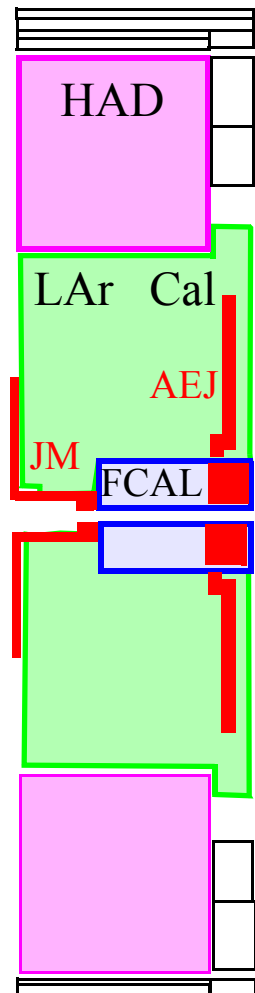
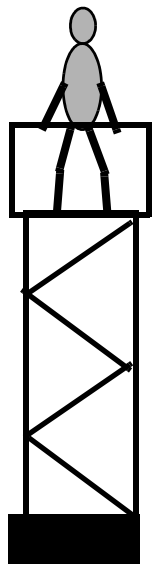
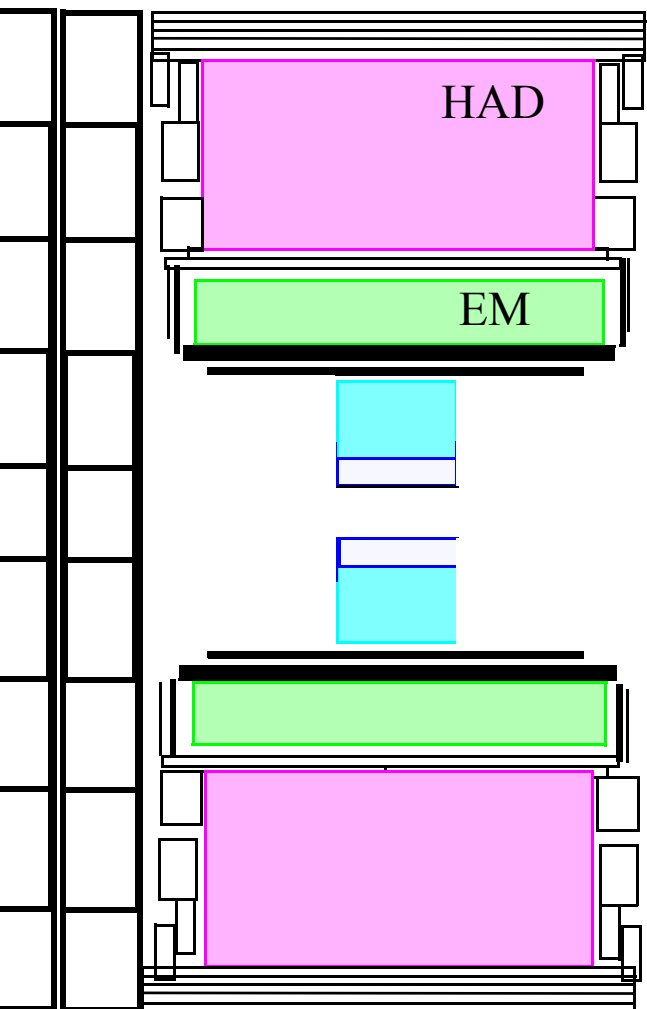




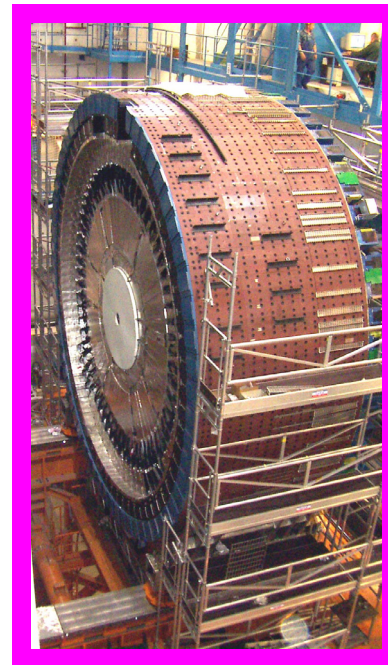
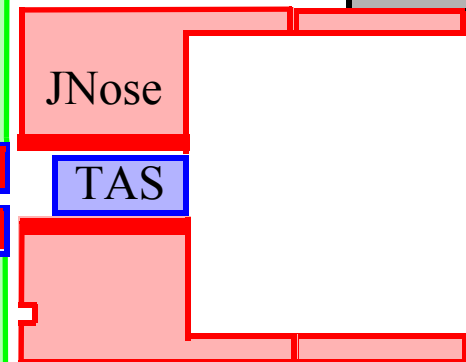
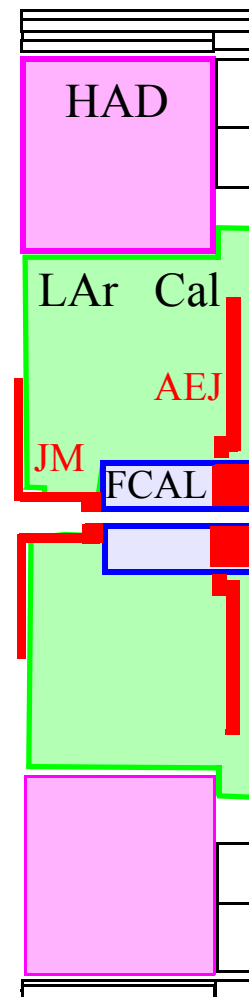
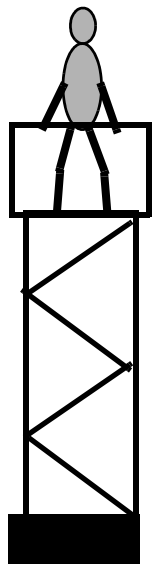
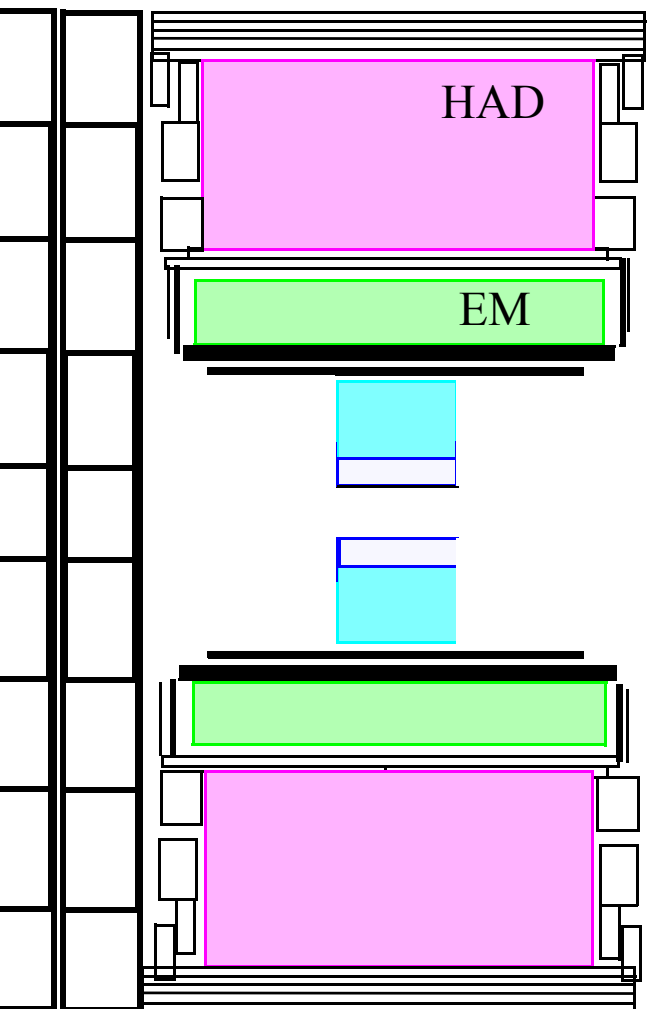


# Move calorimeter



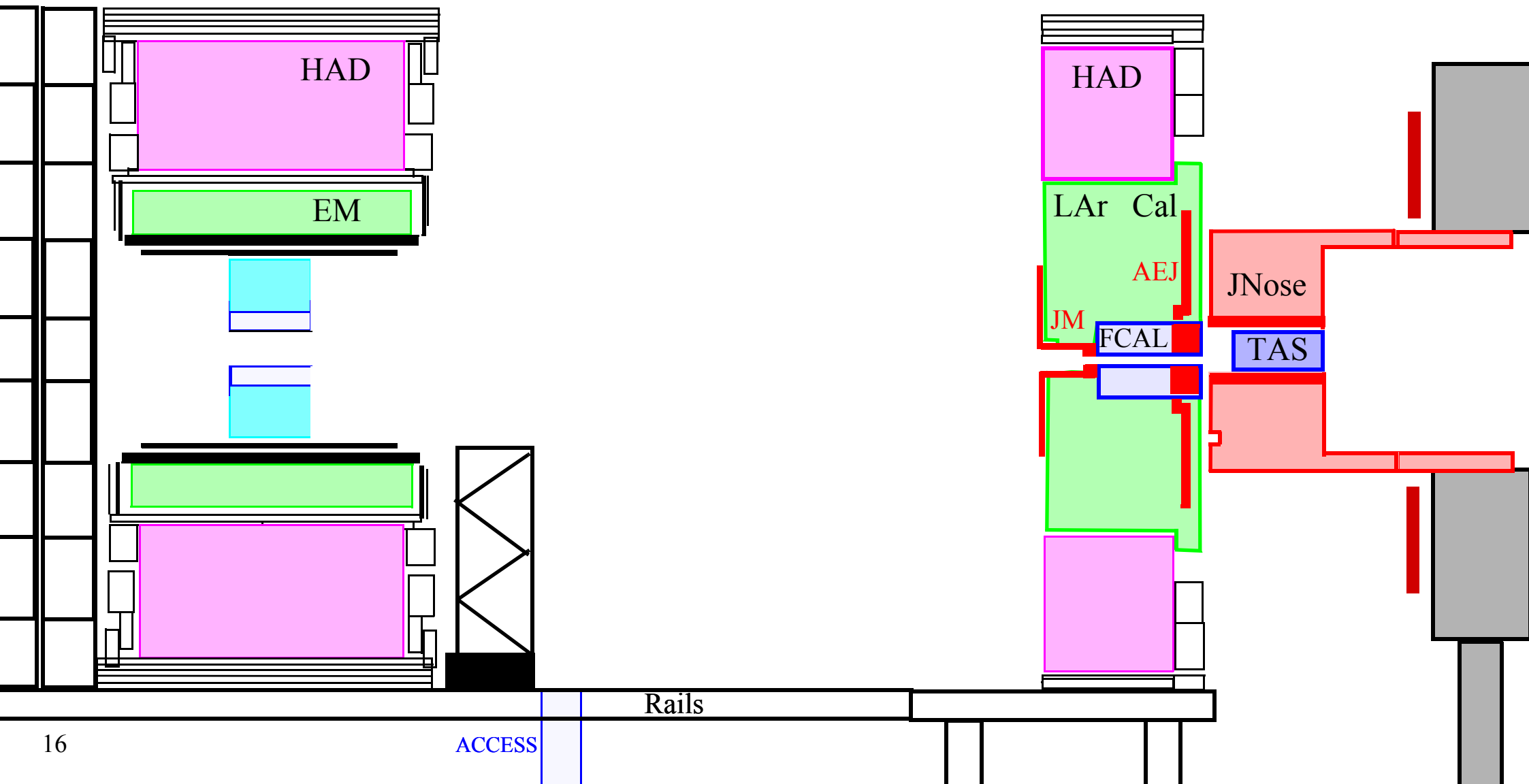


Rails

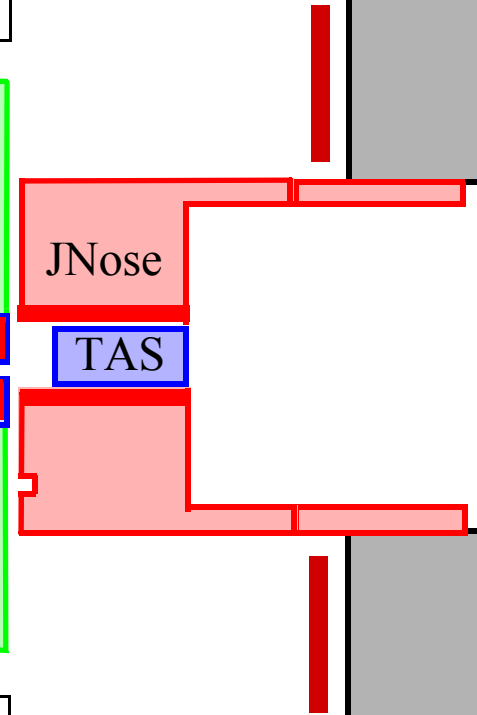
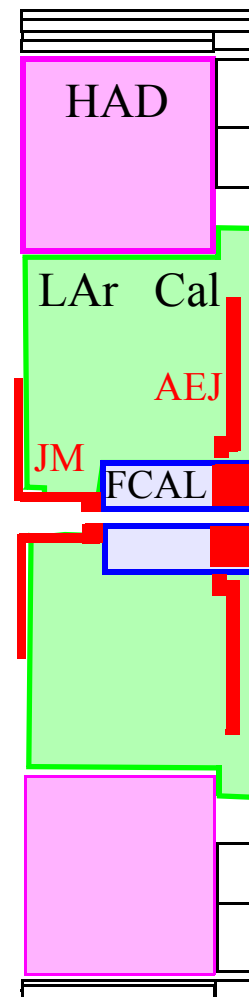
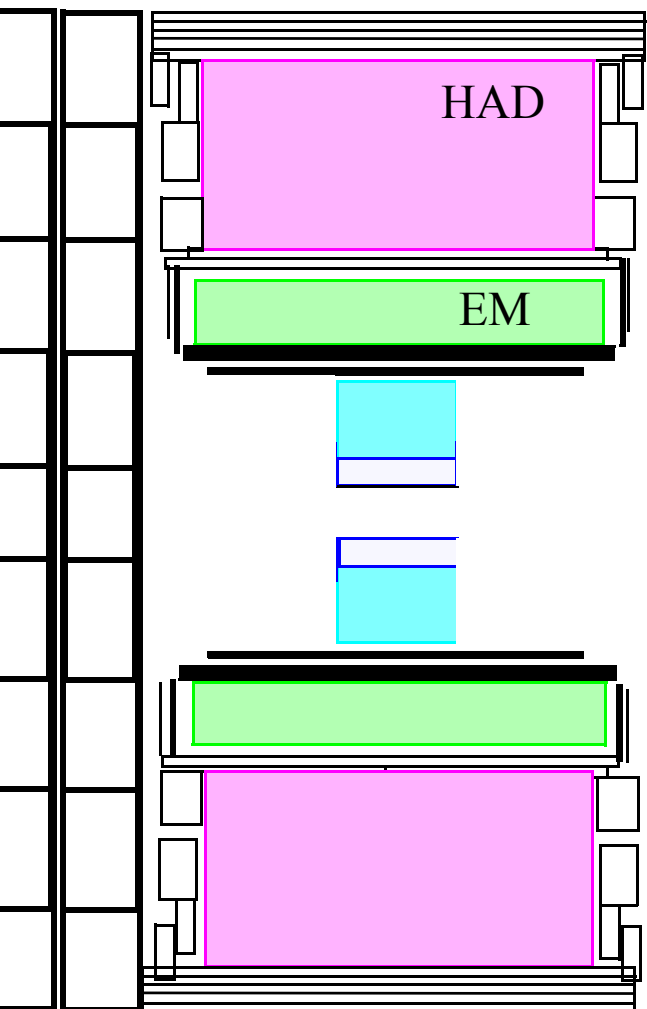


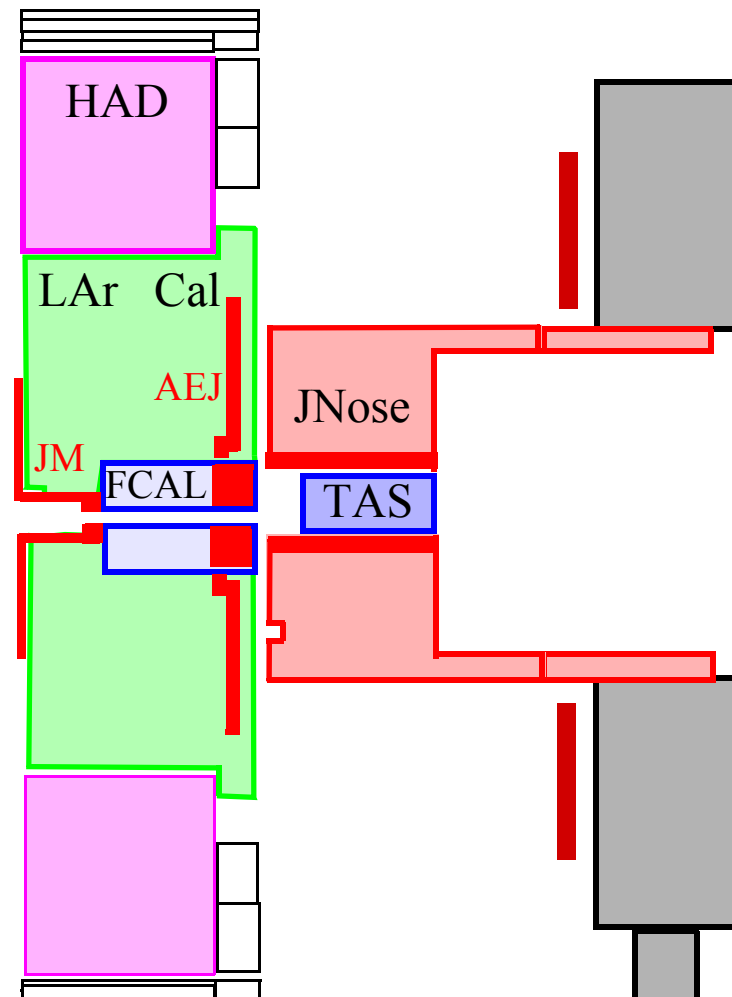
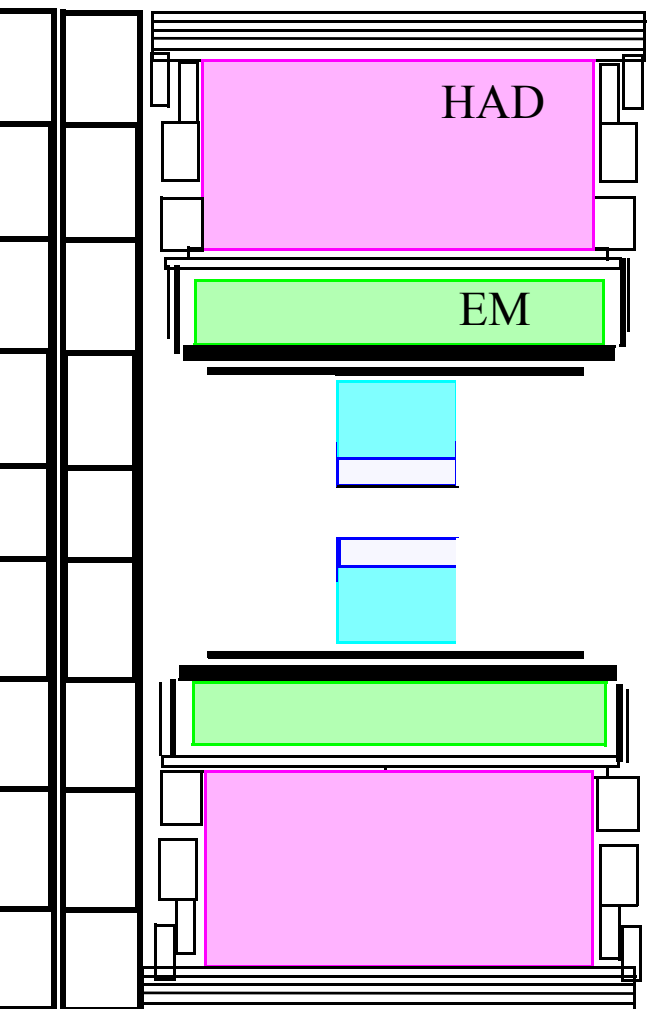
Rails

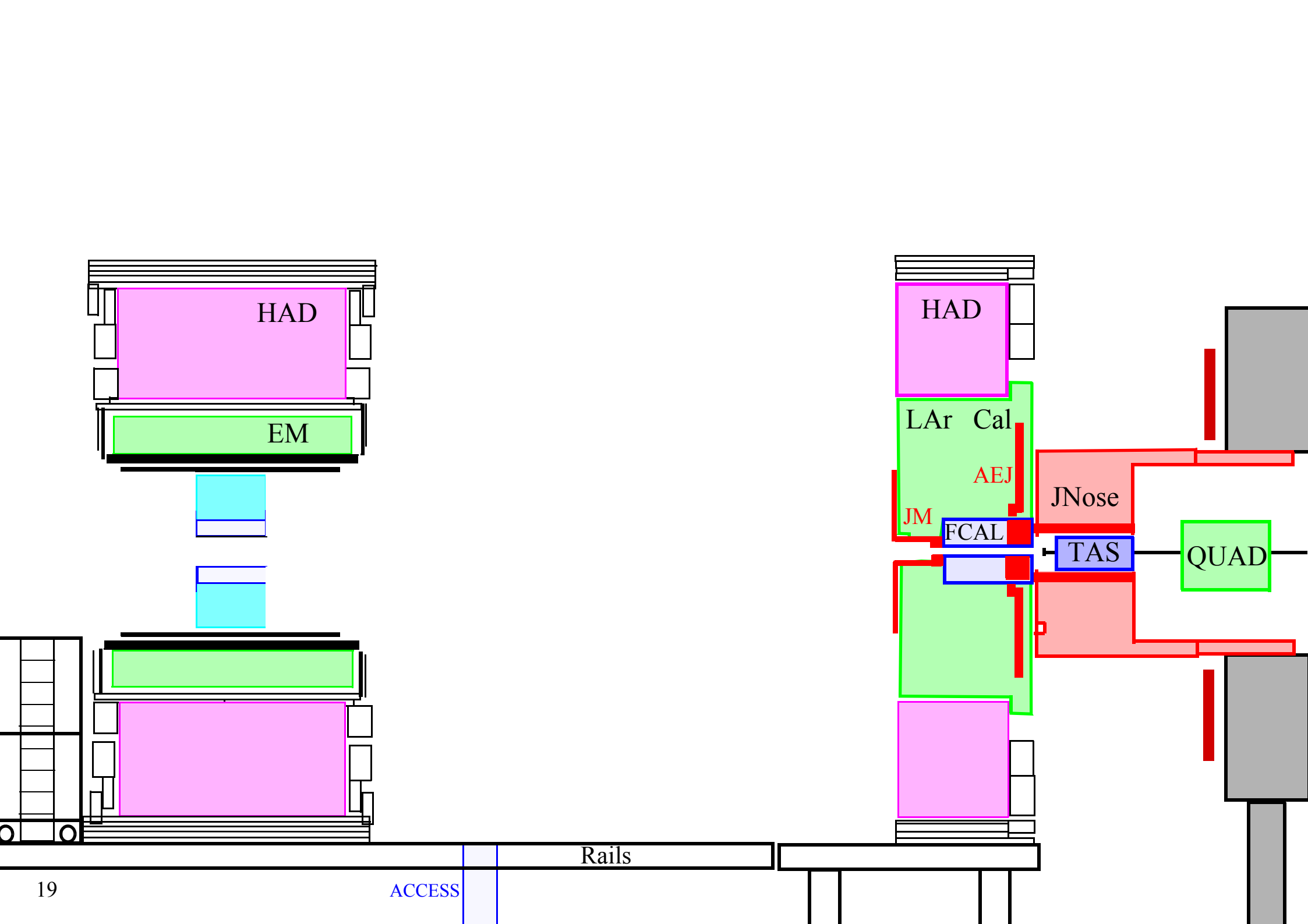
# Remove scaffolding











HAD

EM

HAD

LAr Cal

AEJ

JM

FCAL

JNose

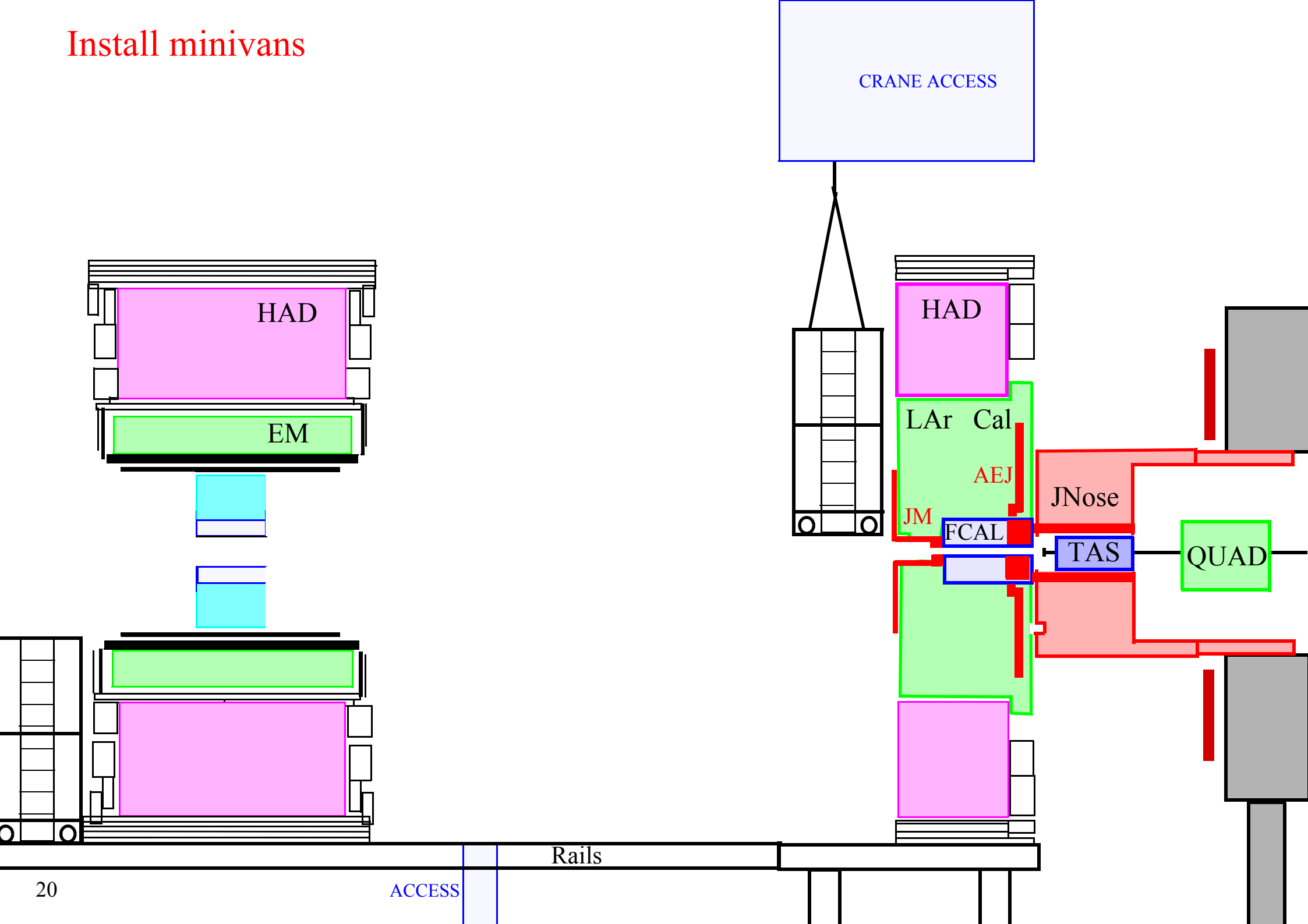
TAS

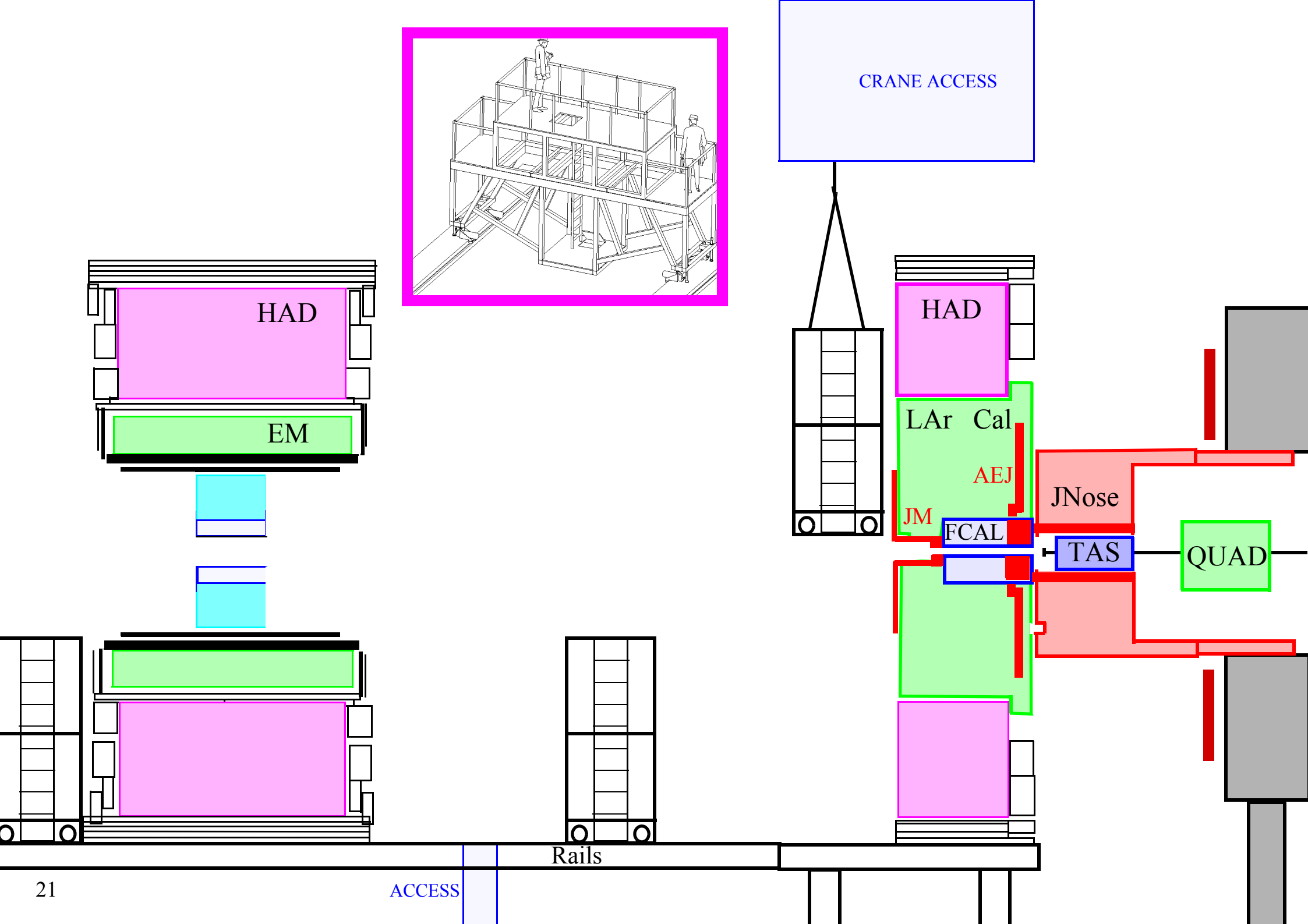
QUAD

Rails

ACCESS

# Install minivans





CRANE ACCESS

HAD

EM

HAD

LAr Cal

AEJ

JM

FCAL

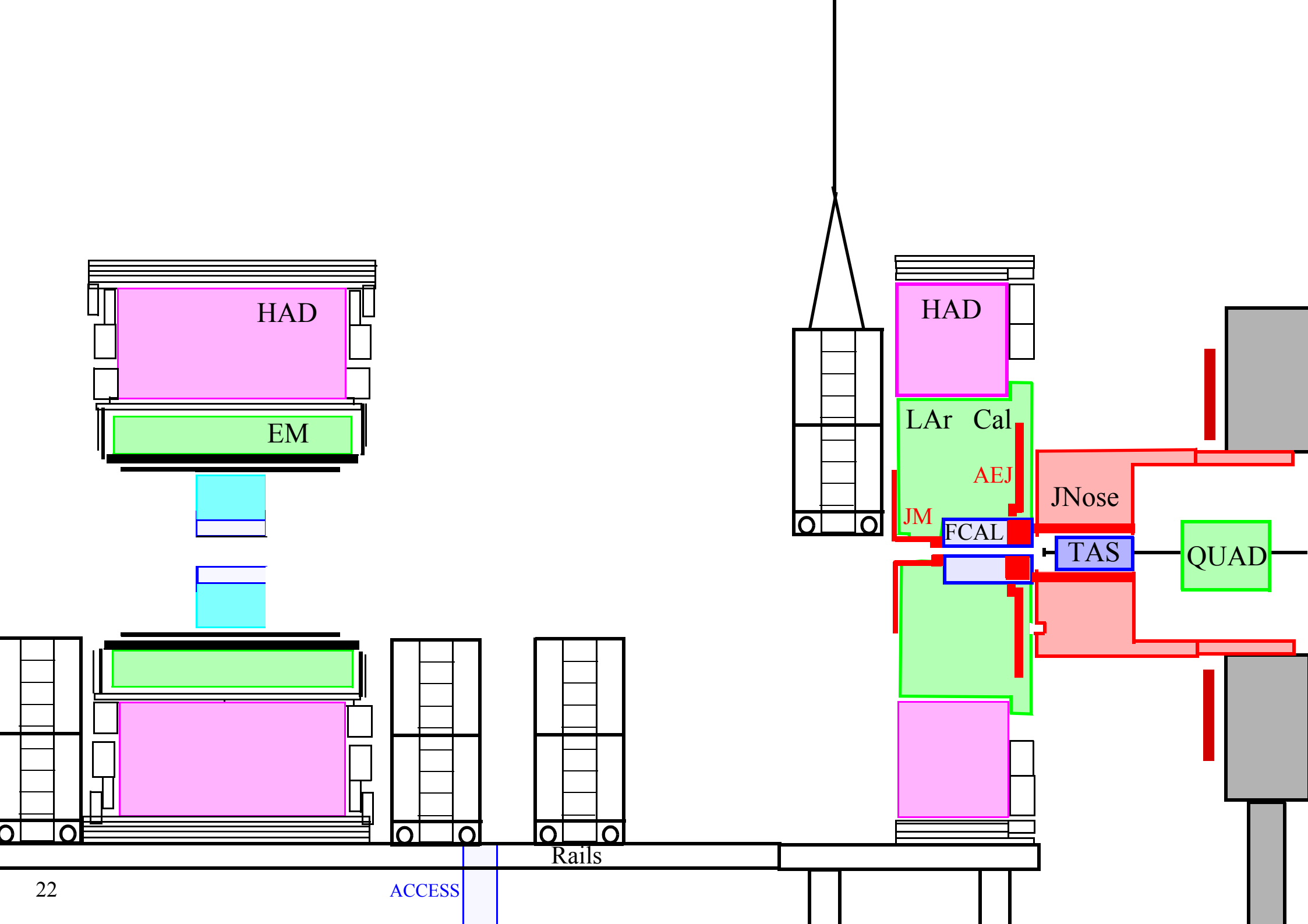
JNose

TAS

QUAD

Rails

ACCESS



HAD

EM

HAD

LAr Cal

AEJ

JM

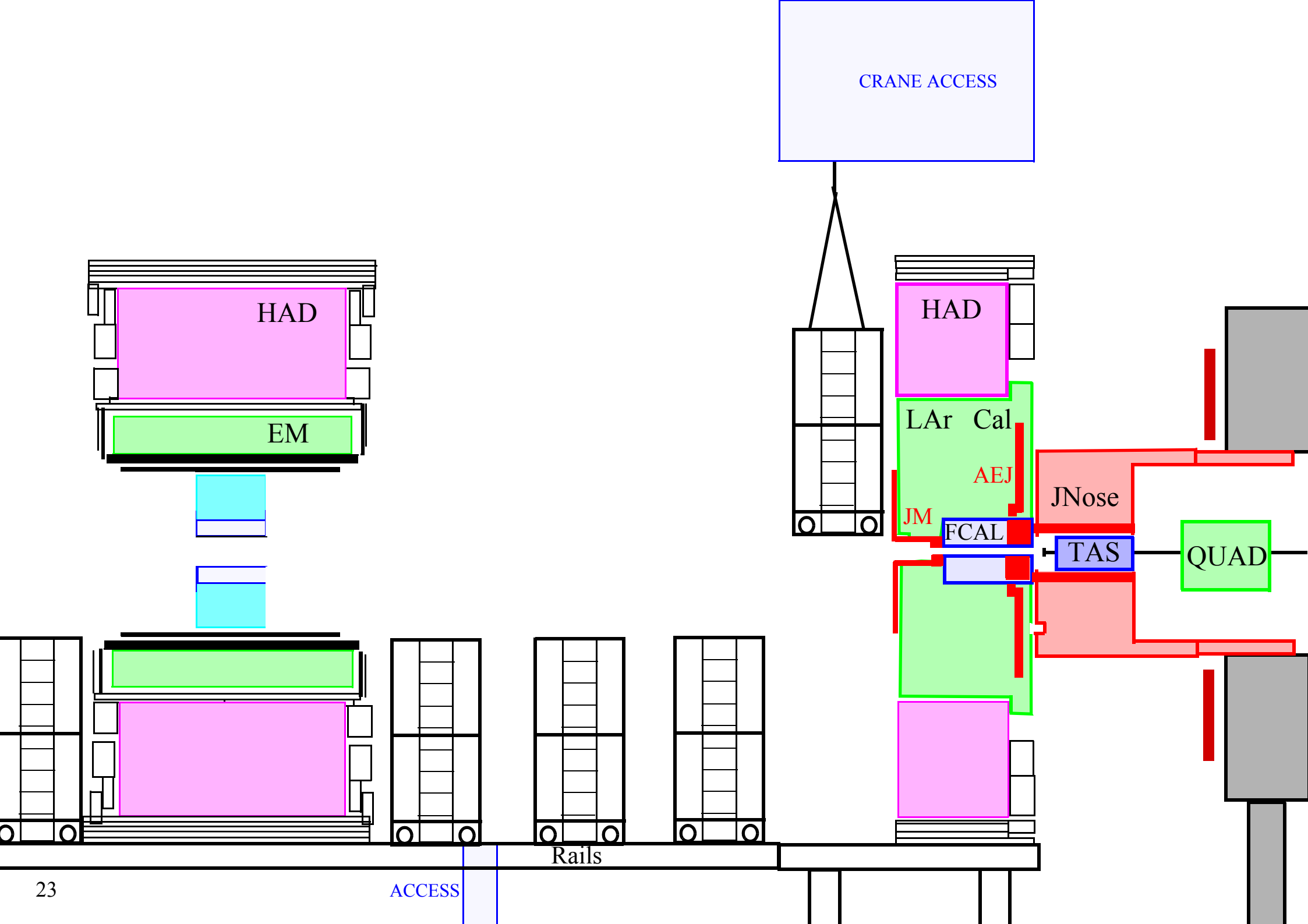
FCAL

JNose

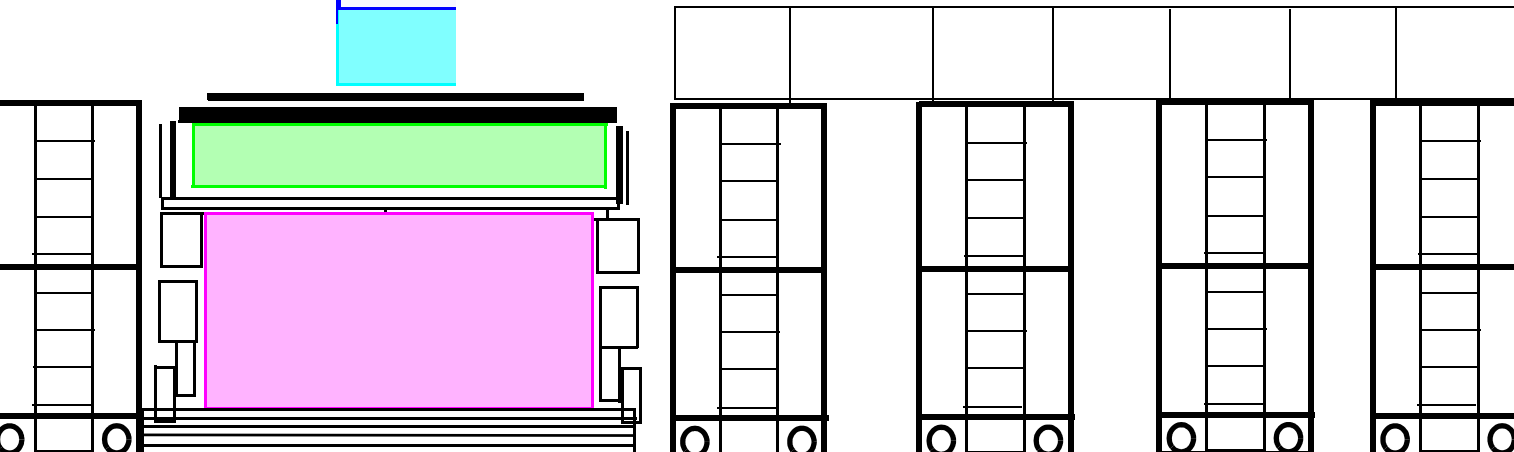
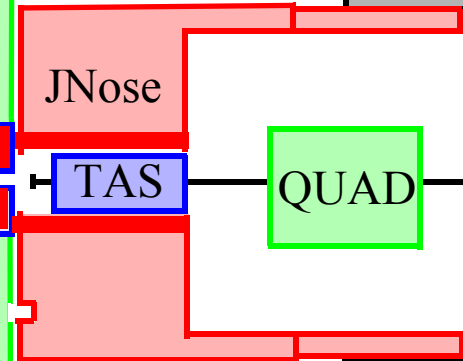
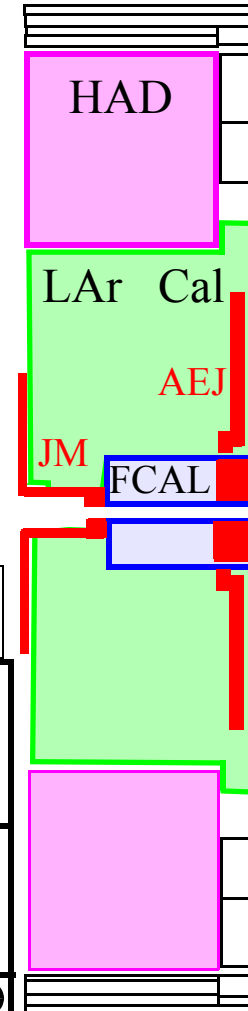
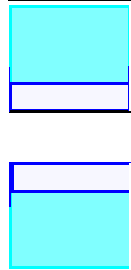
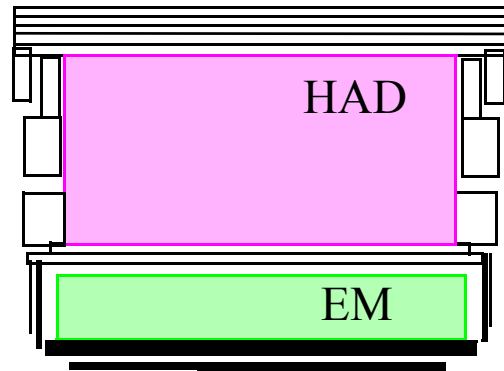
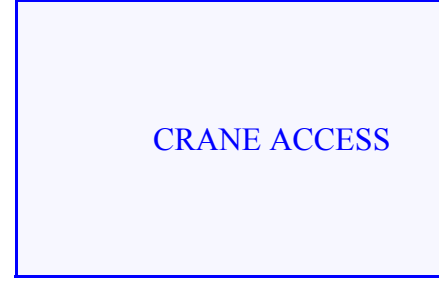
TAS

QUAD

Rails



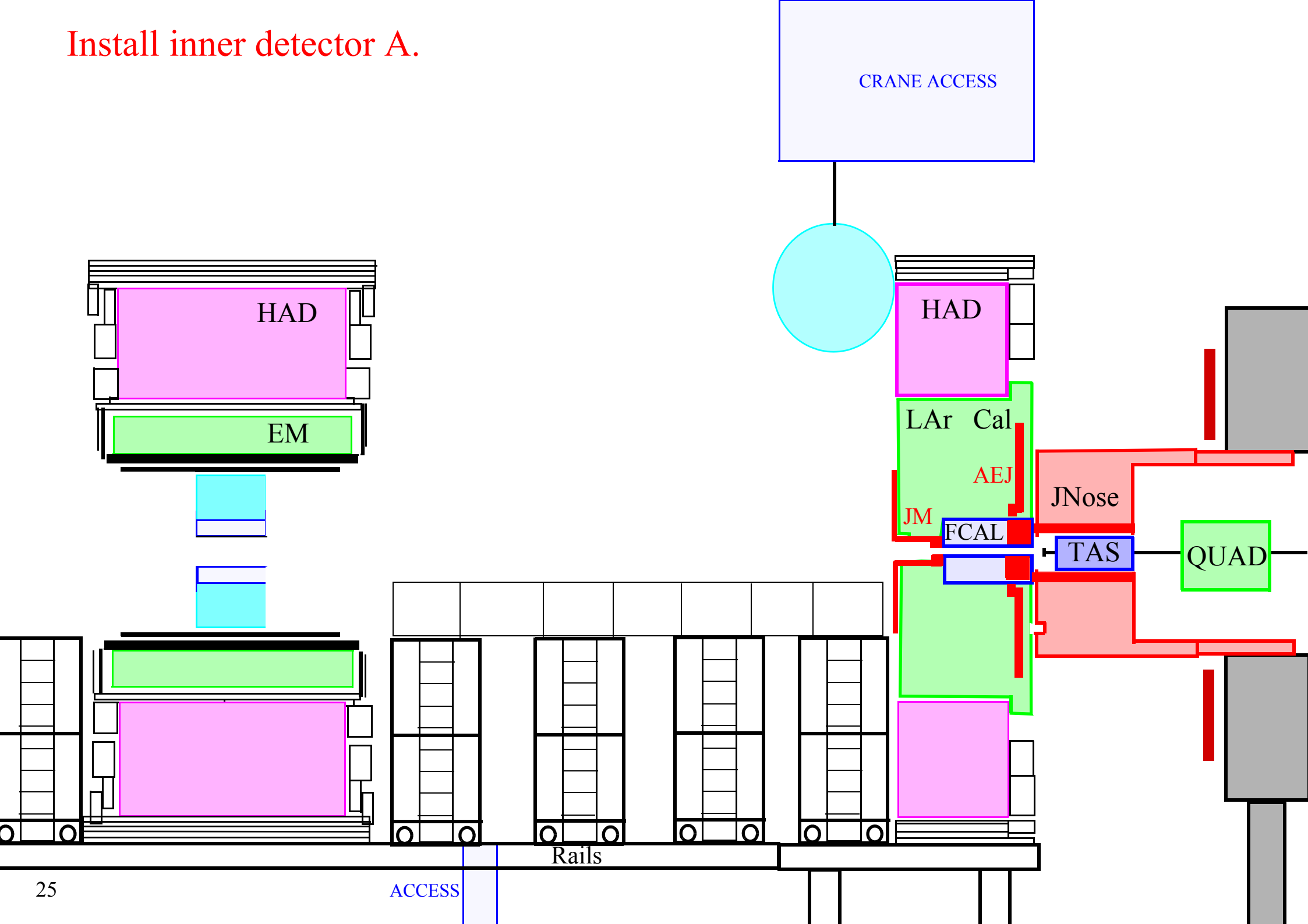
6 minivans will be needed here !

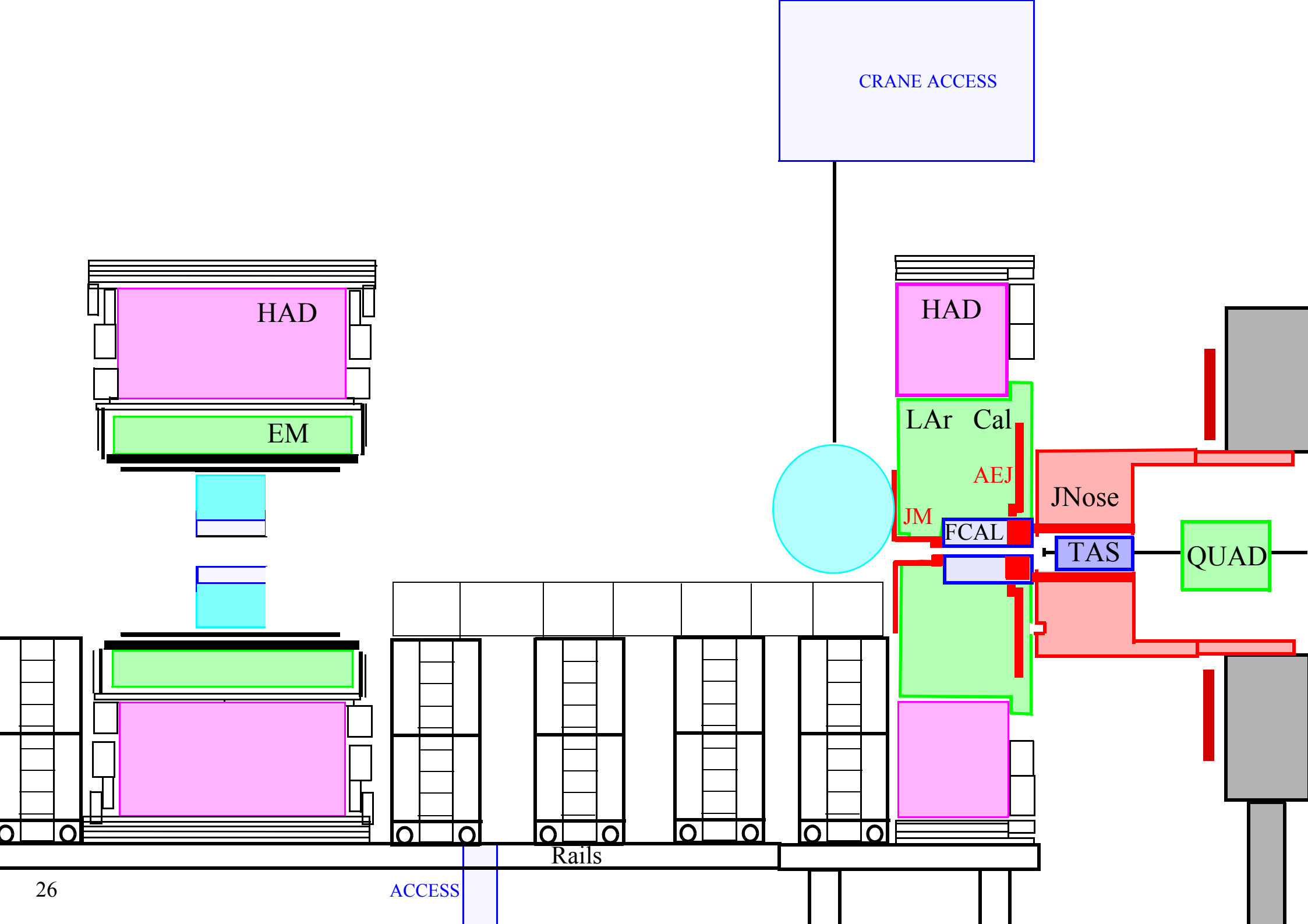


ACCESS



Install inner detector A.





CRANE ACCESS

HAD

EM

HAD

LAr Cal

AEJ

JM

FCAL

JNose

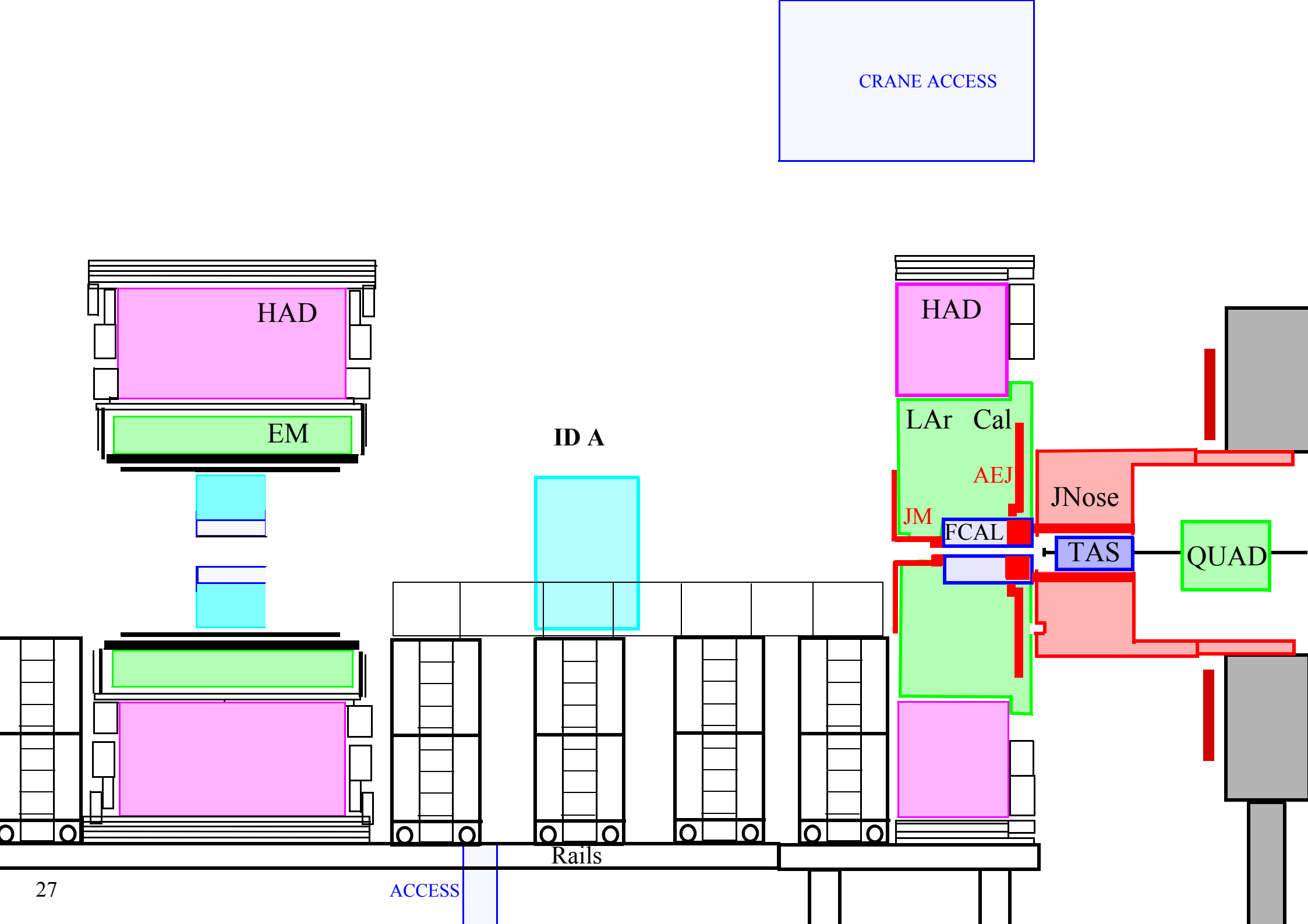
TAS

QUAD

Rails

ACCESS

26



CRANE ACCESS

HAD

EM

HAD

LAr Cal

AEJ

JM

FCAL

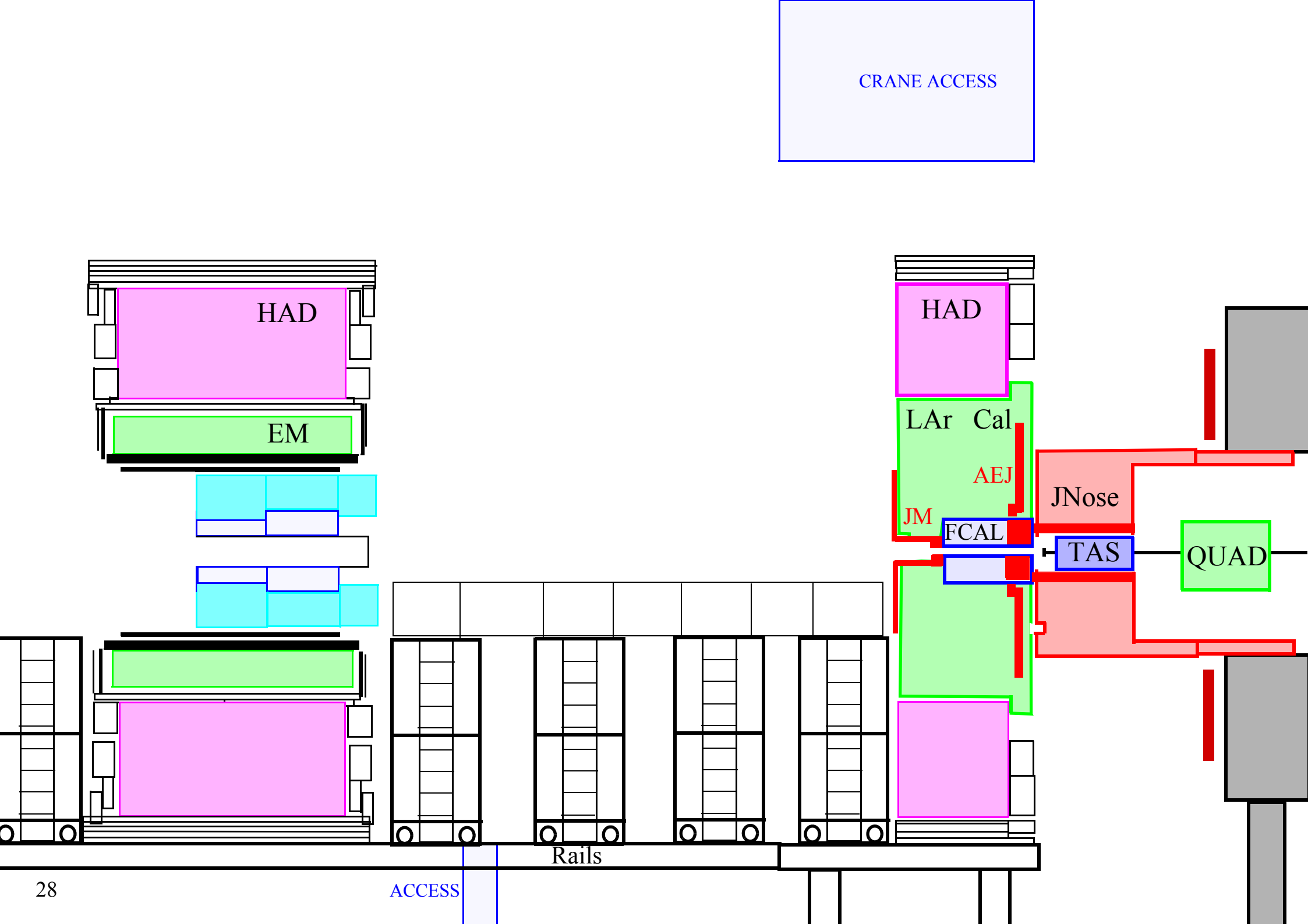
JNose

TAS

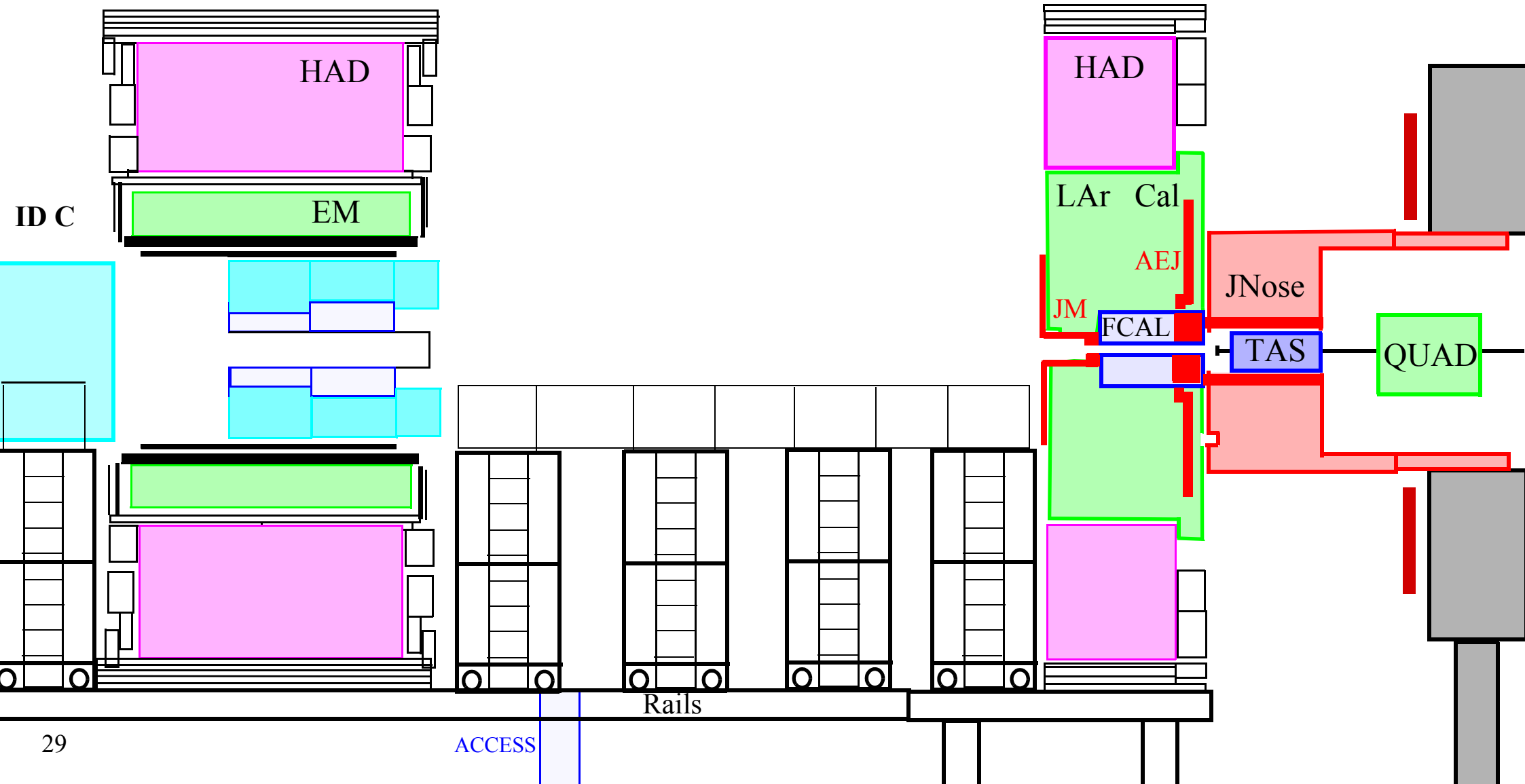
QUAD

Rails

ACCESS



Install inner detector endcap C.



CRANE ACCESS

HAD

EM

HAD

LAr Cal

AEJ

JM

FCAL

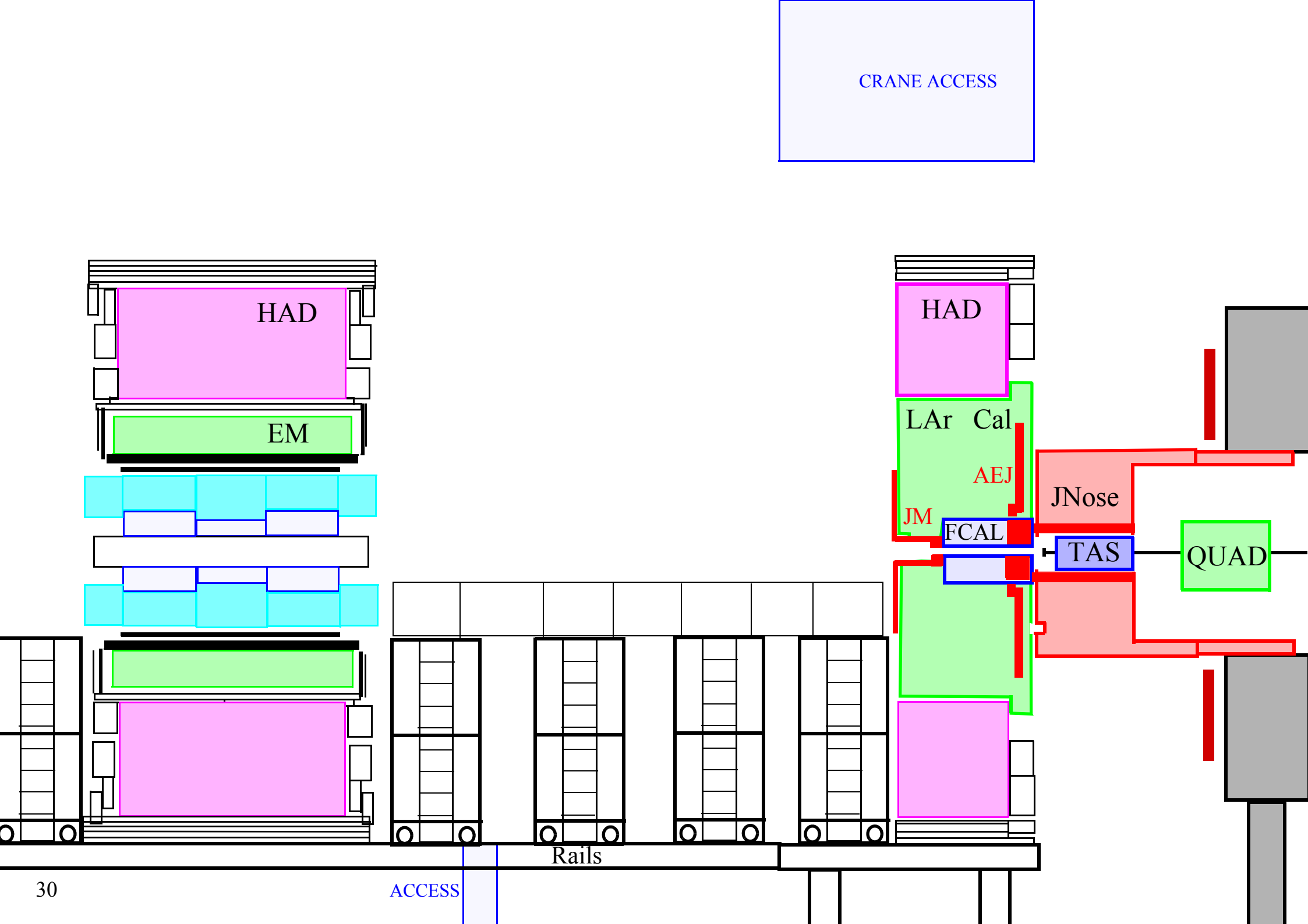
JNose

TAS

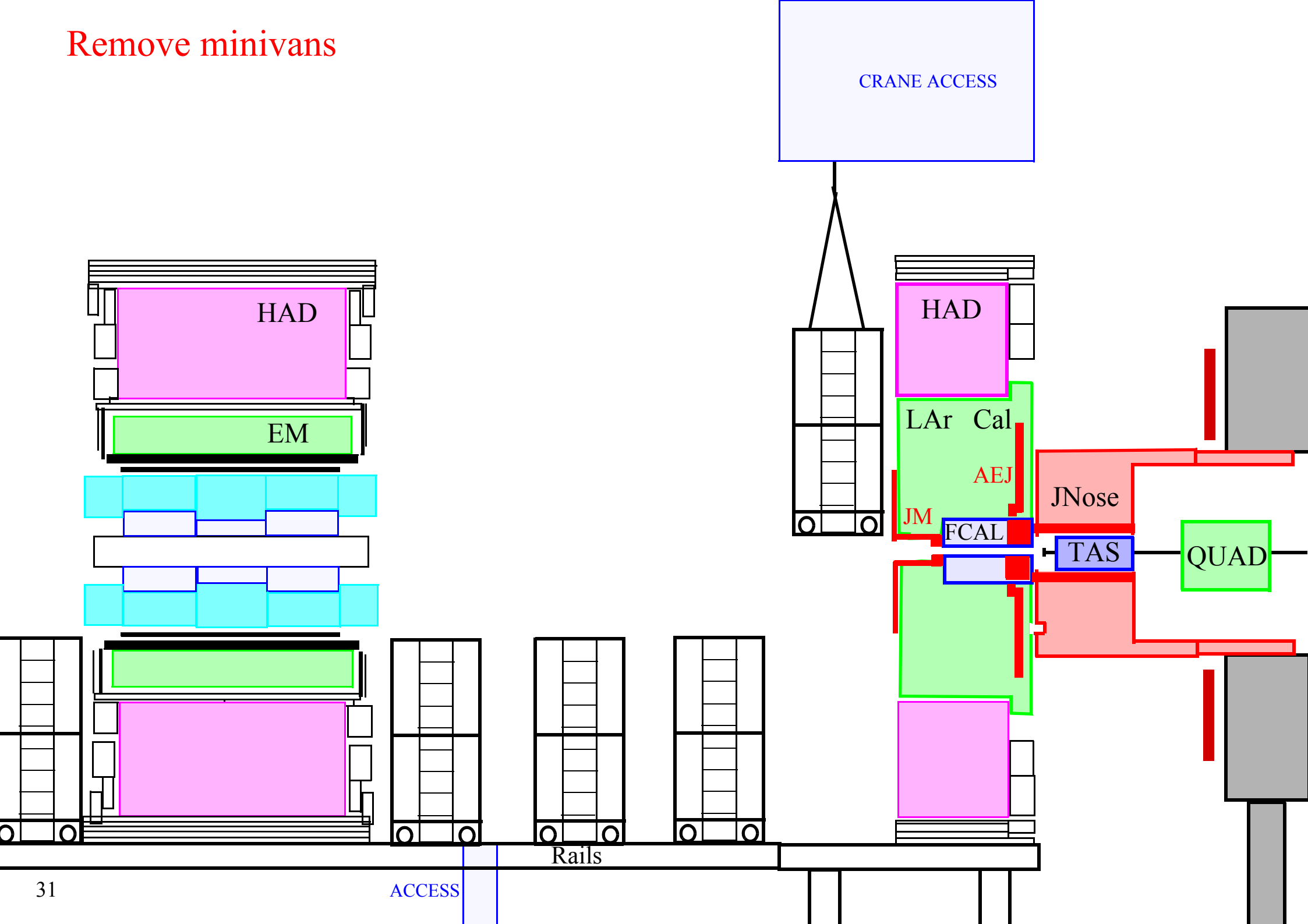
QUAD

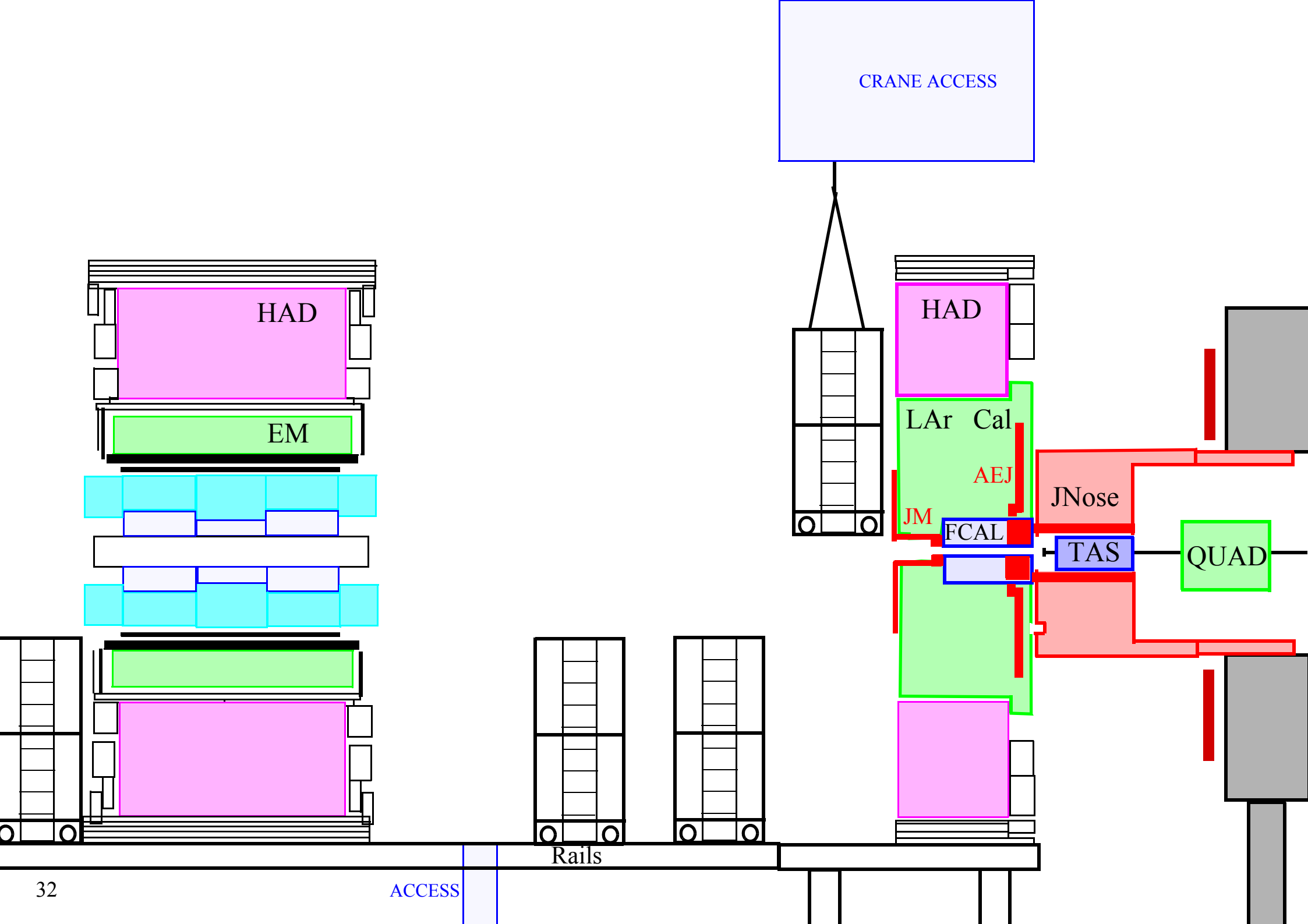
Rails

ACCESS



# Remove minivans





CRANE ACCESS

HAD

EM

HAD

LAr Cal

AEJ

JM

FCAL

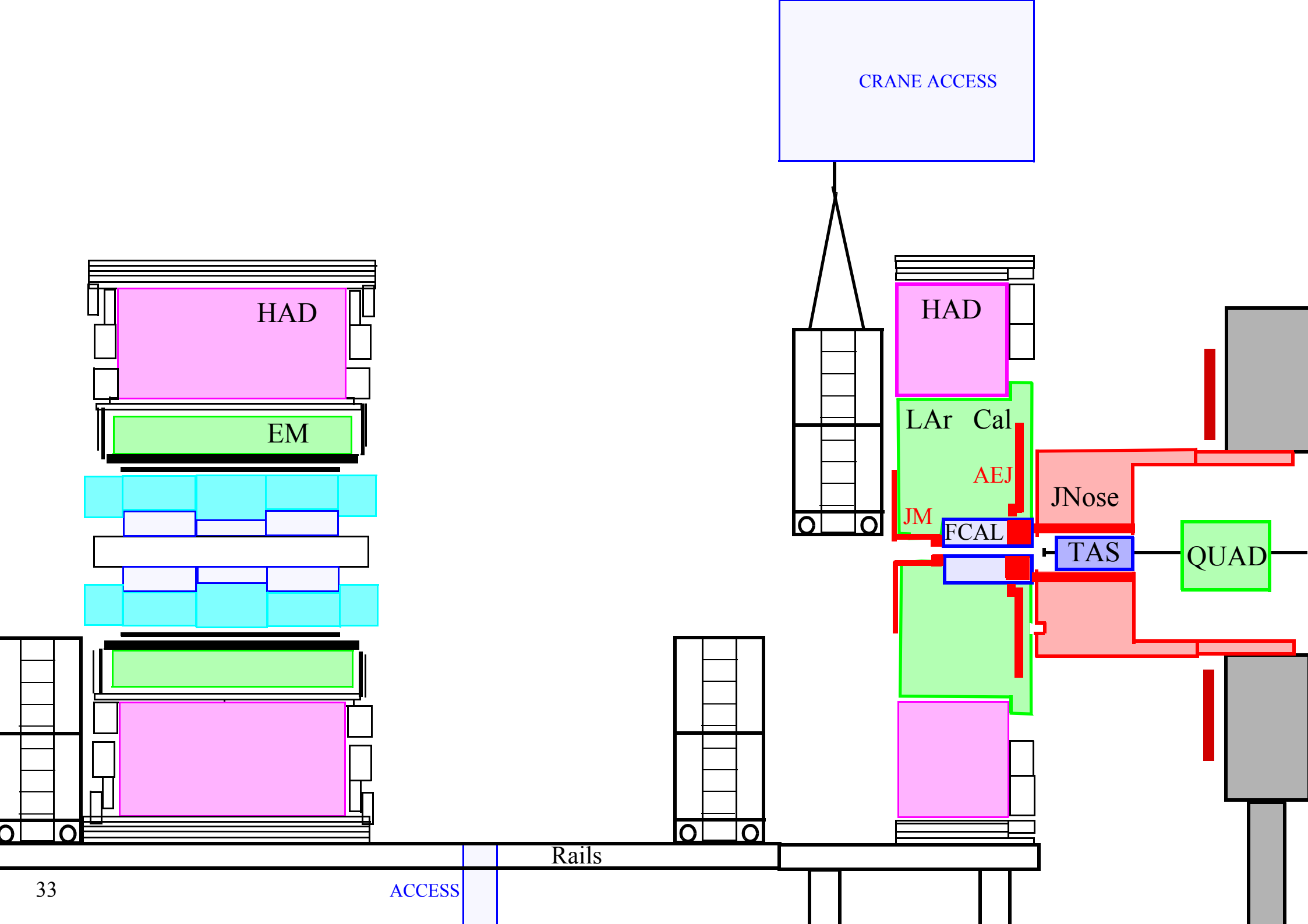
JNose

TAS

QUAD

Rails





CRANE ACCESS

HAD

EM

HAD

LAr Cal

AEJ

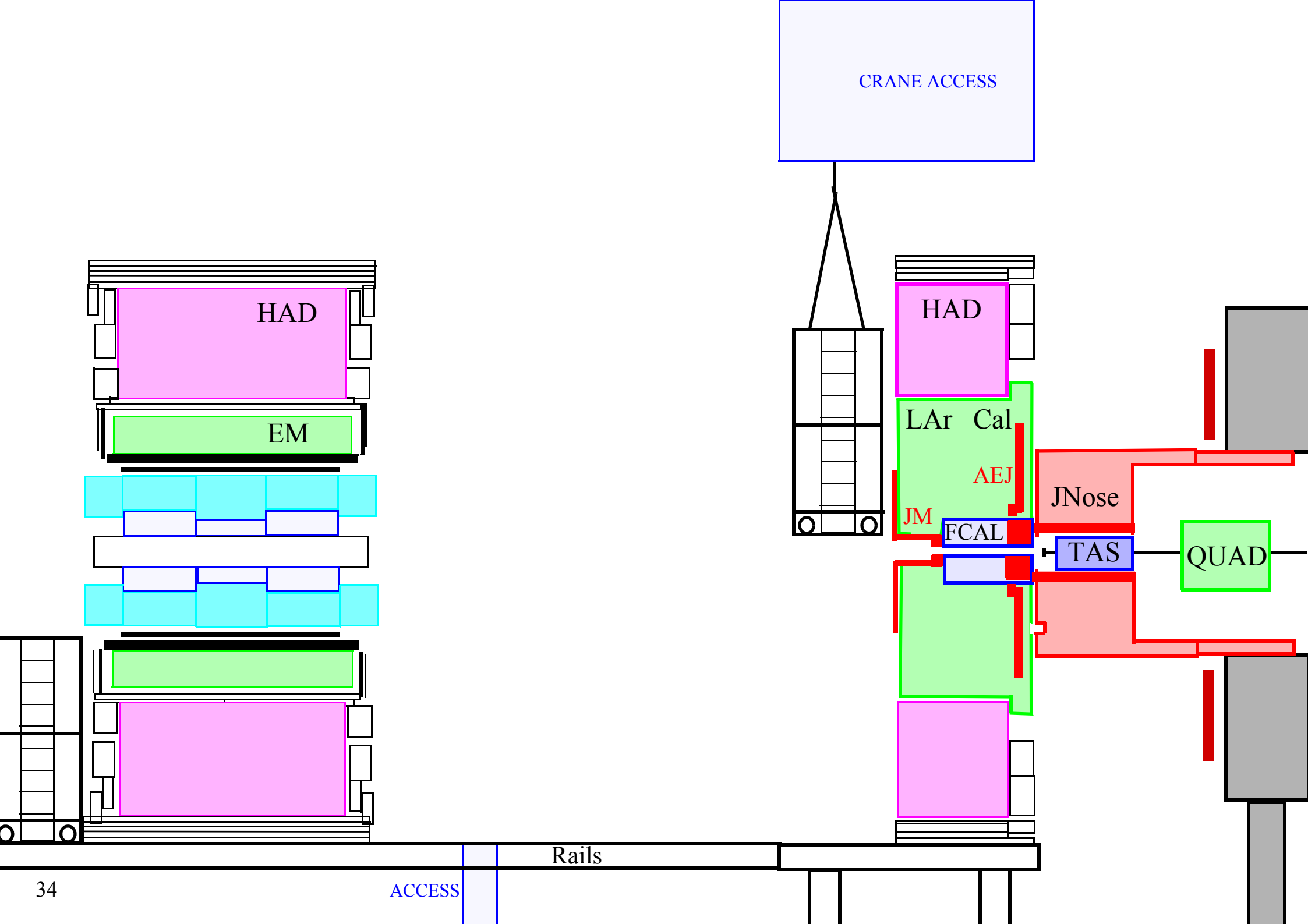
JM

FCAL

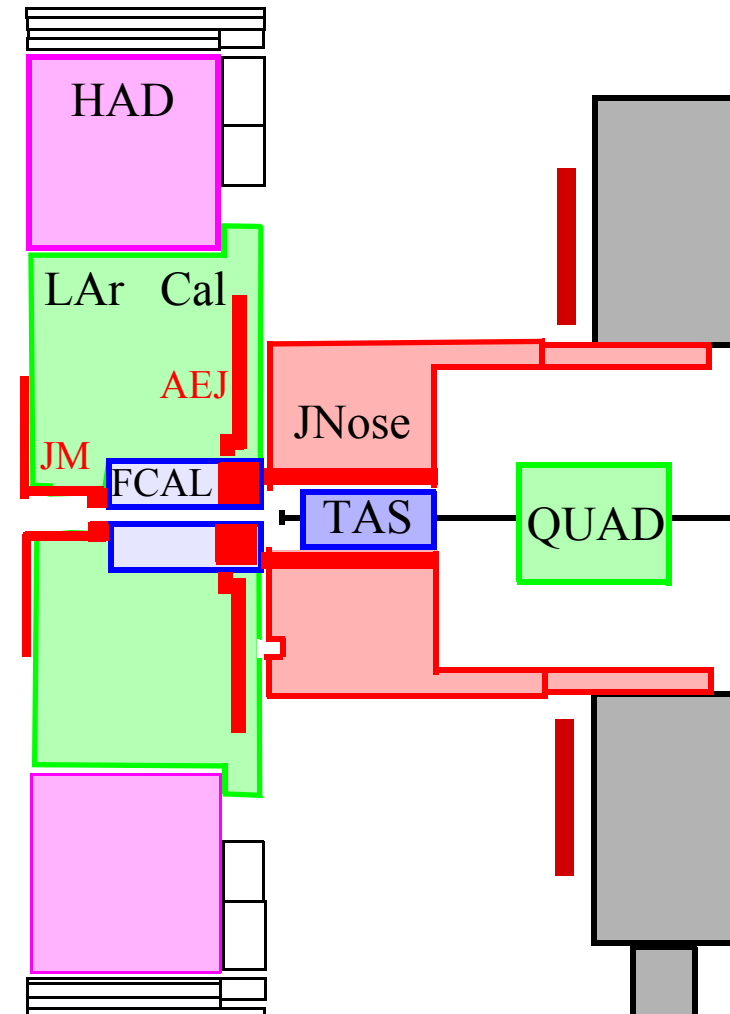
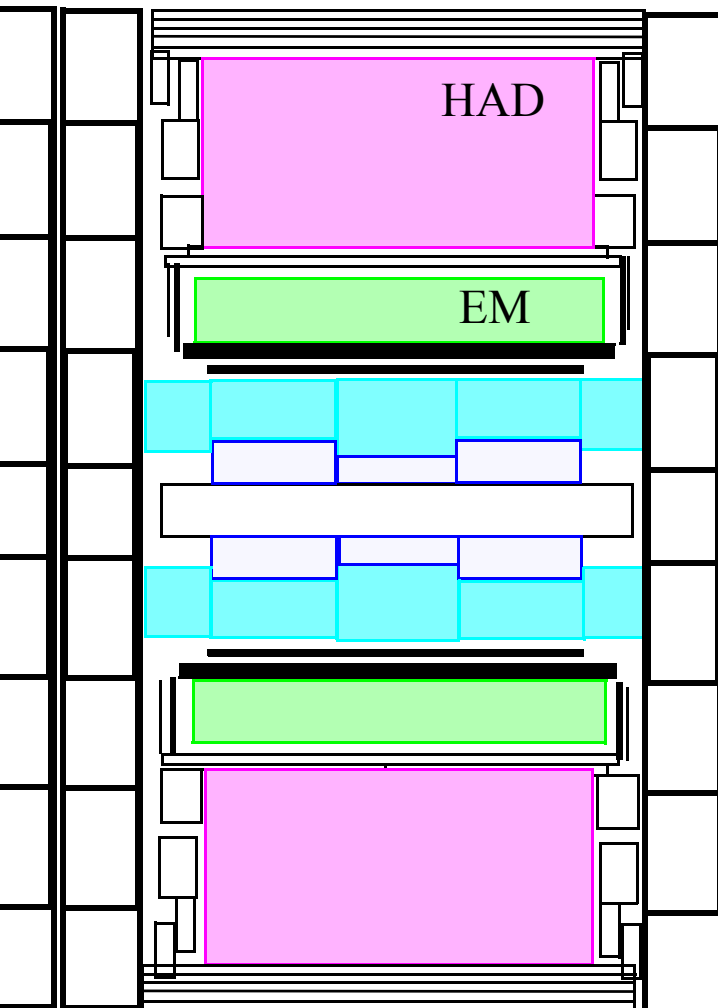
JNose

TAS

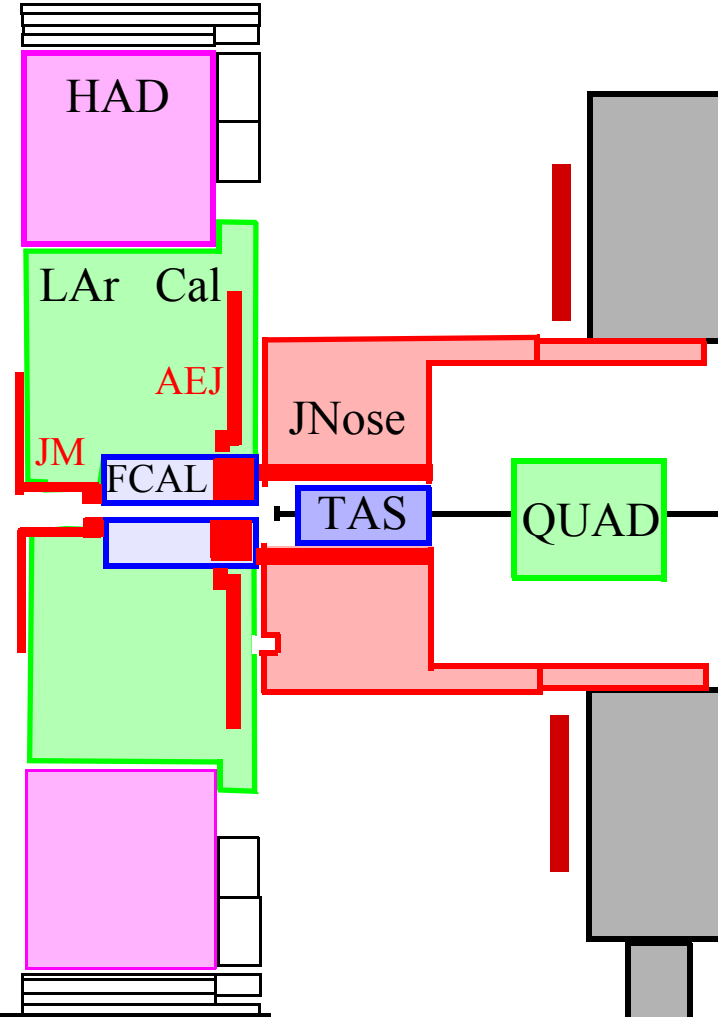
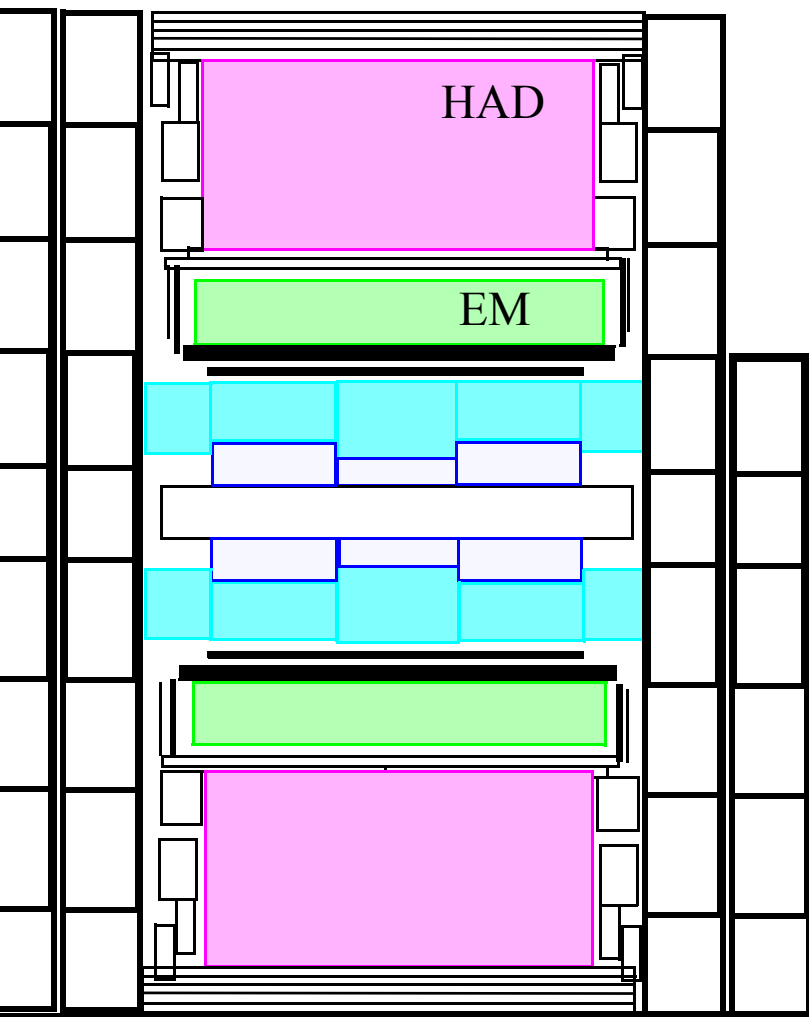
QUAD



# Install scaffolding

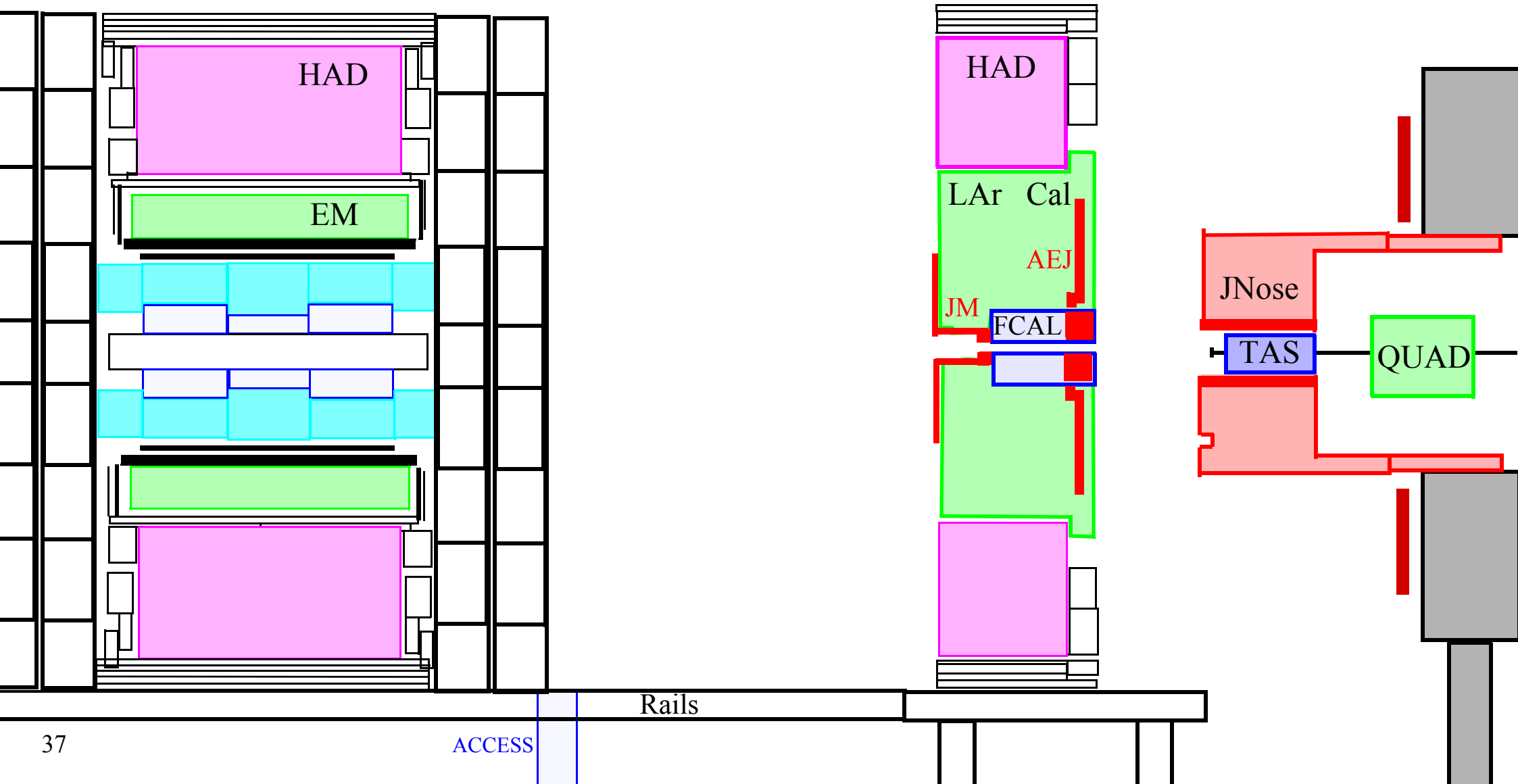


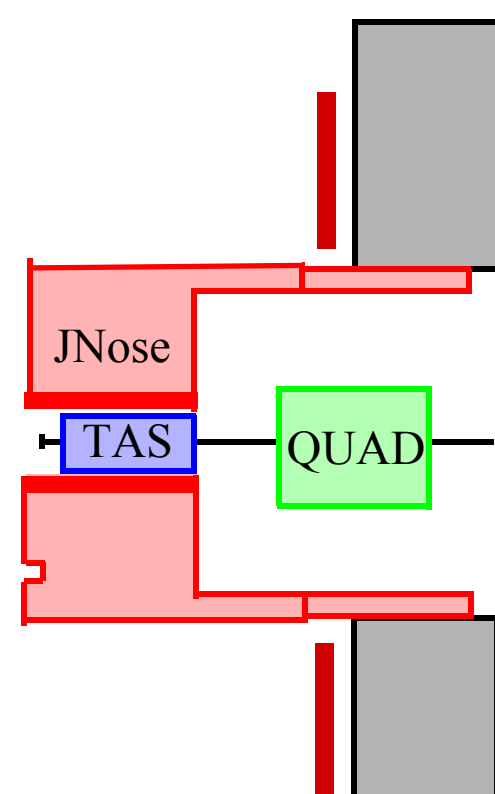
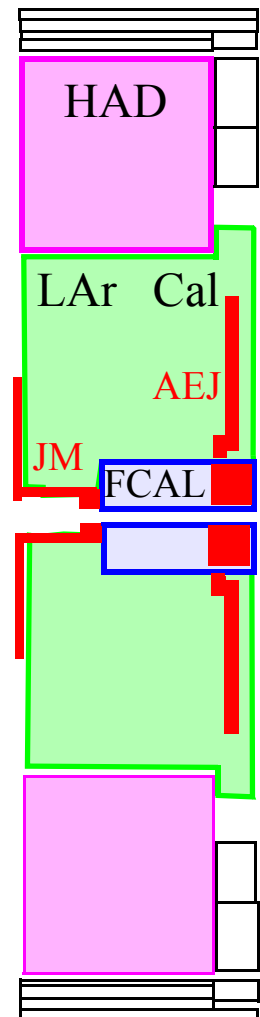
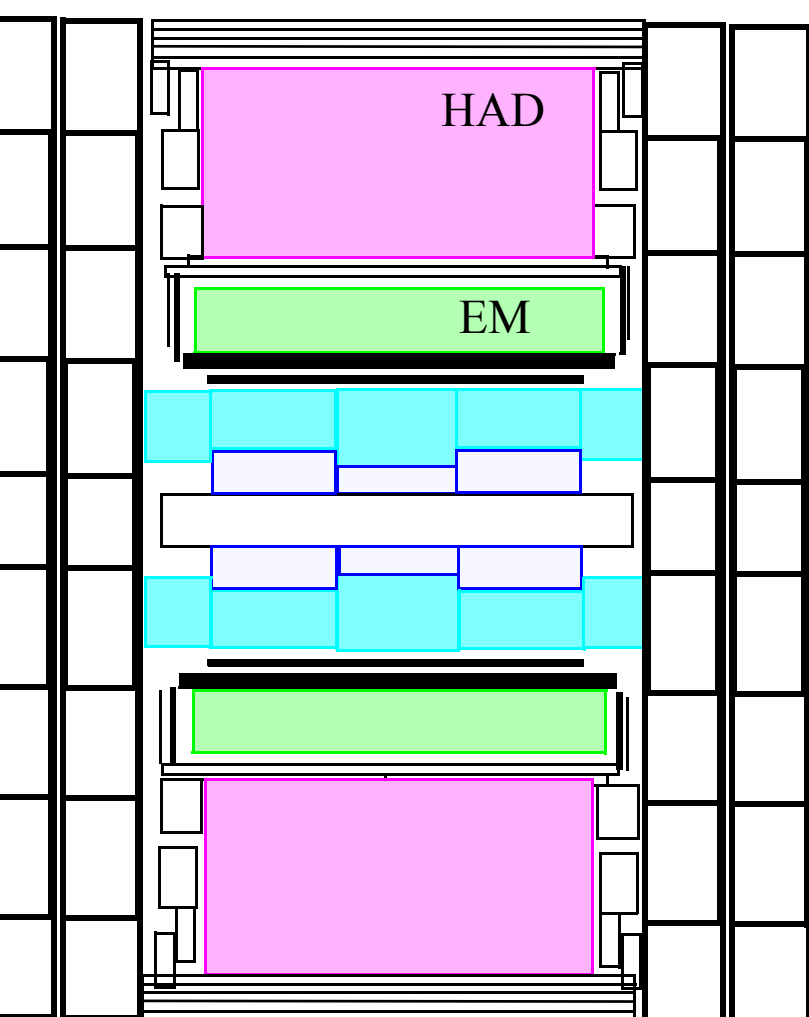
CRANE ACCESS



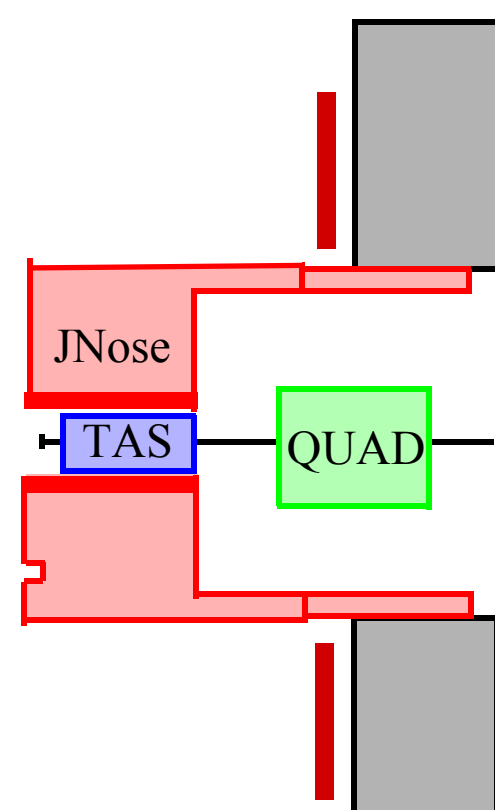
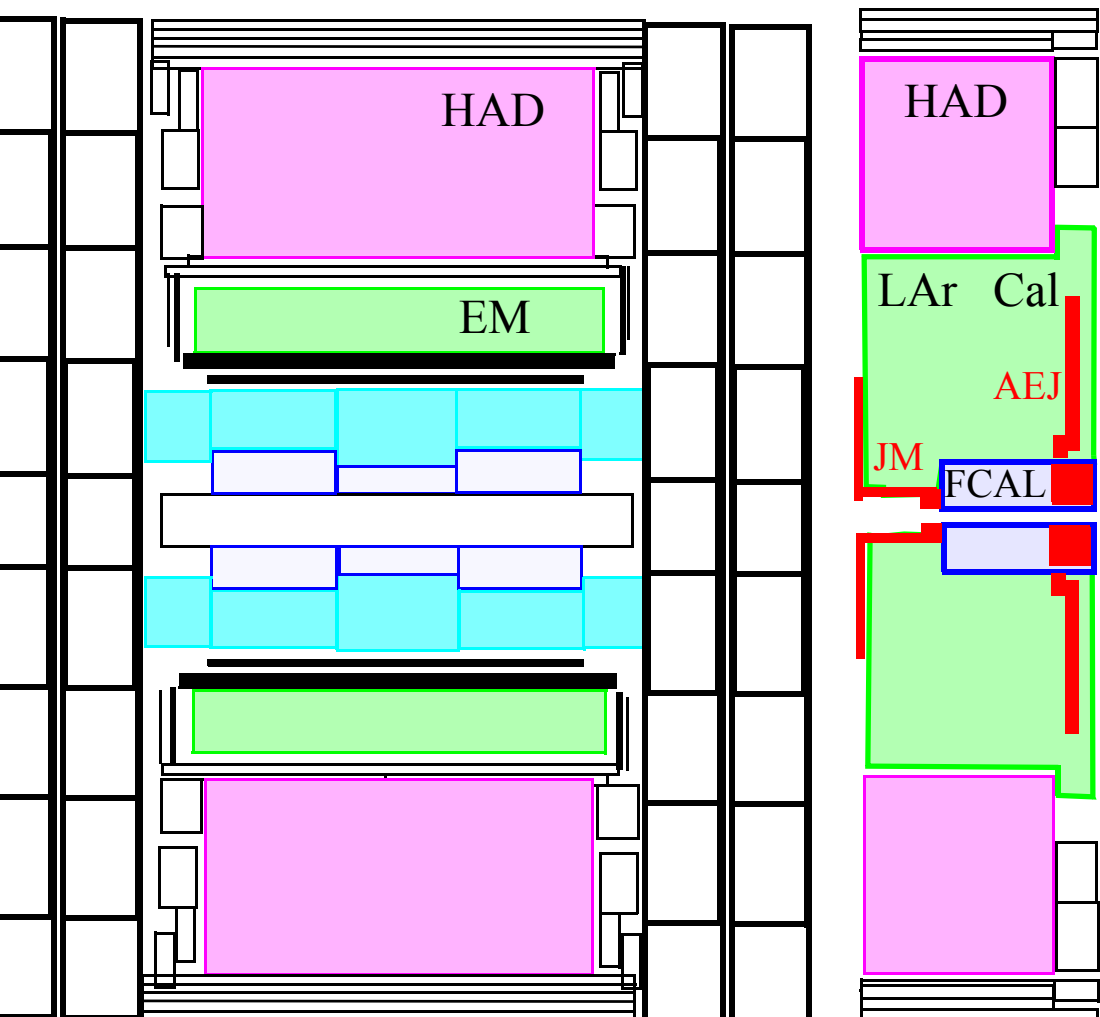
Rails

# Move calorimeter



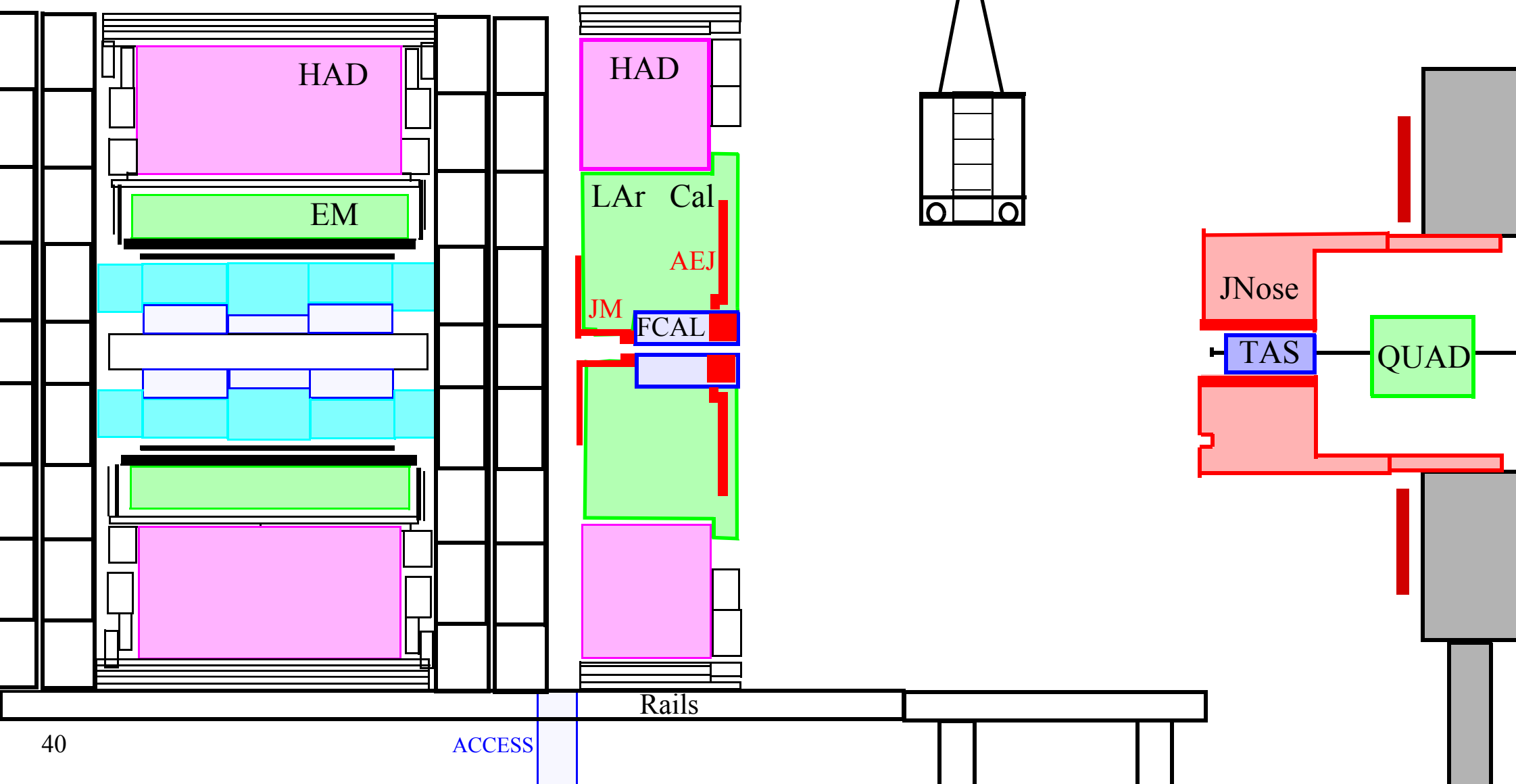


Rails

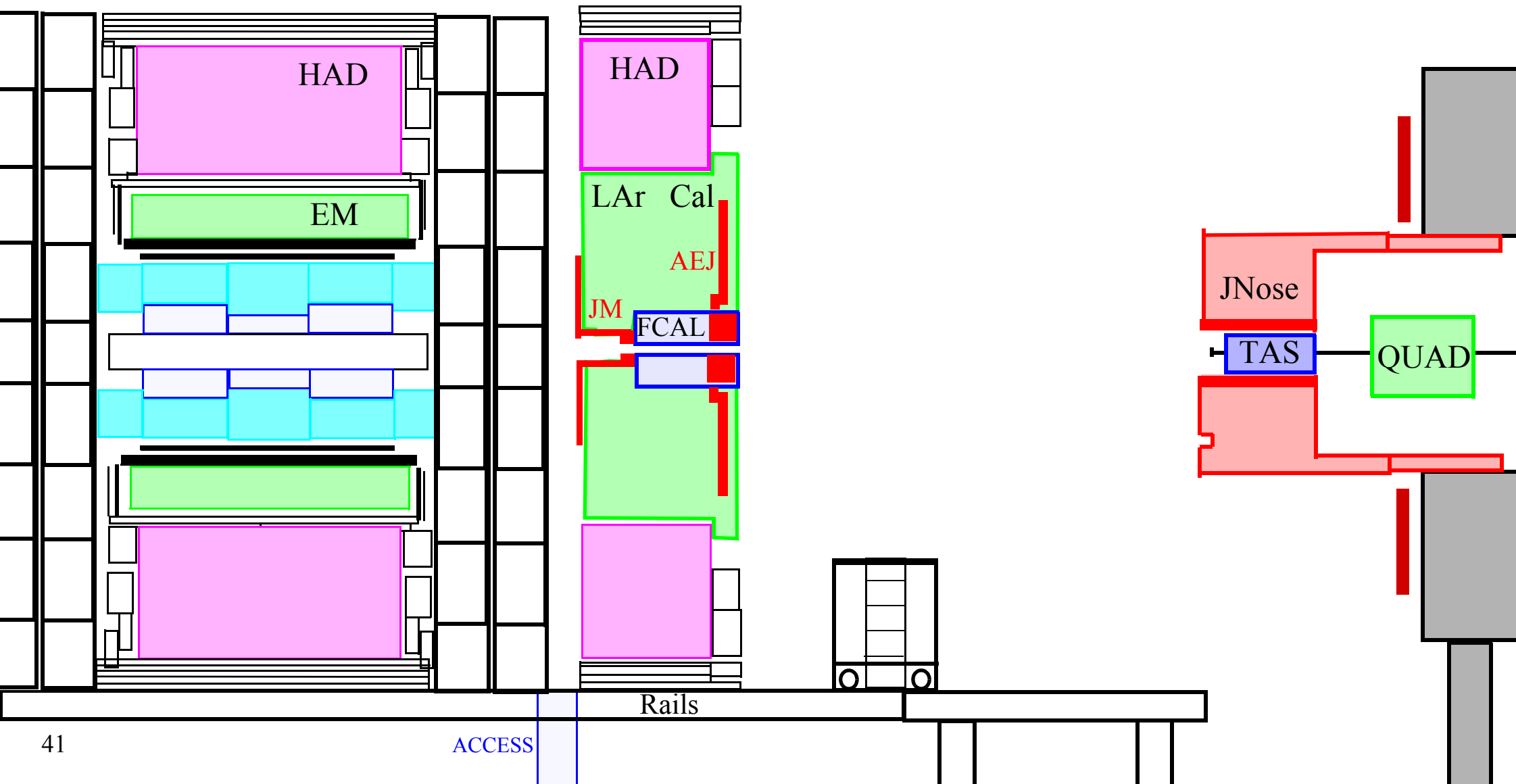


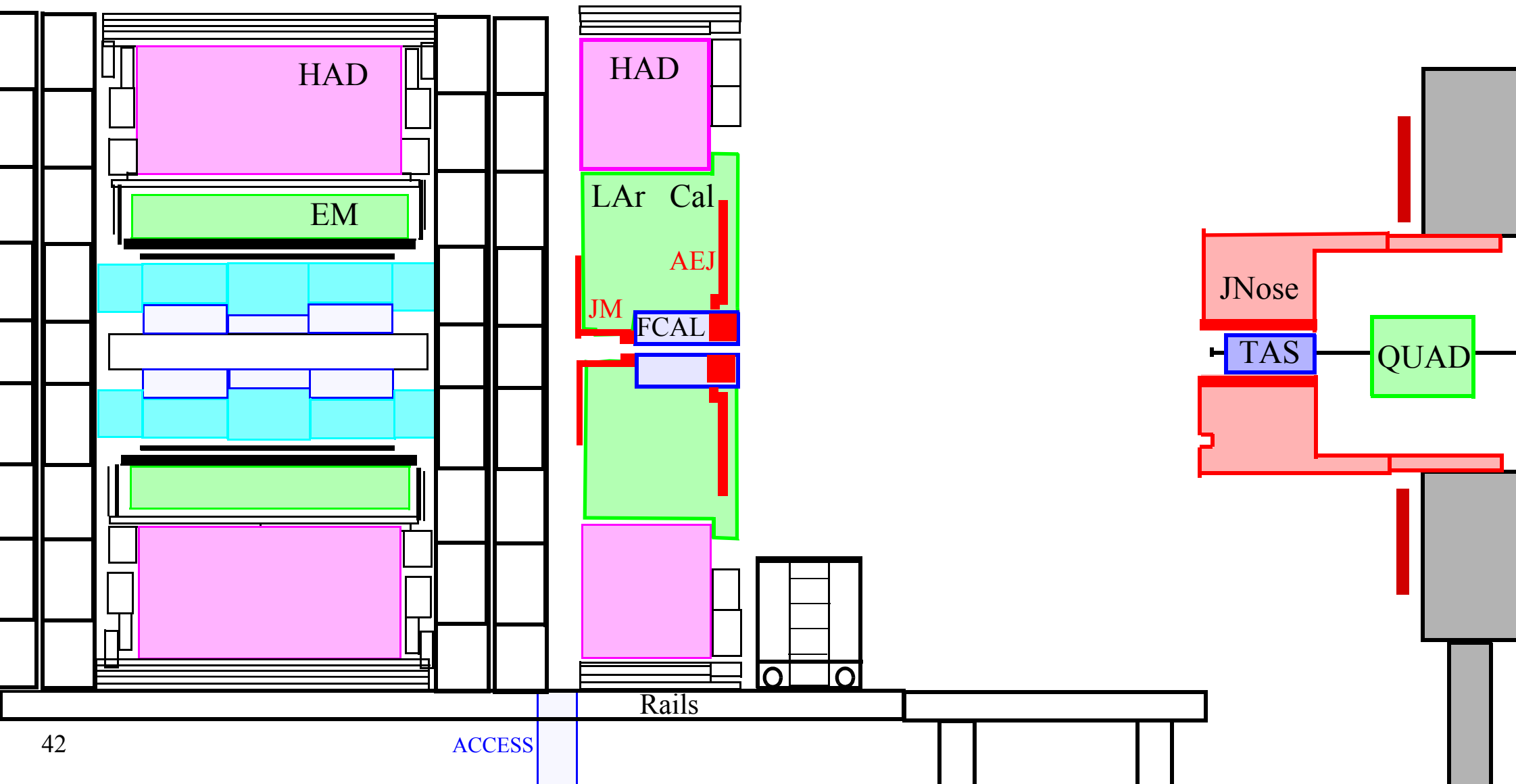
Rails

# Install minivan

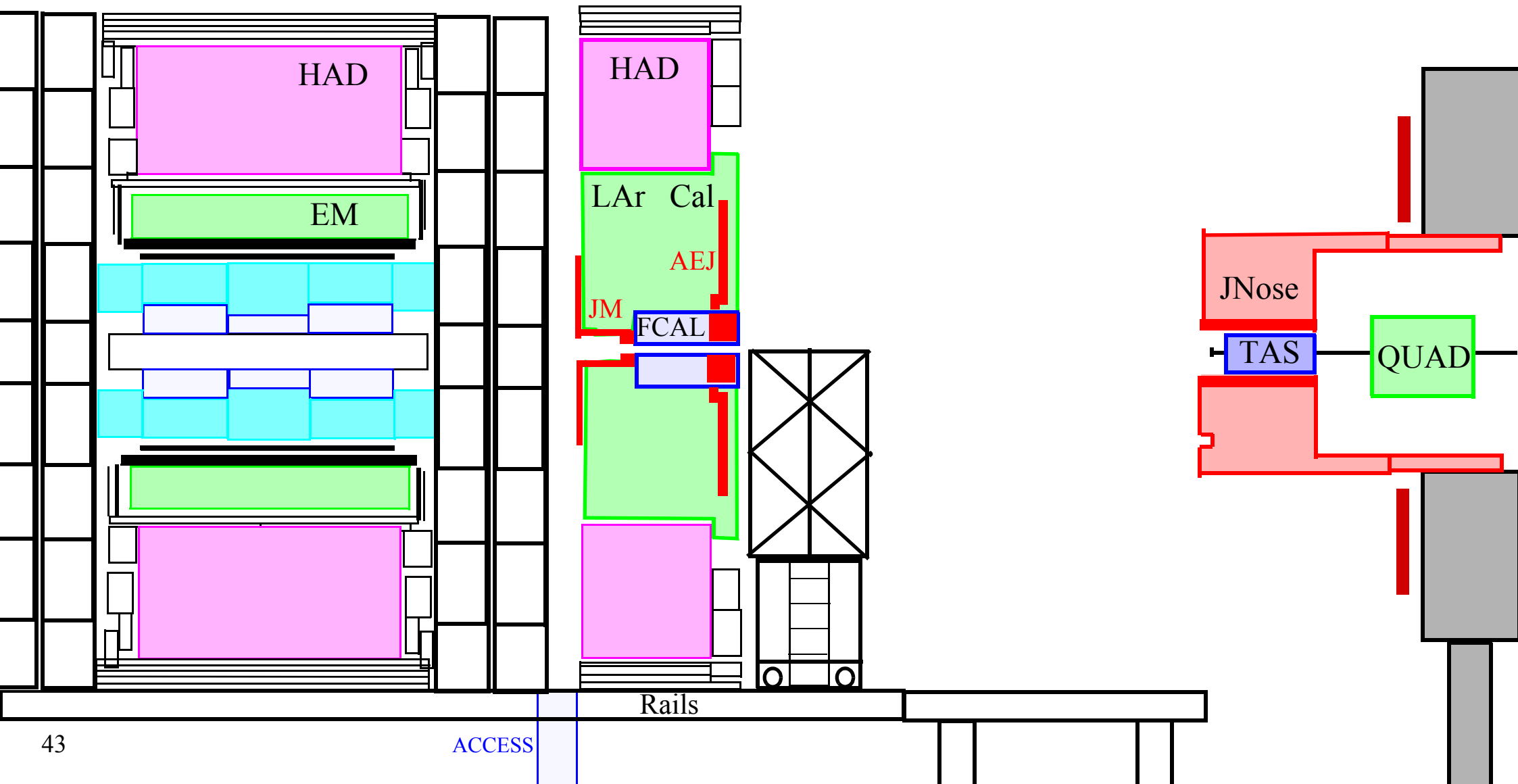


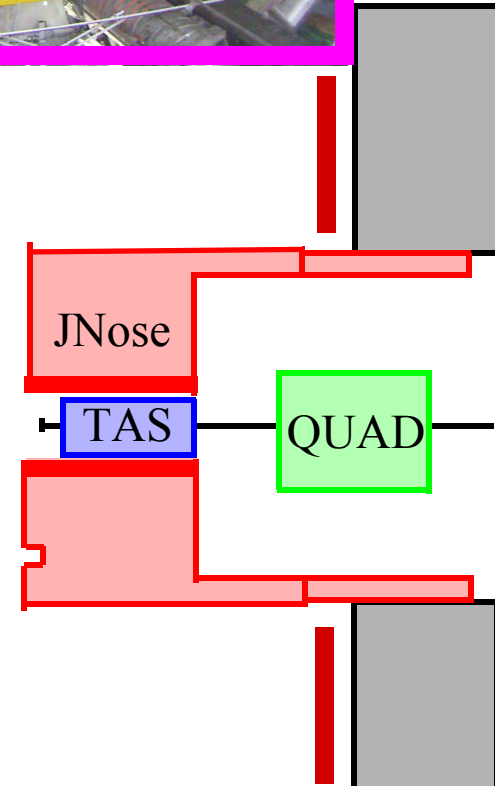
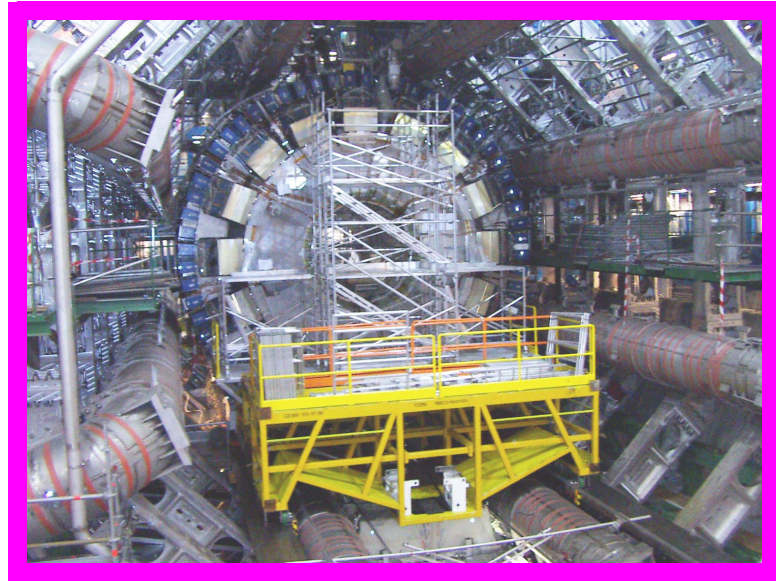
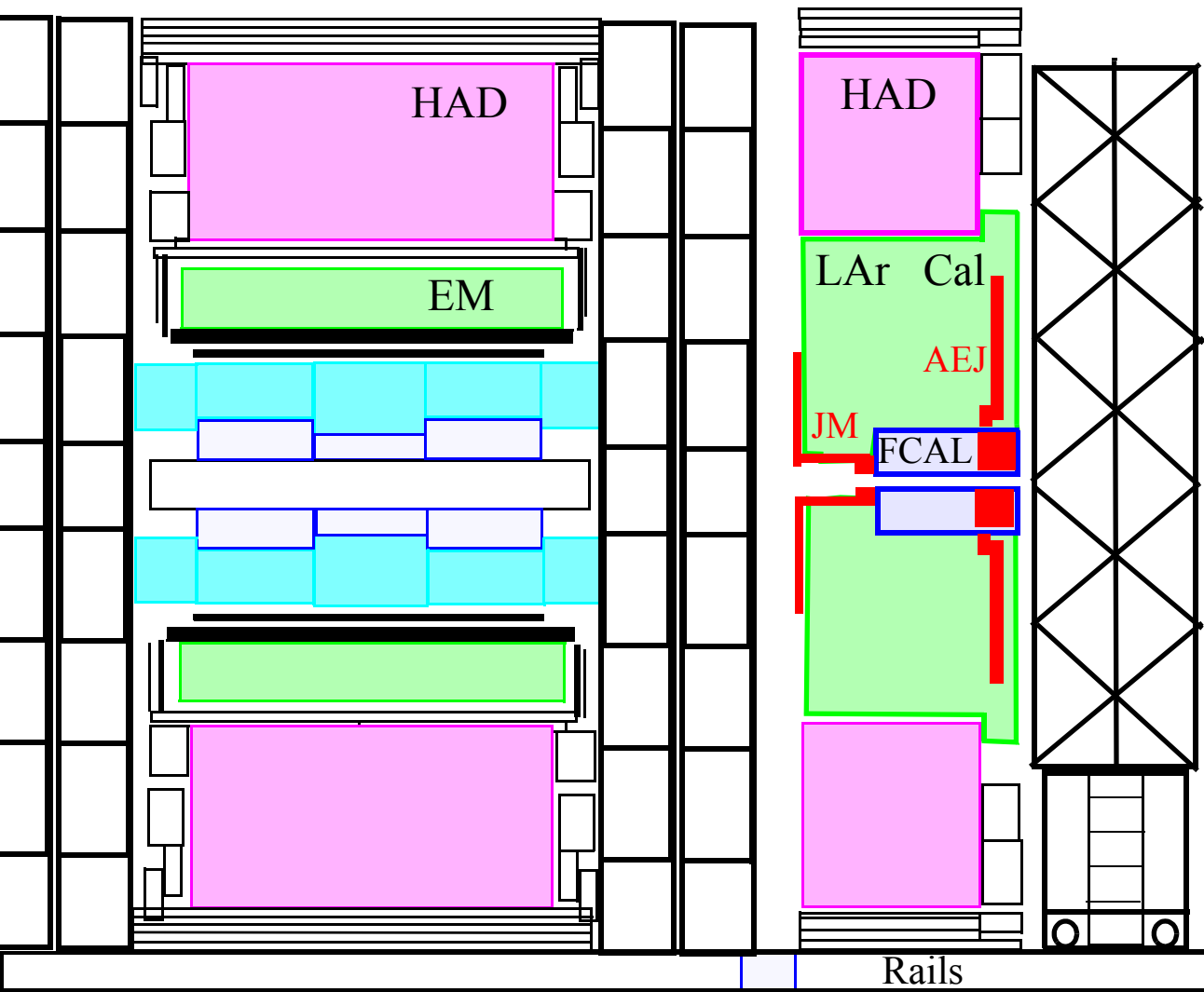




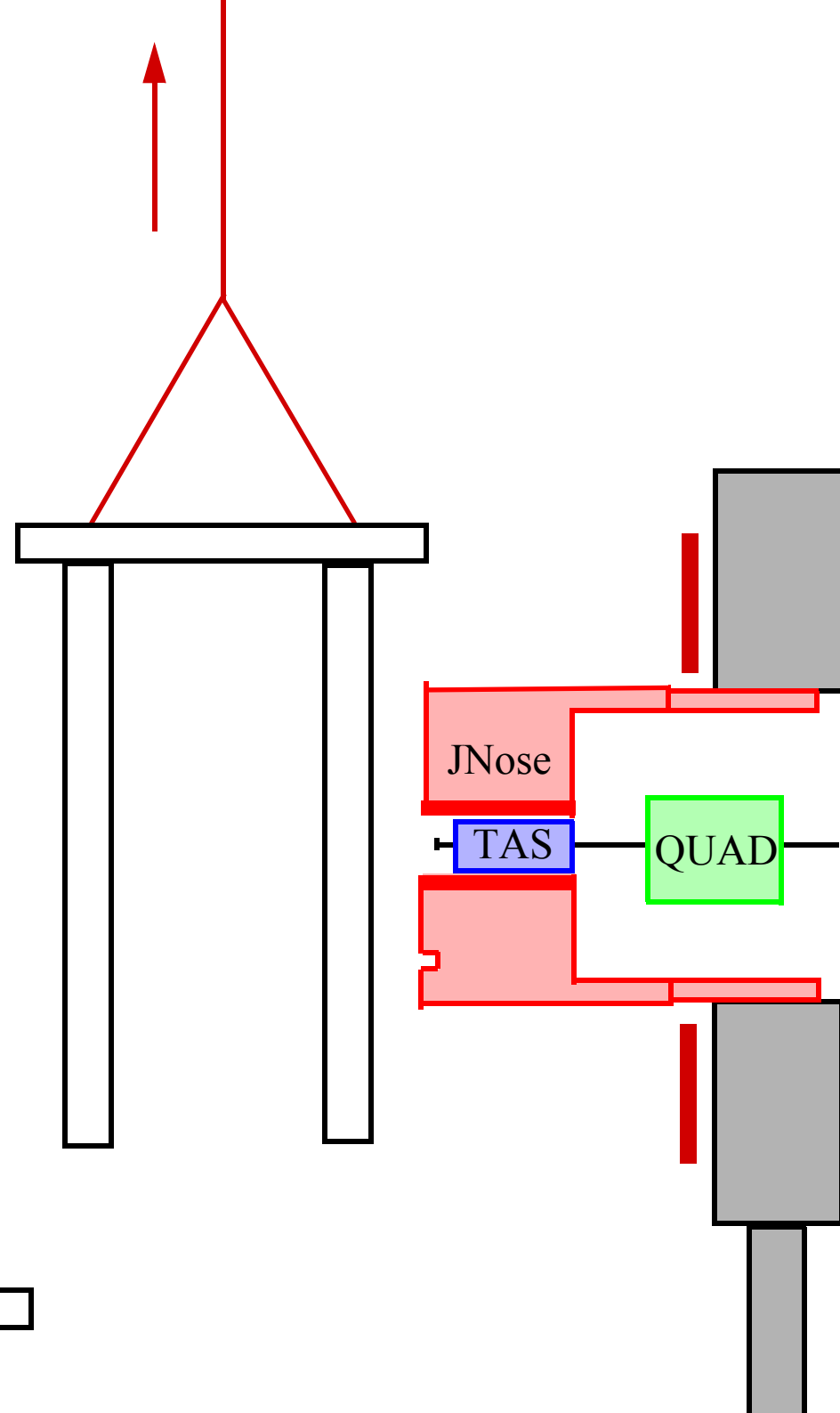
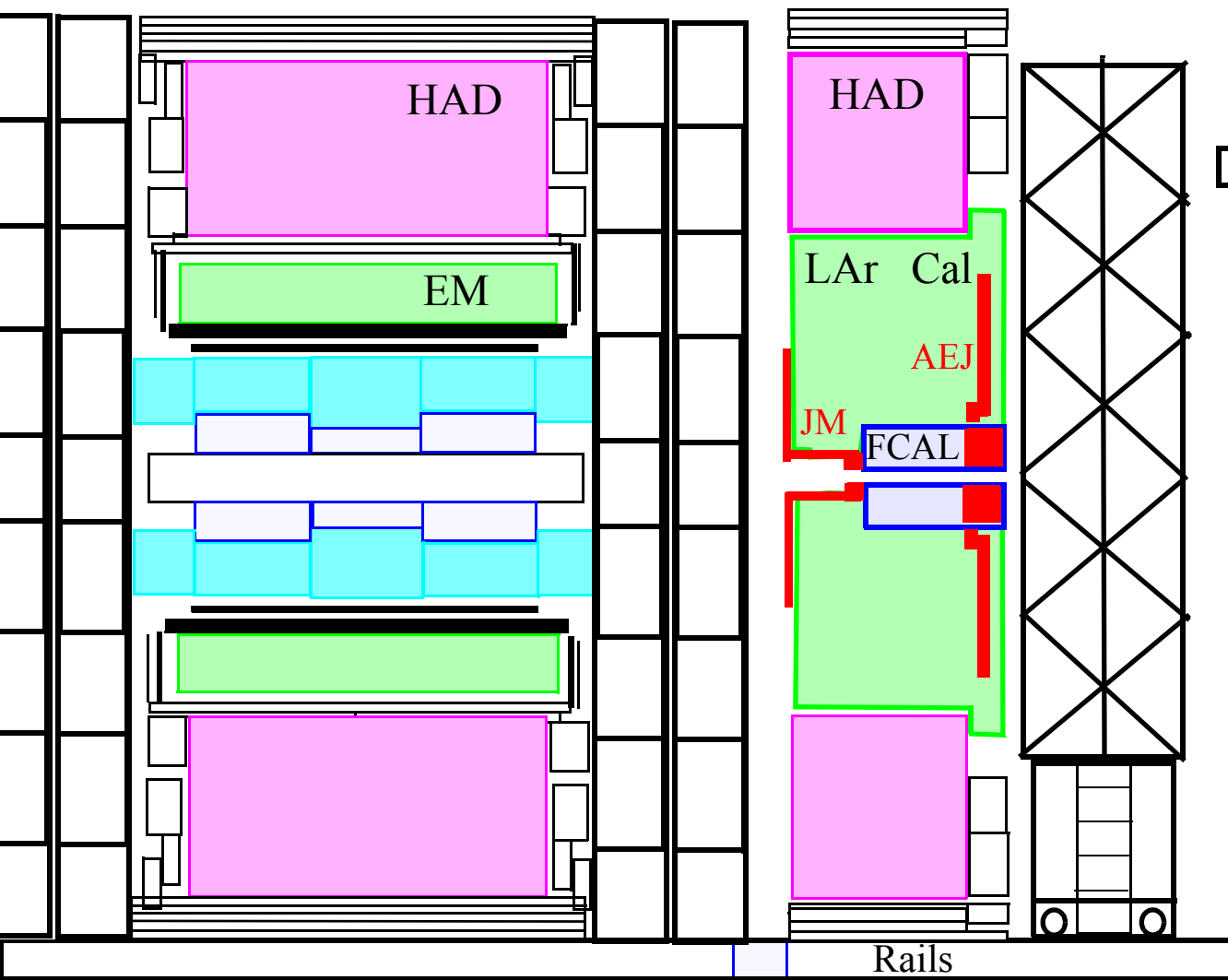


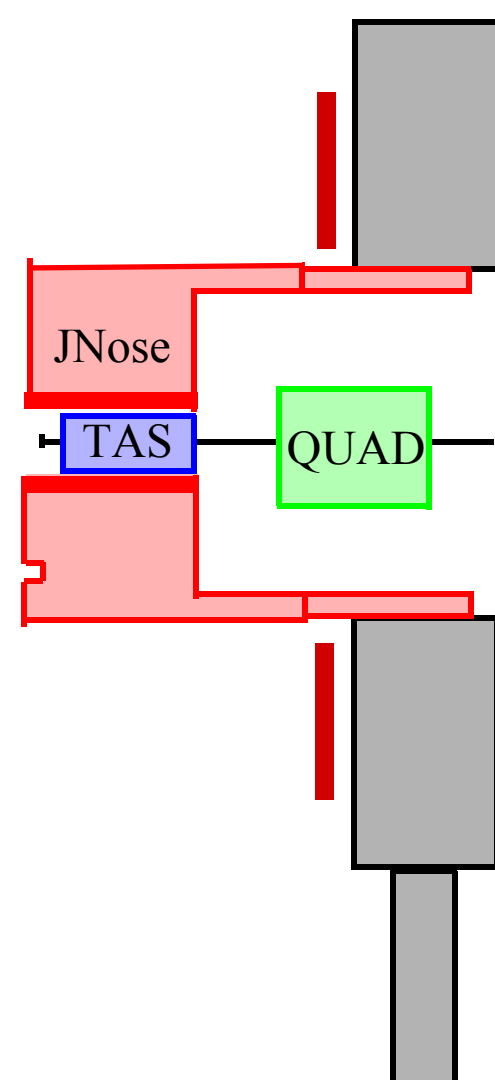
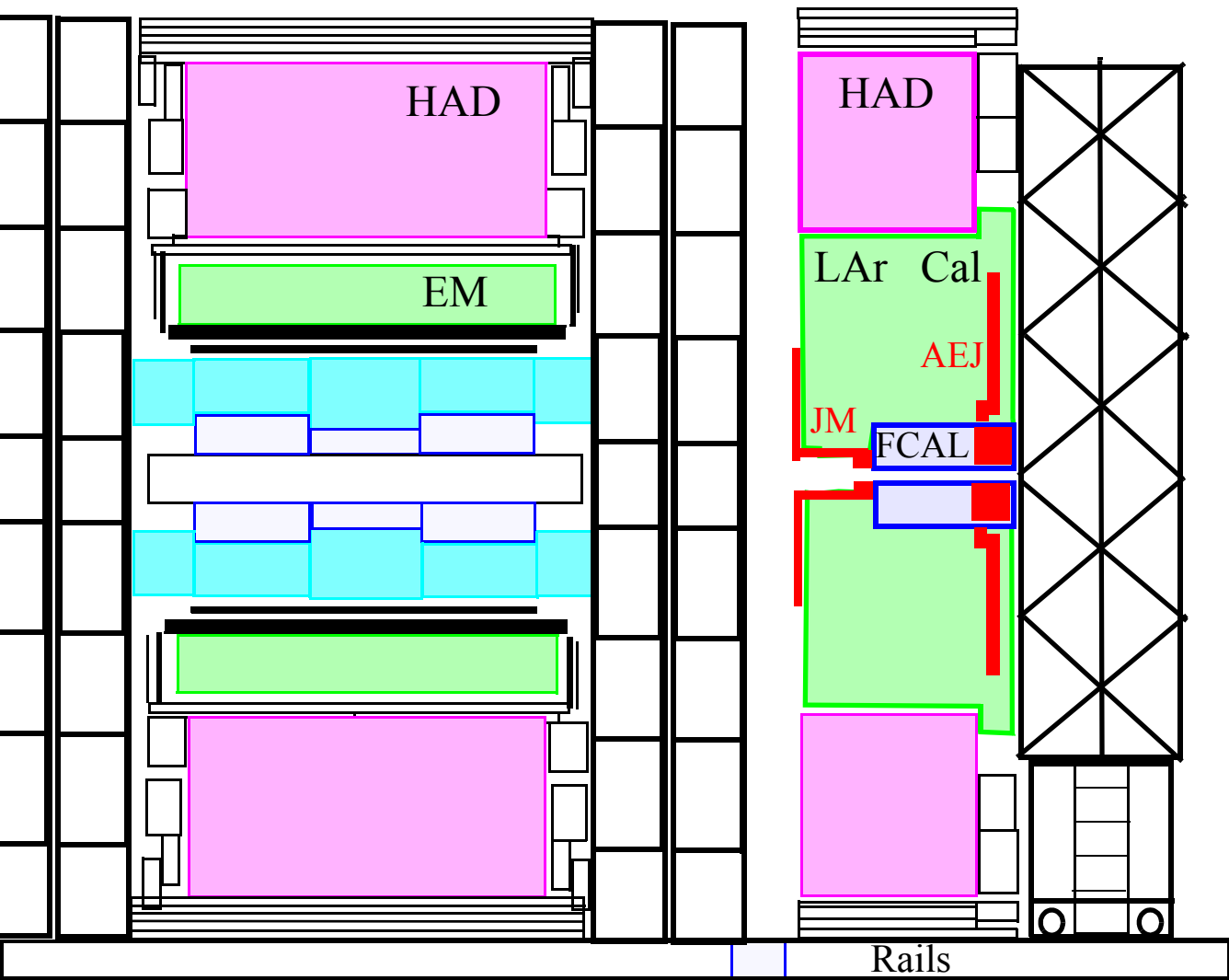
# Build scaffolding



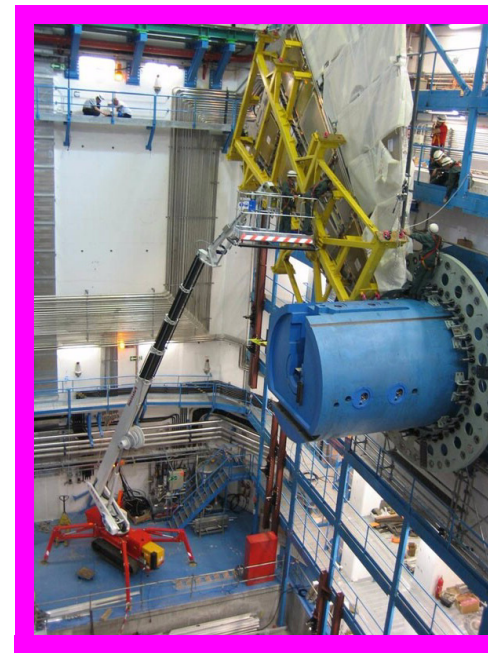
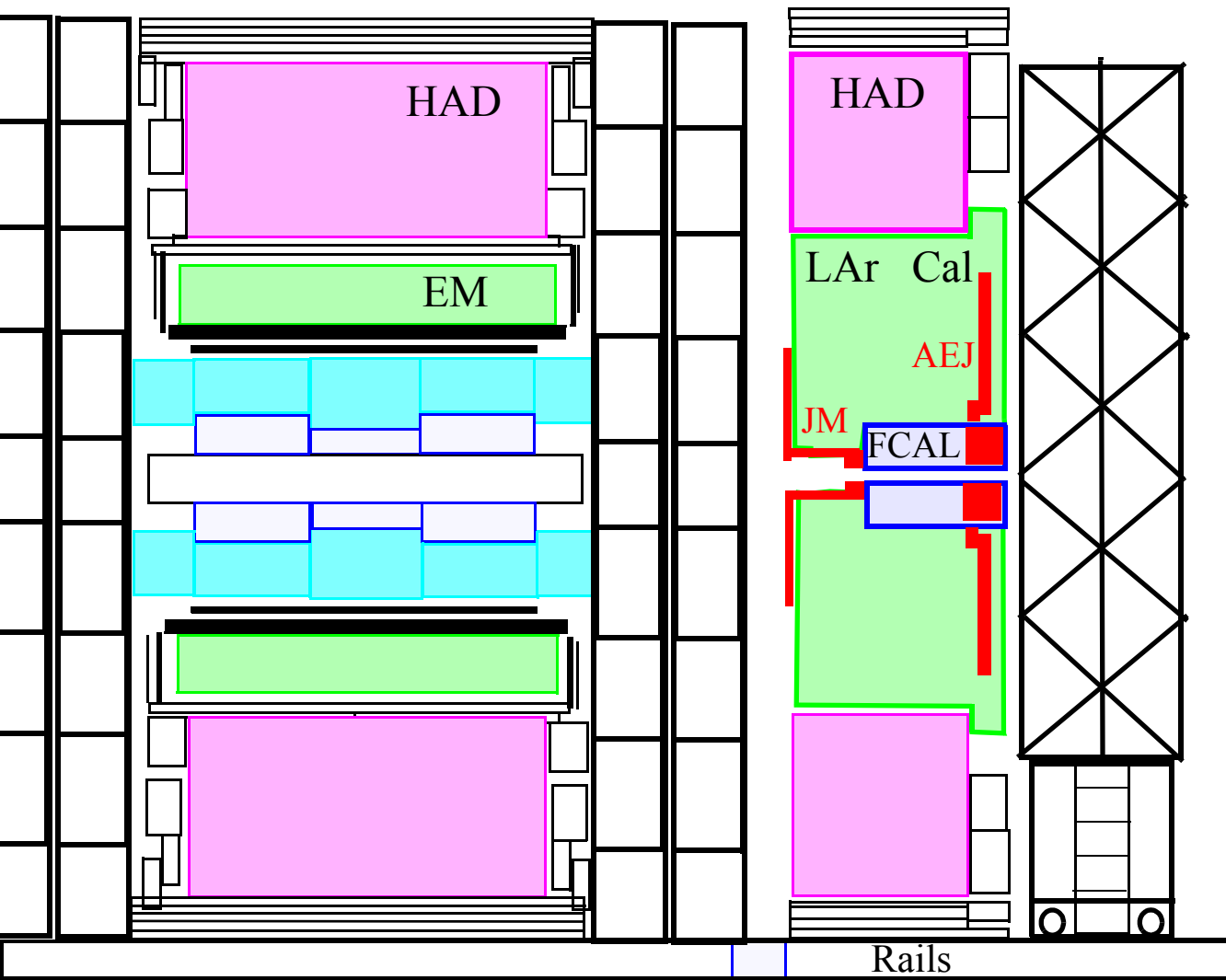


Remove HF truck

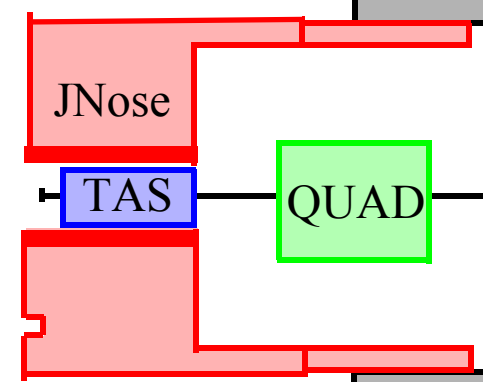


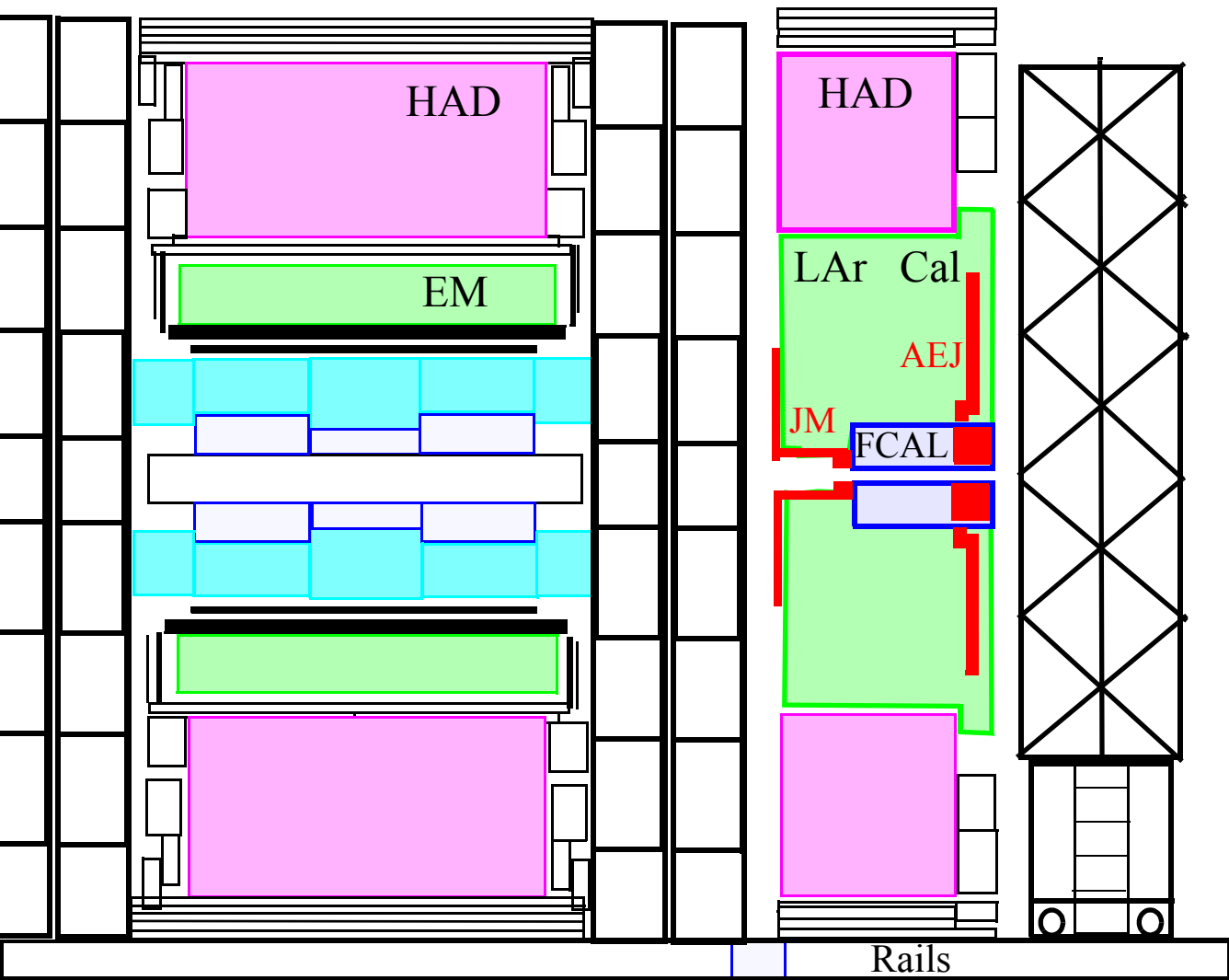


# Build TGC1



TGC 1



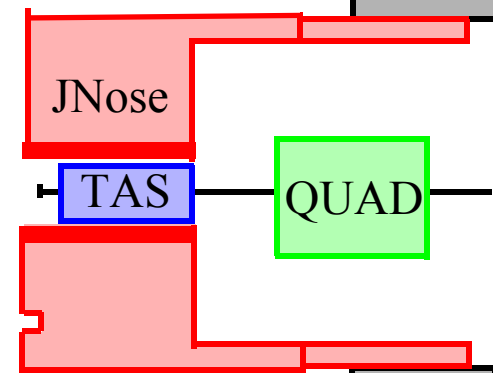


48

ACCESS

Rails

TGC 1



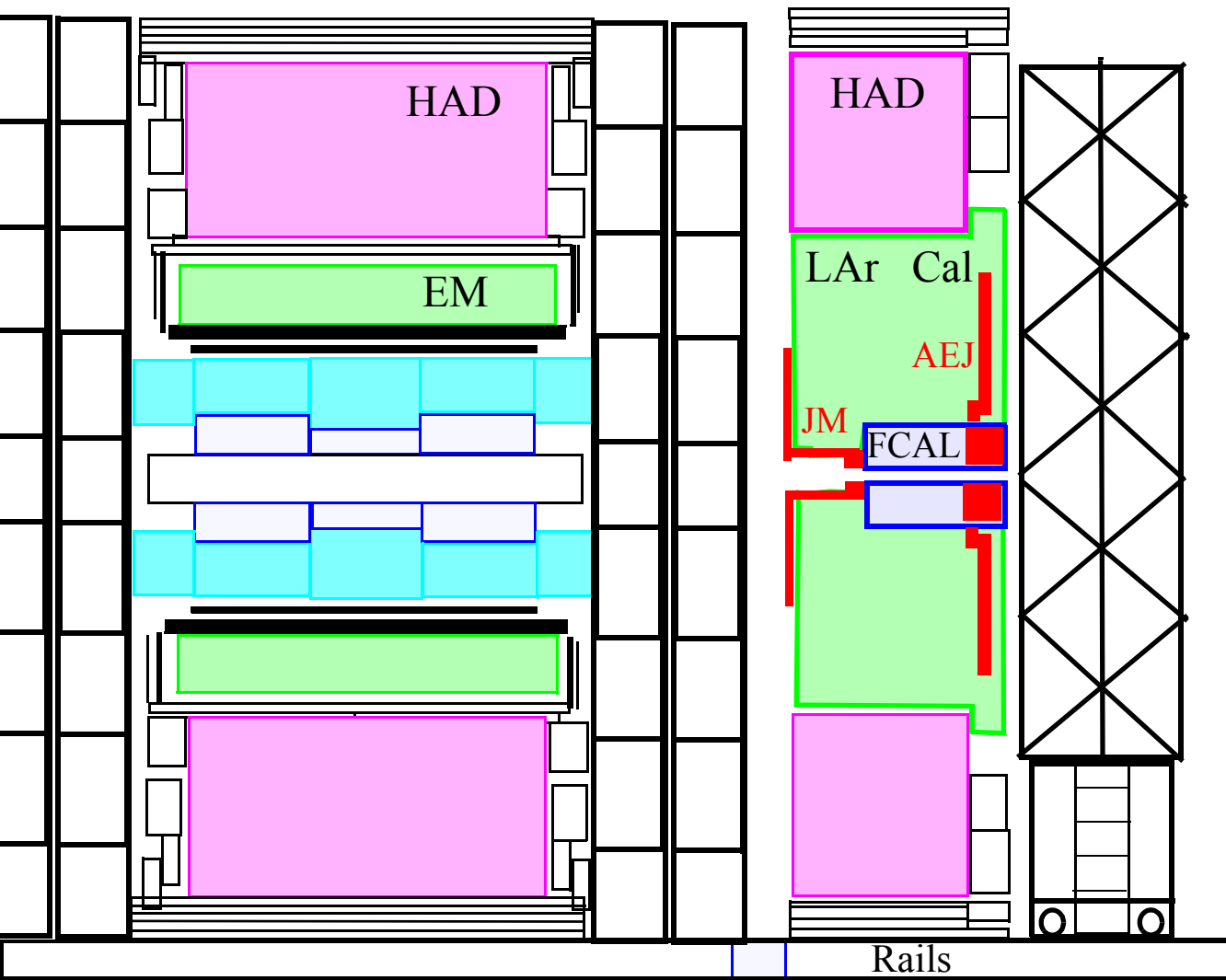
JNose

TAS

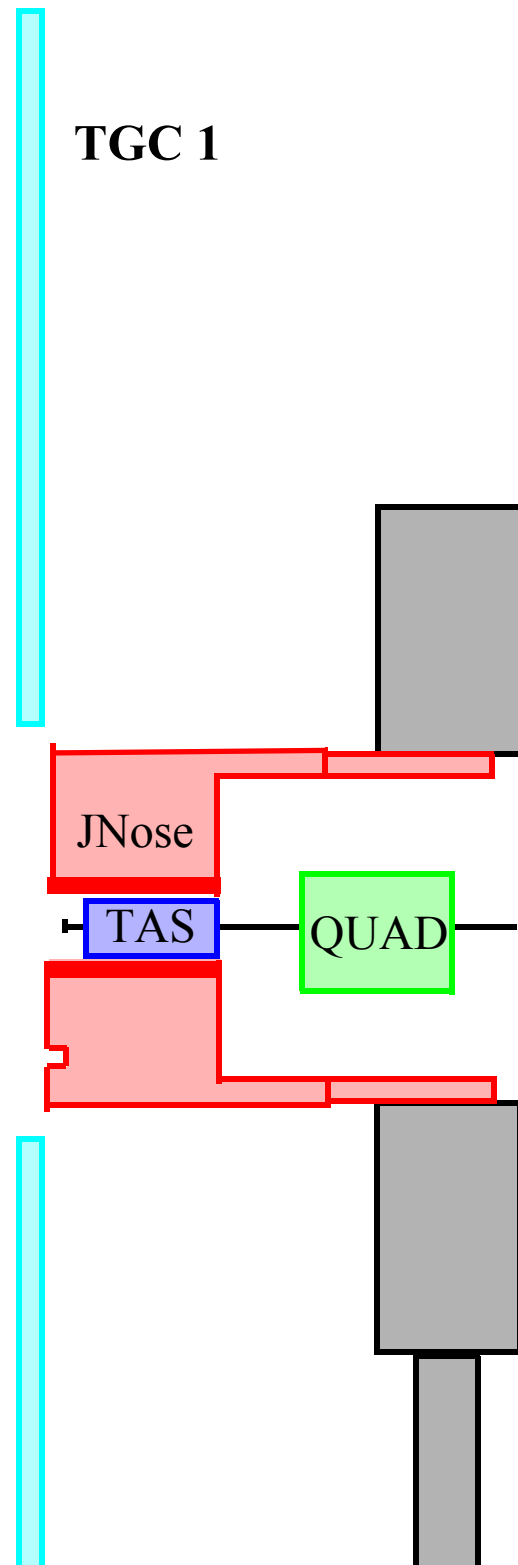
QUAD

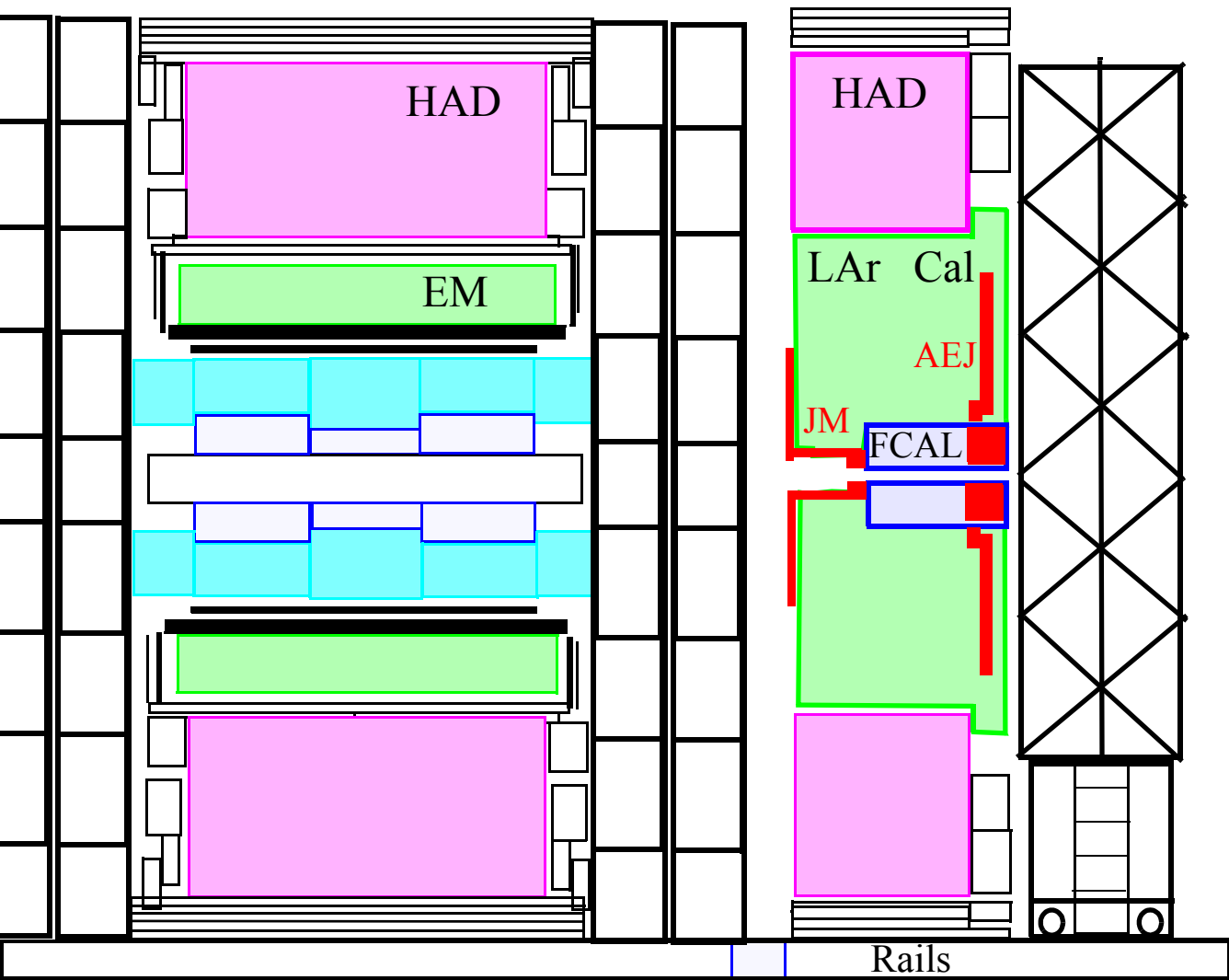


# Move TGC1

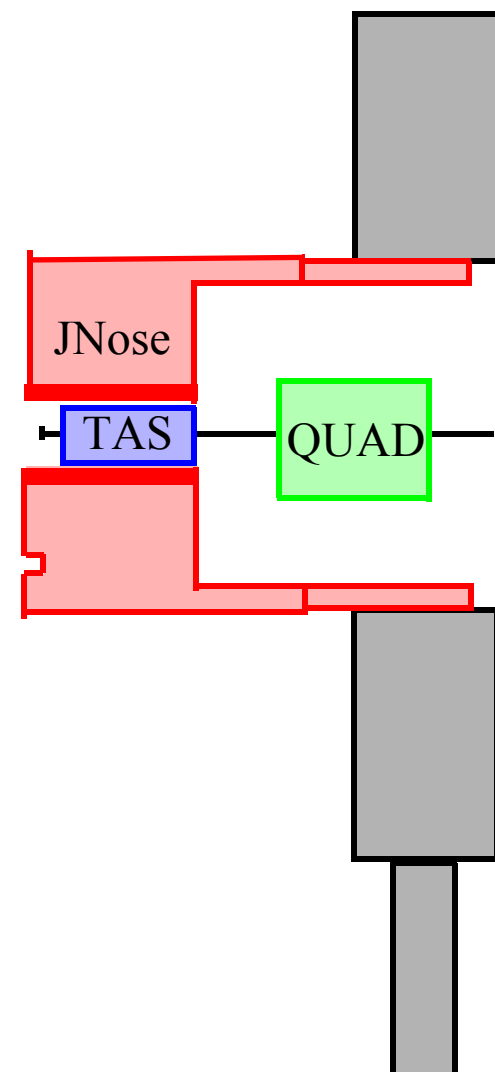


# TGC 1





TGC 1



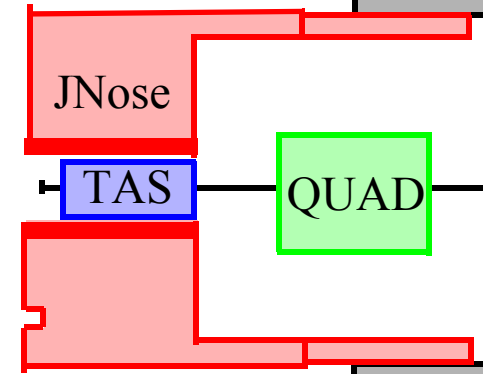
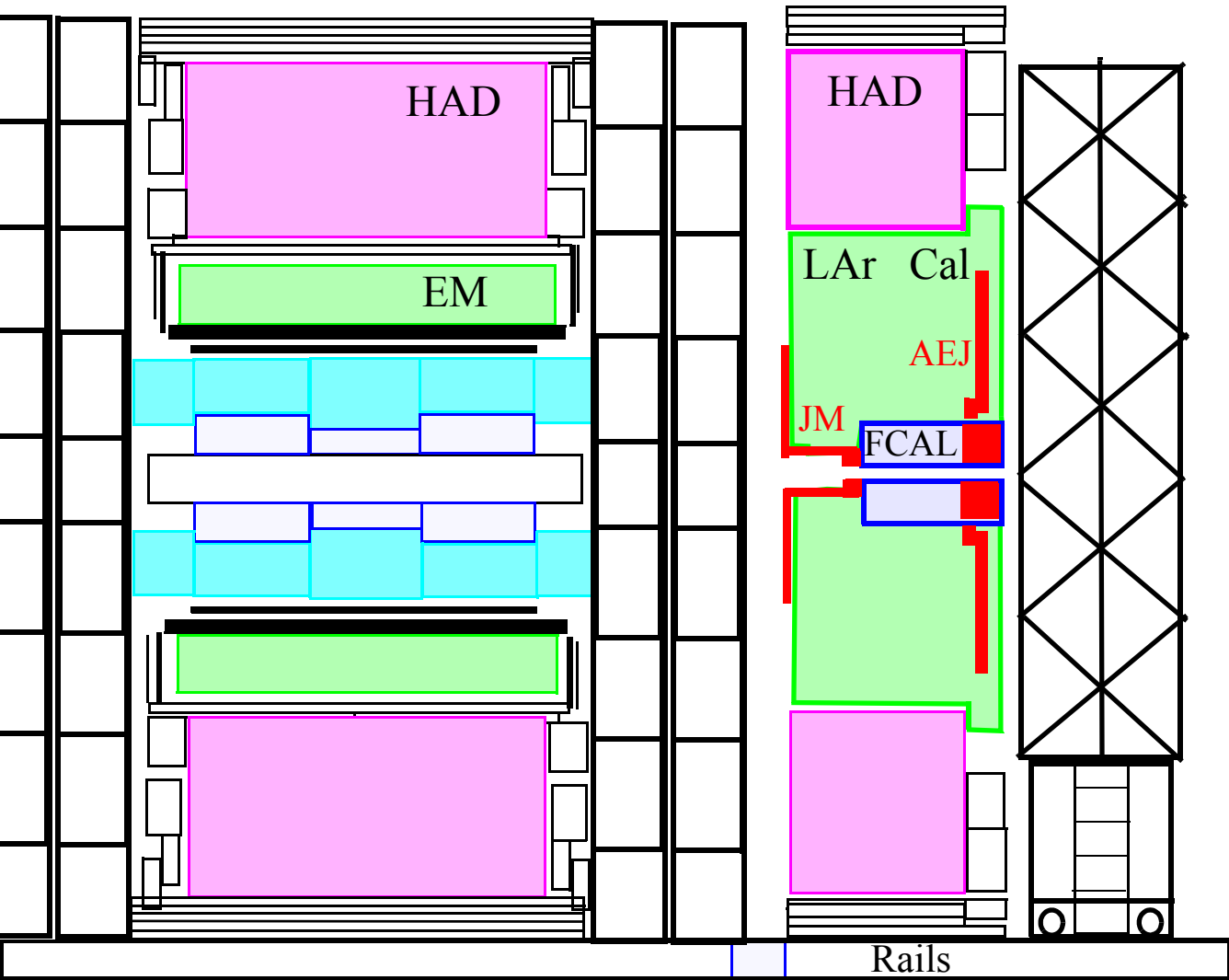
50

ACCESS

Rails

# Build BW MDT

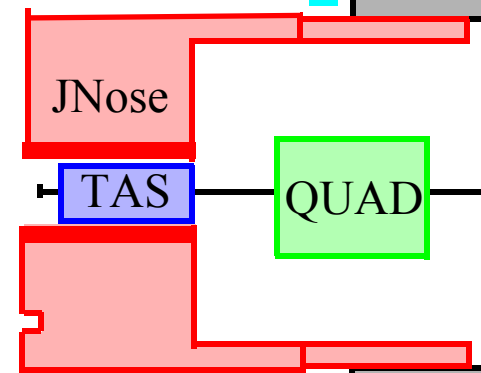
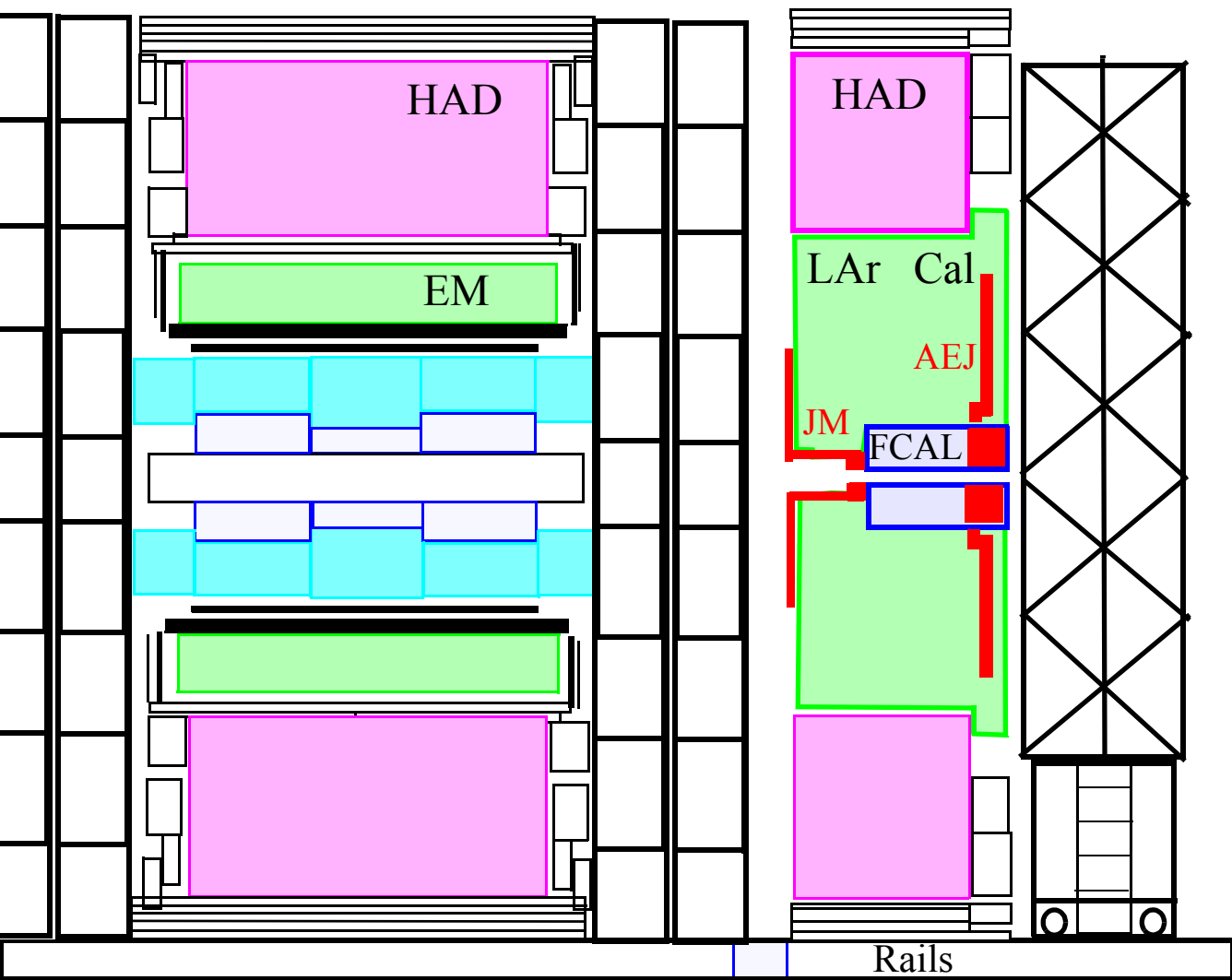
TGC 1



MDT

TGC 1

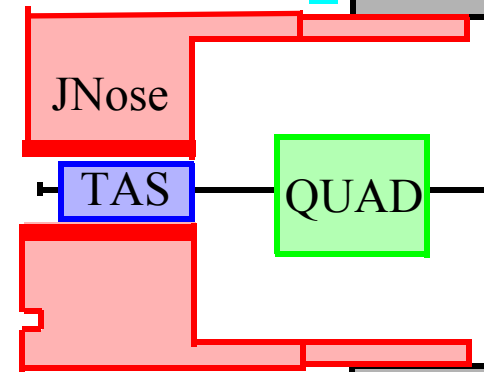
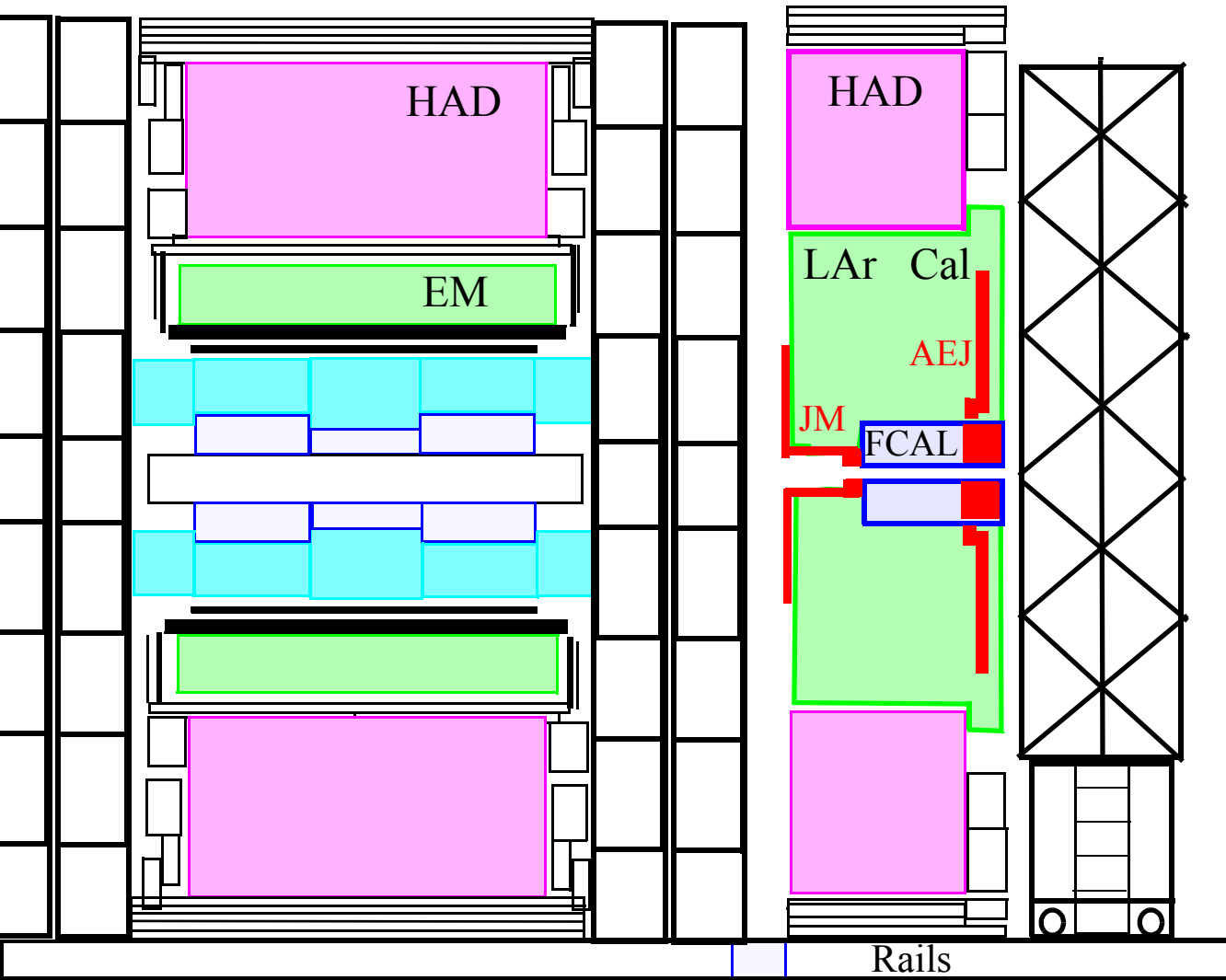
MDT

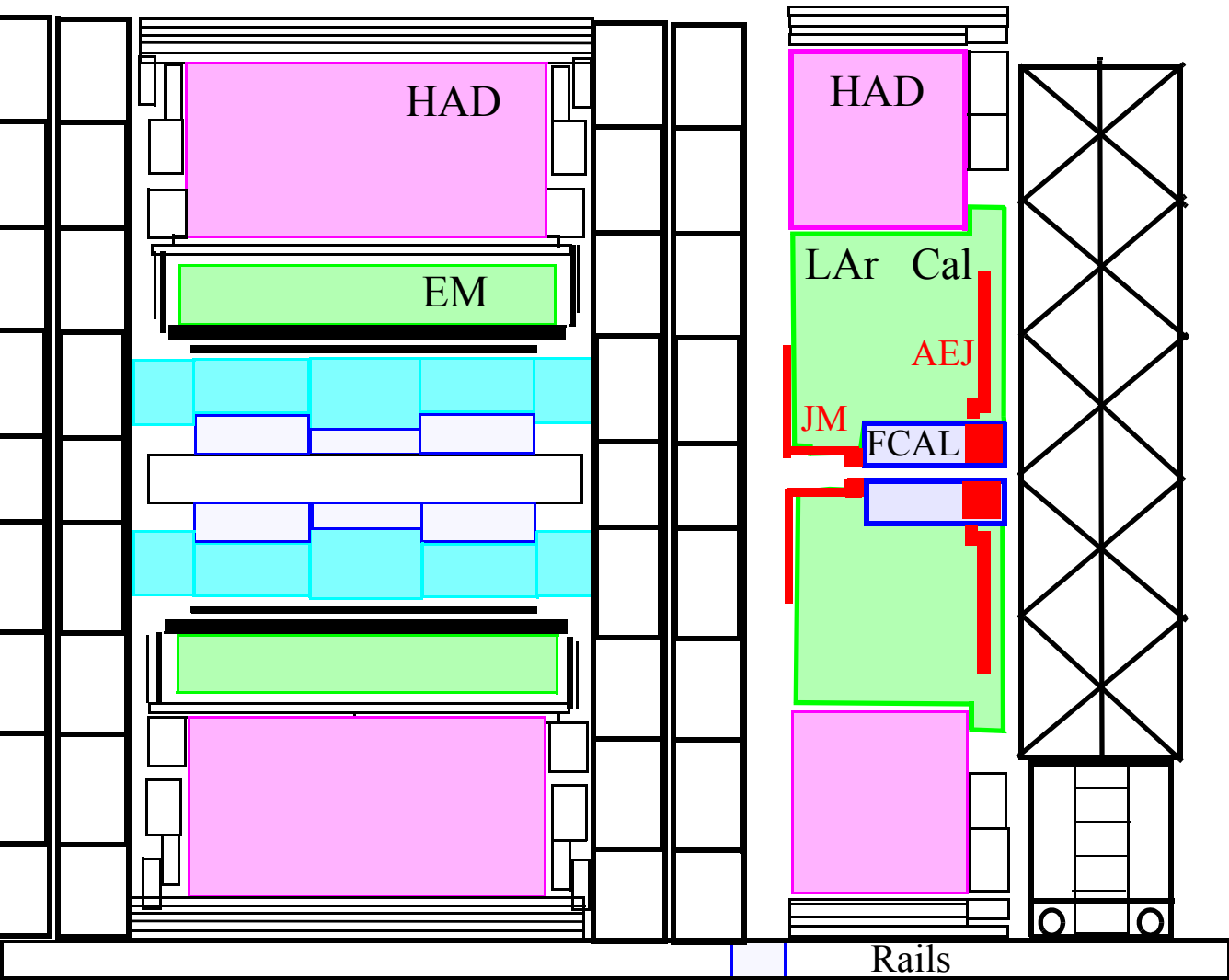


# Move TGC1

TGC 1

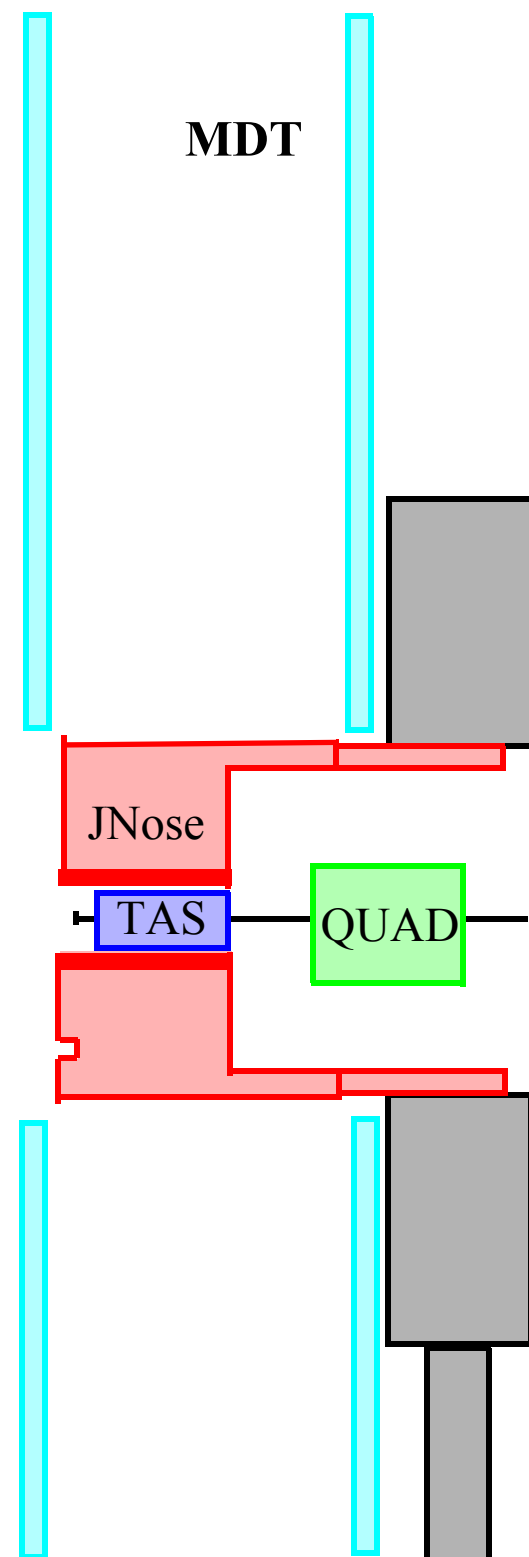
MDT

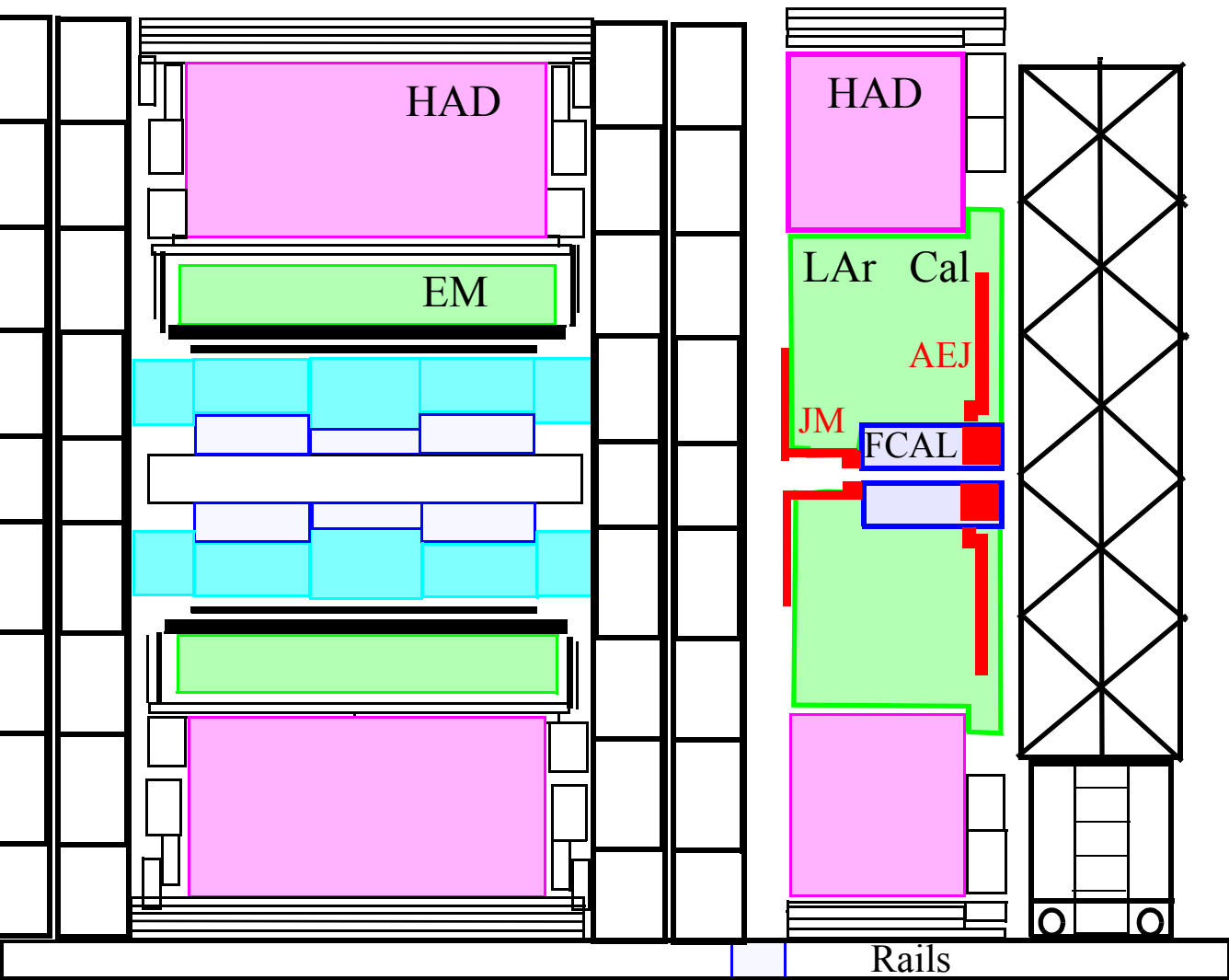




TGC 1

MDT

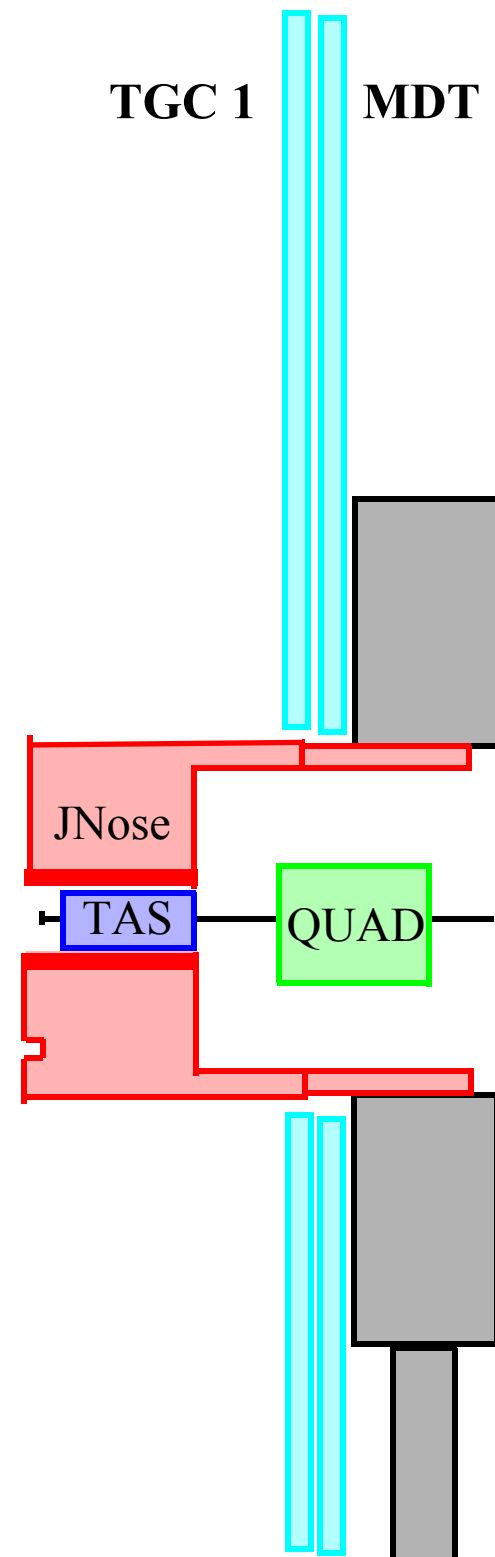




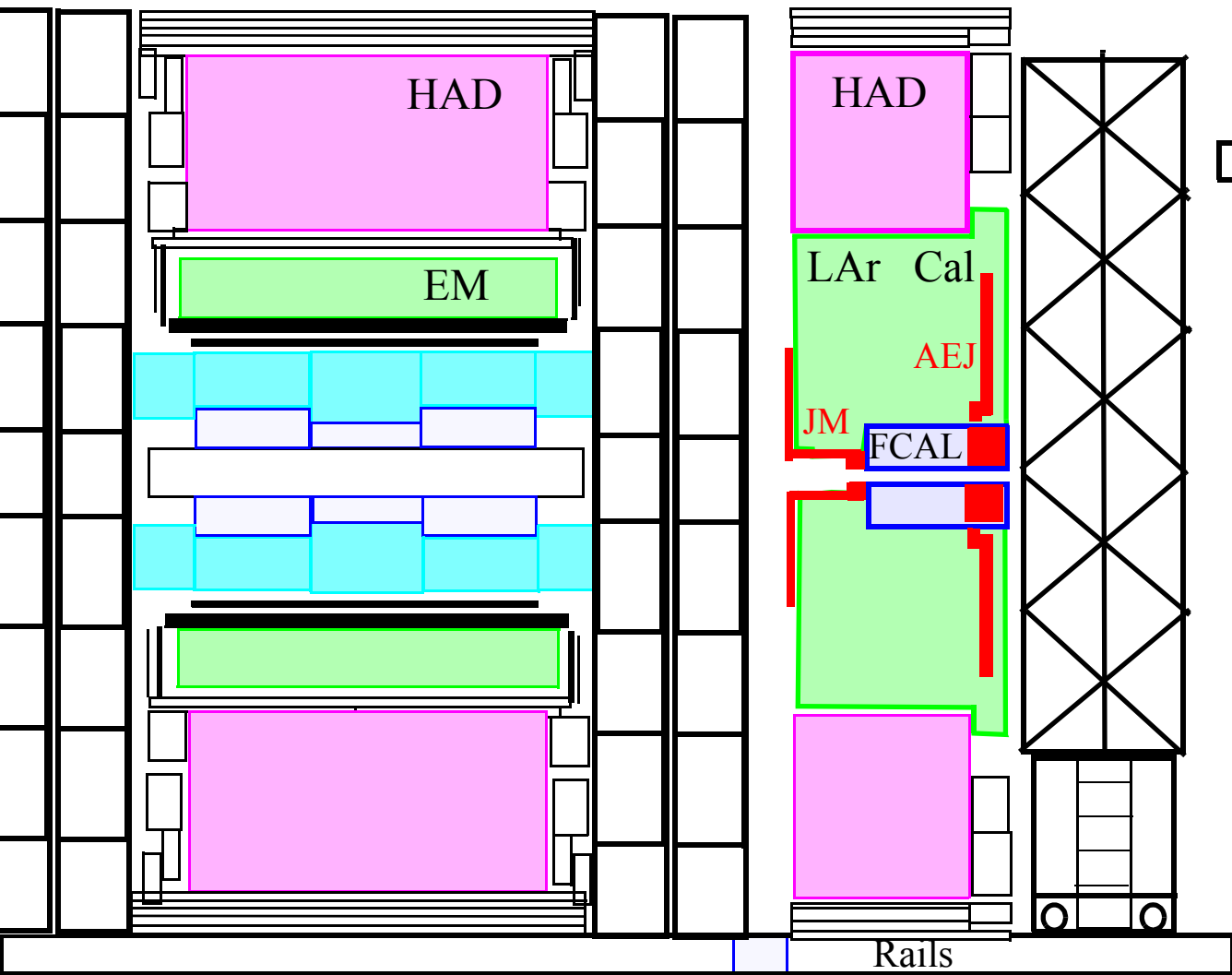
55

ACCESS

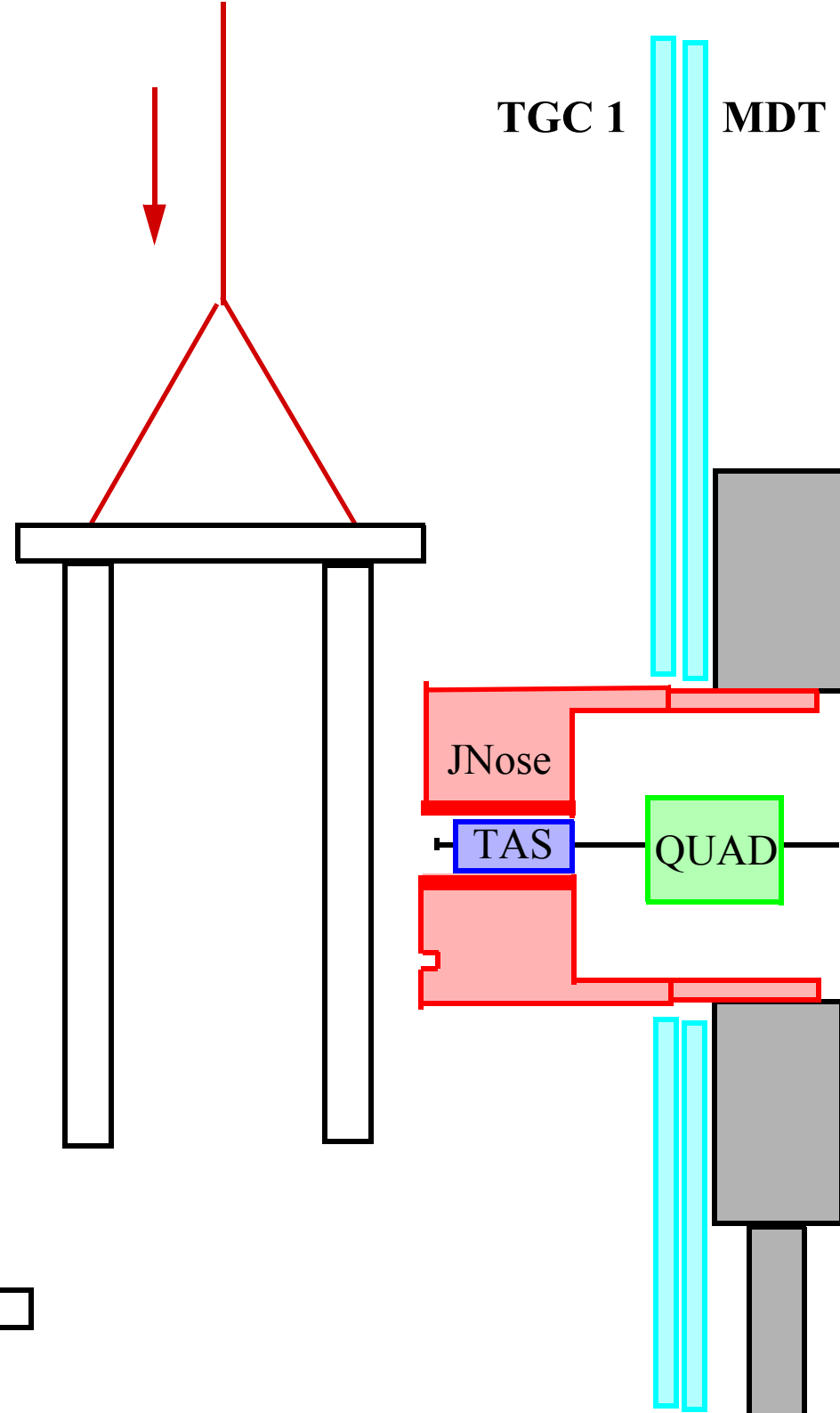
TGC 1 MDT



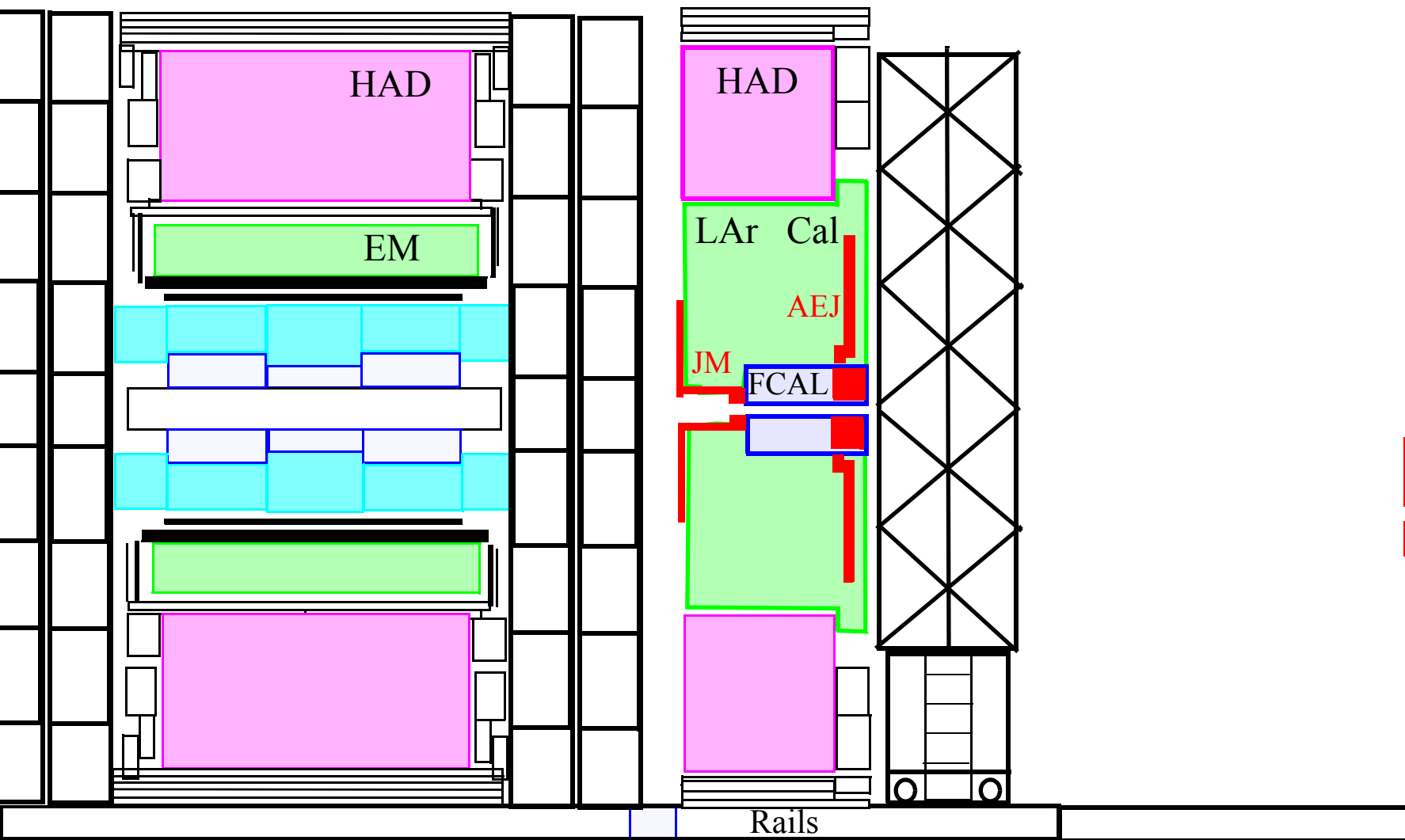
# Install HF truck



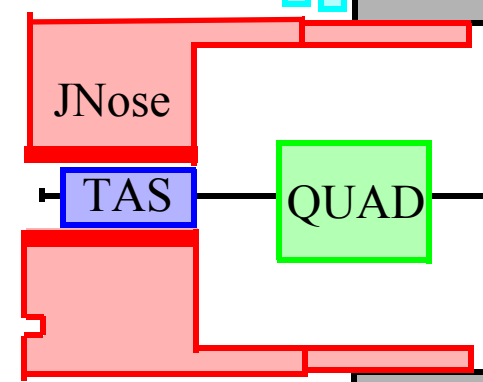
56



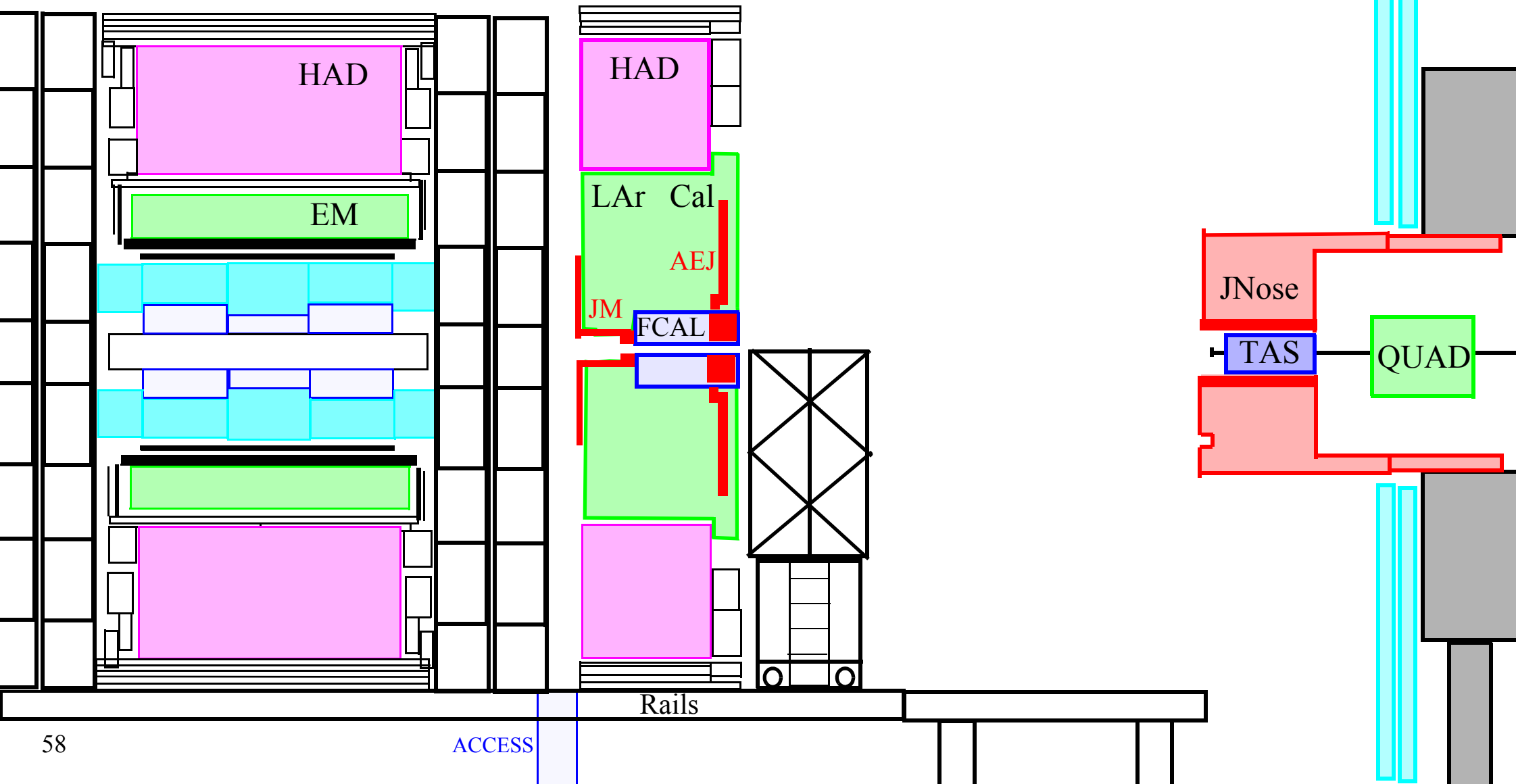


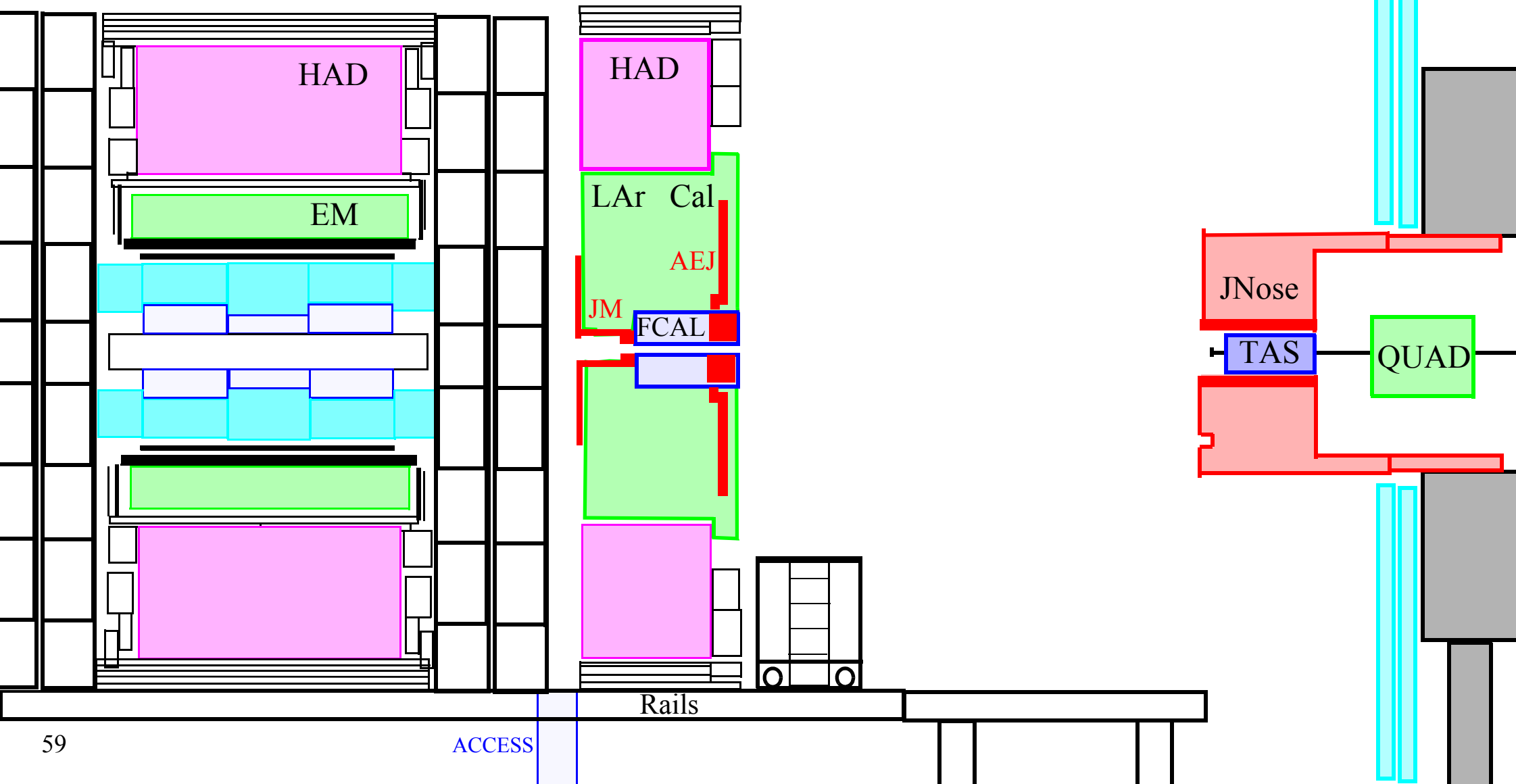


TGC 1 MDT

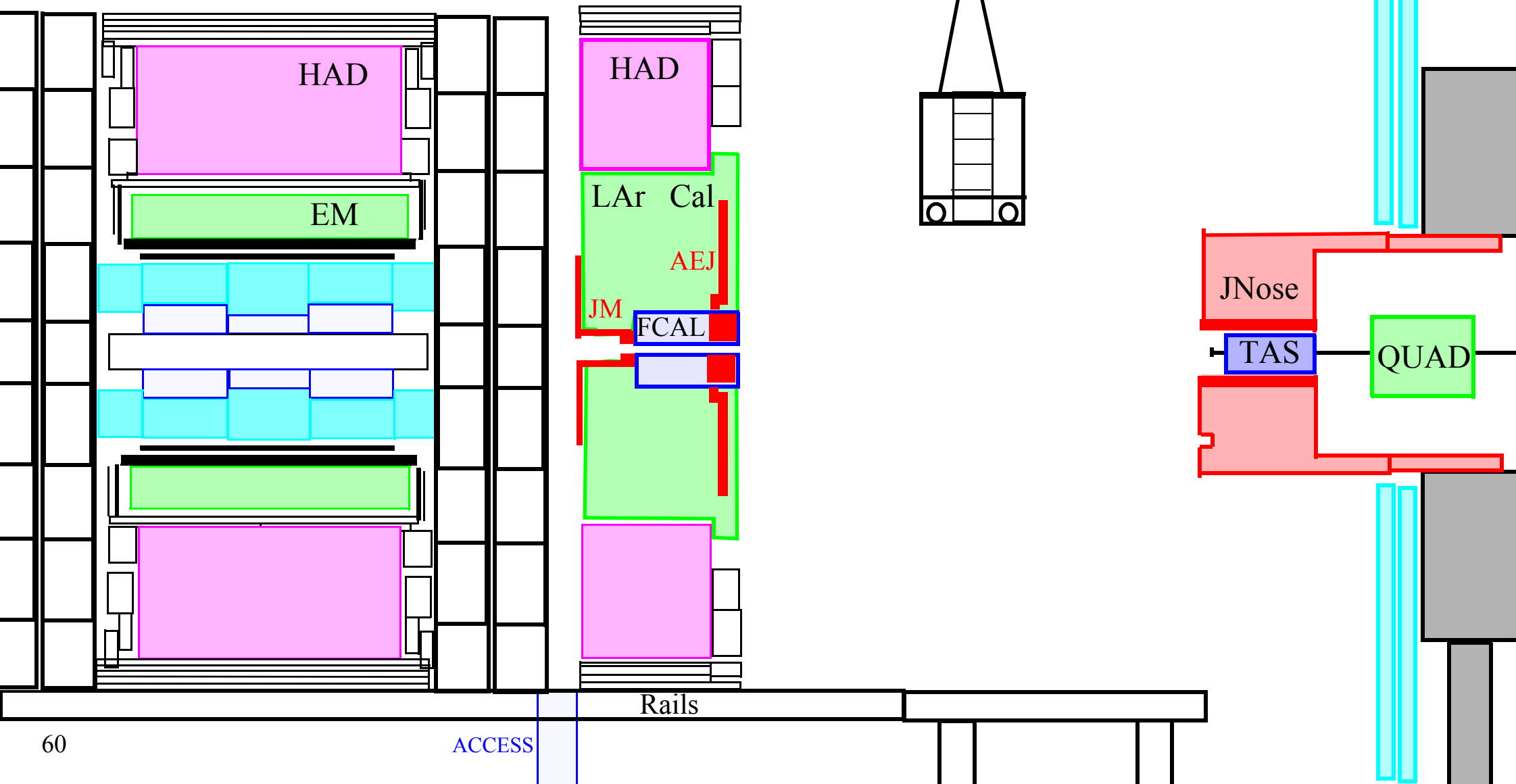


# Remove scaffolding



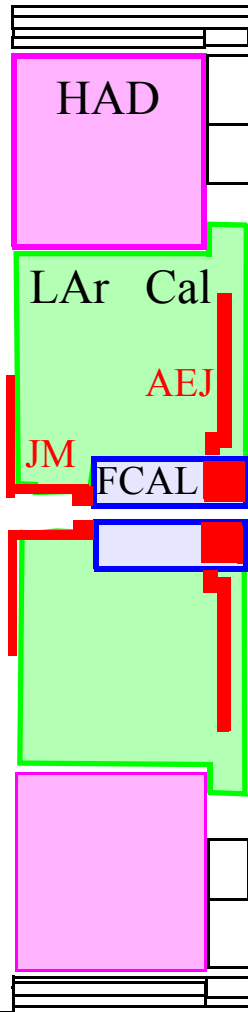
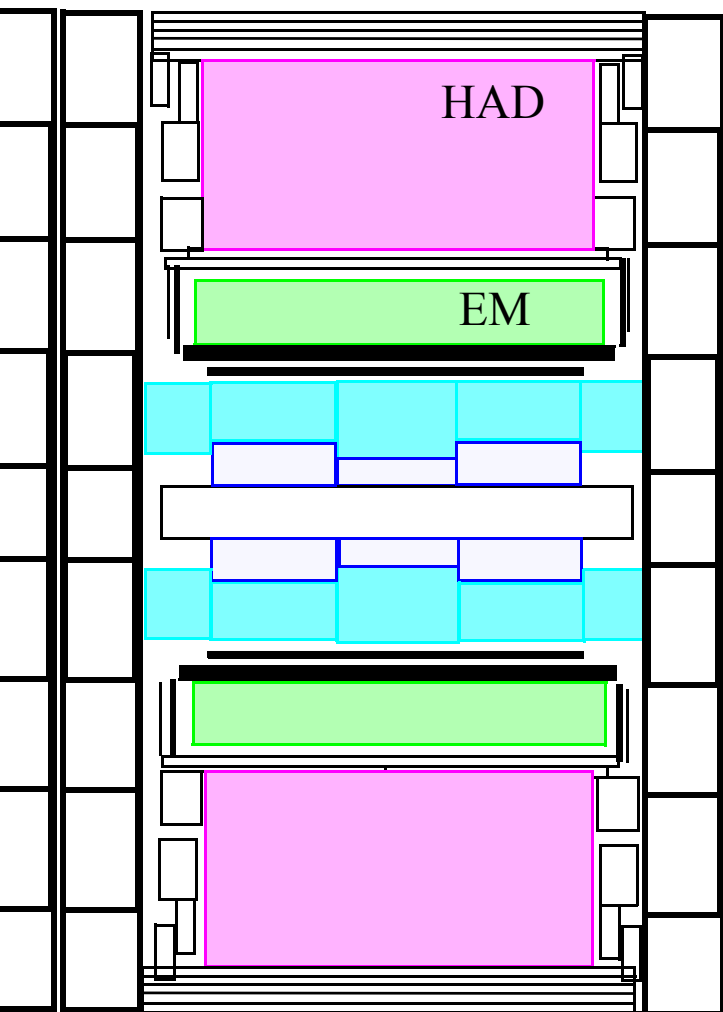


Remove minivan



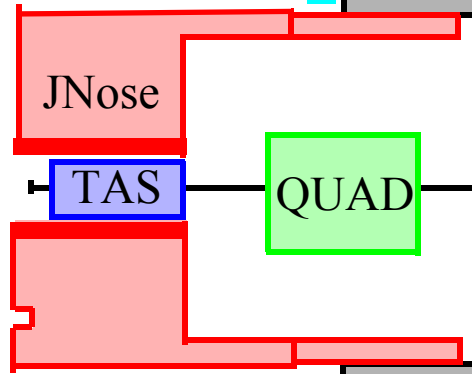
# Remove part of the ID scaffolding





Rails

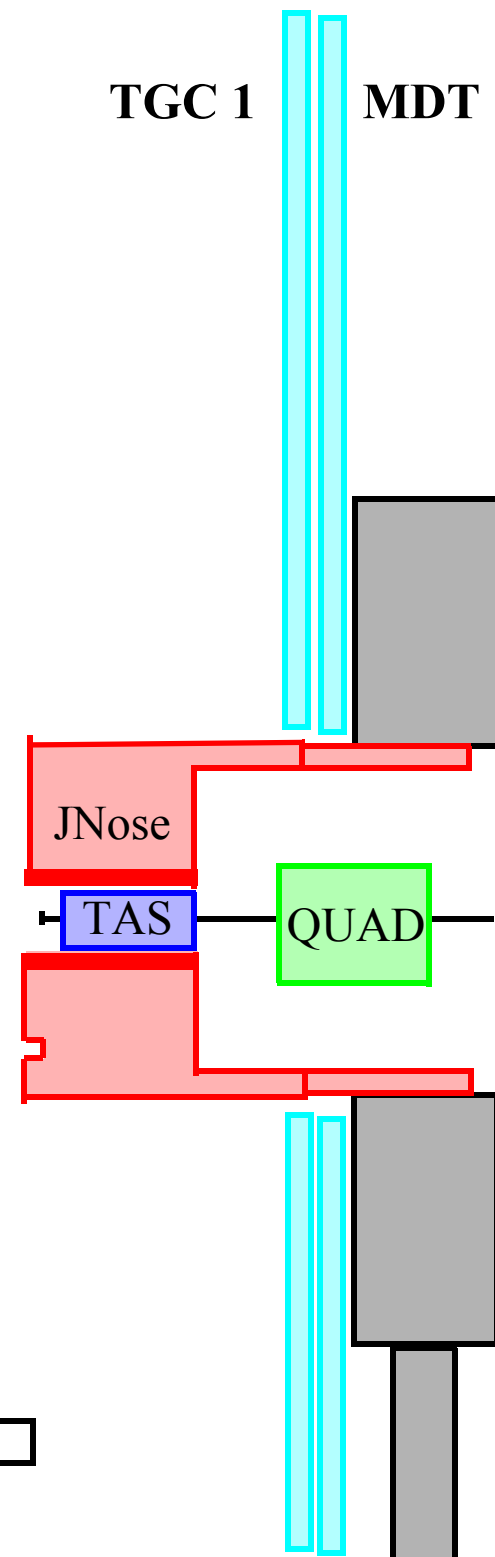
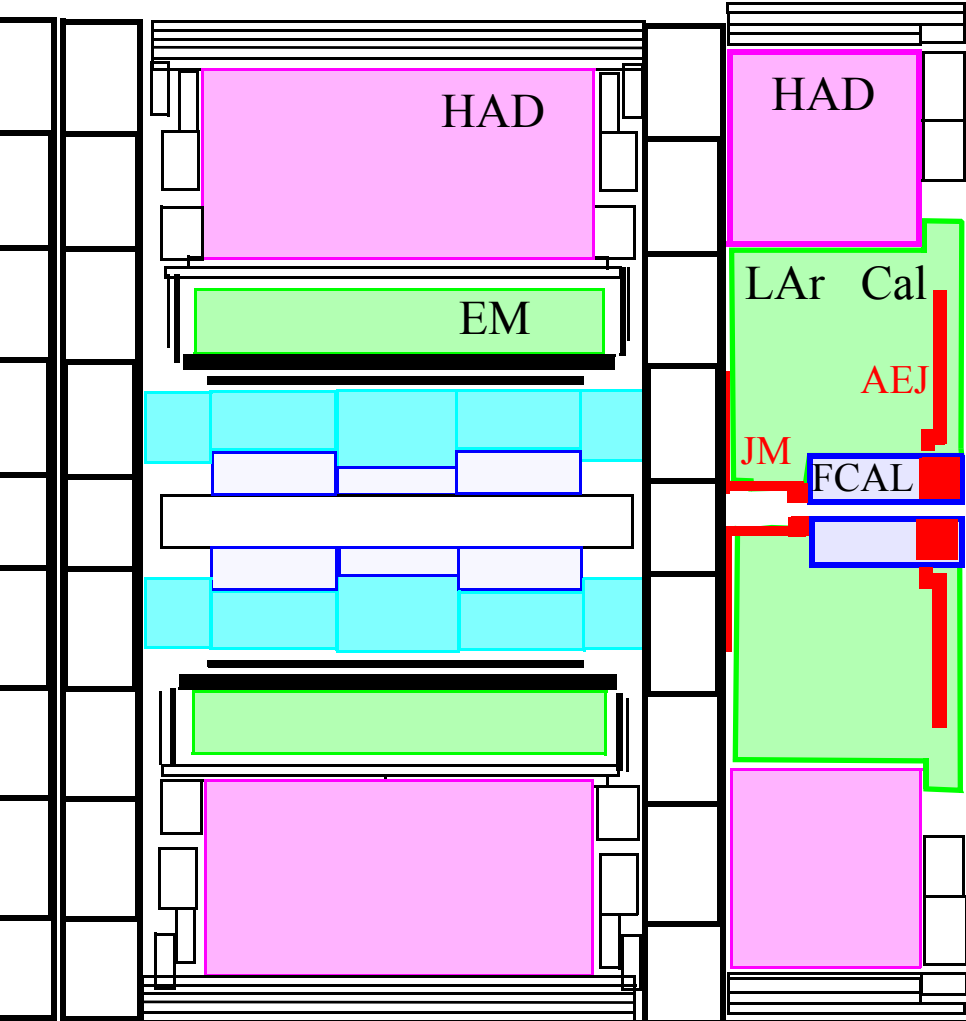
TGC 1 MDT



# Move calorimeter

Scaffolding that is max 1.1 m  
with access through muon detector.

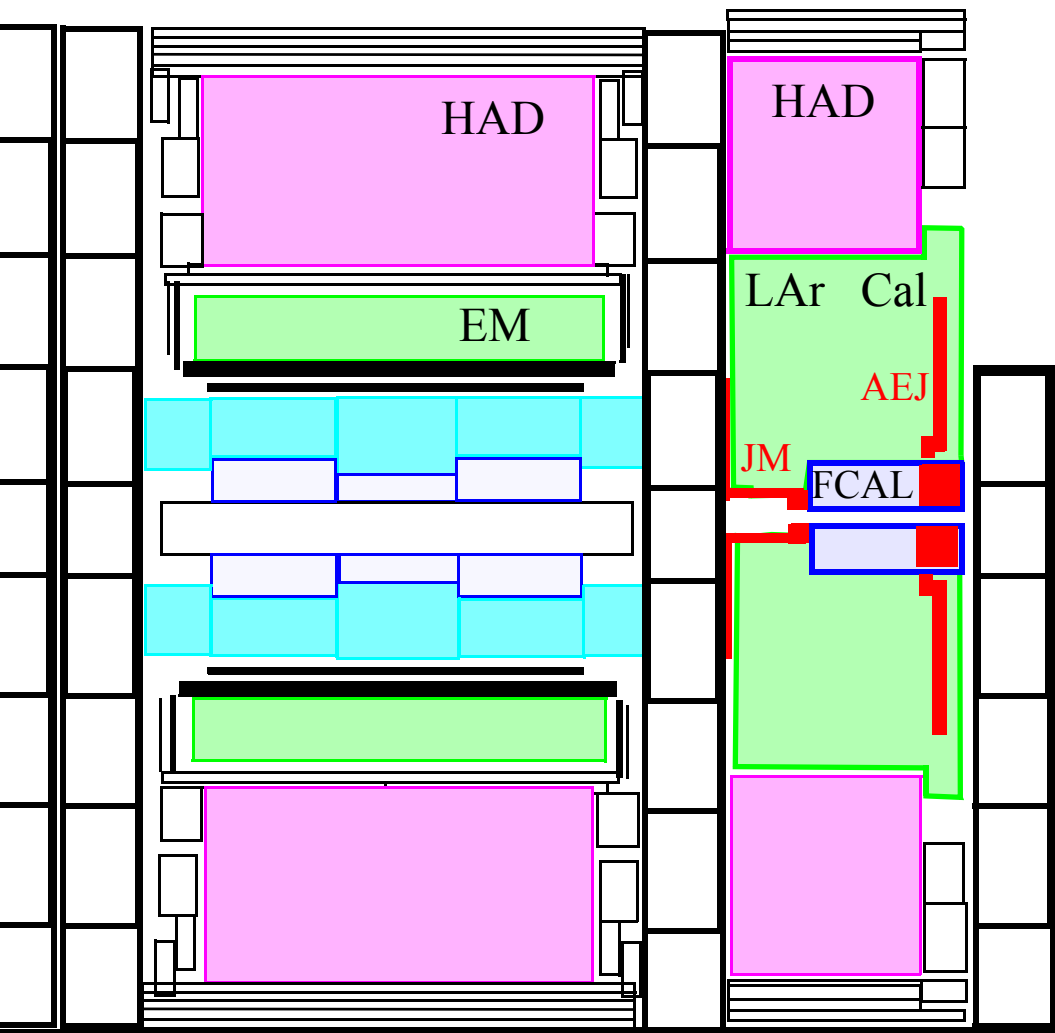
1m  
↔



# Build scaffolding behind the calorimeter







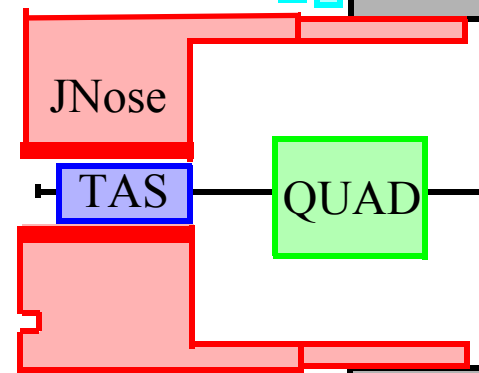
65

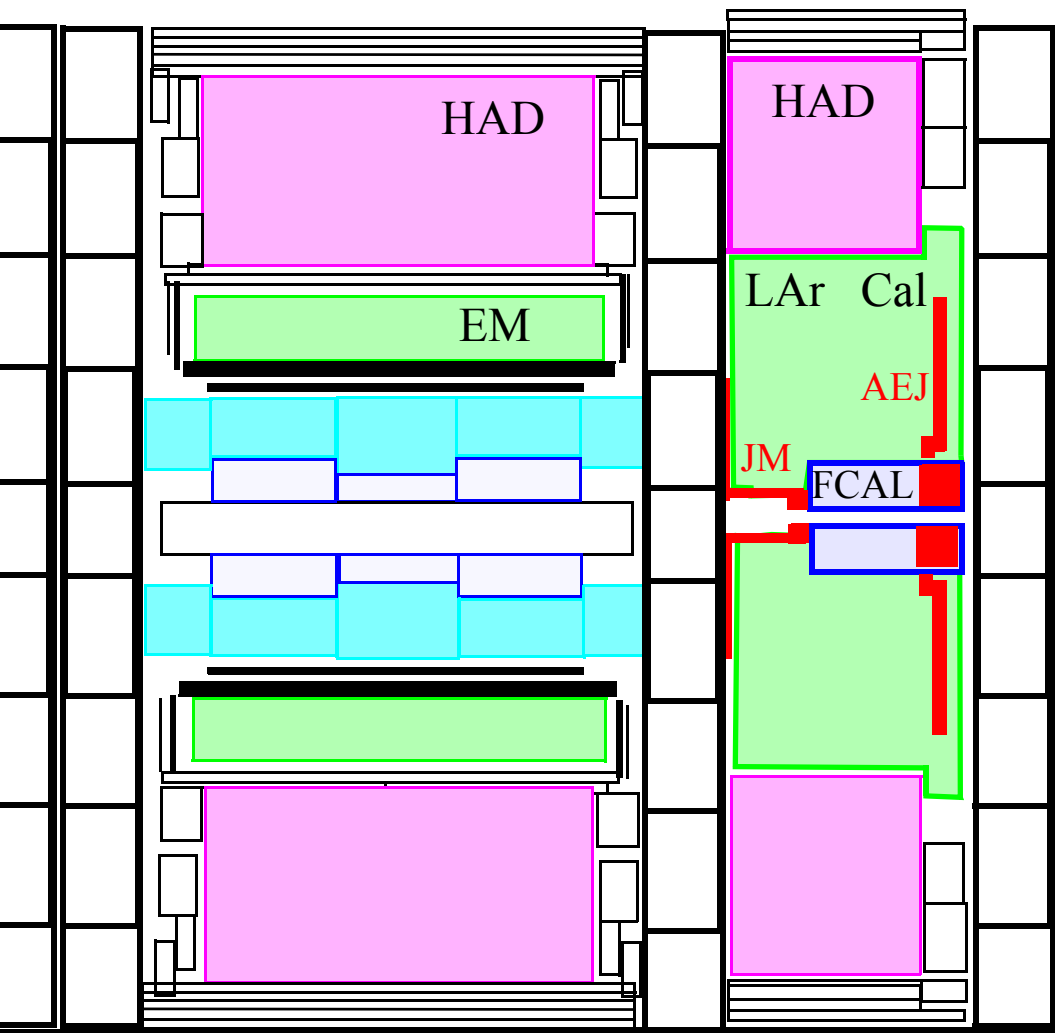
ACCESS

Rails

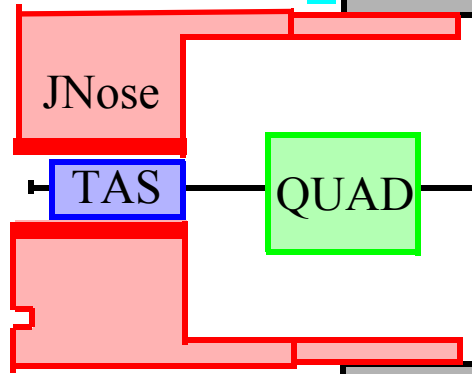
TGC 1

MDT

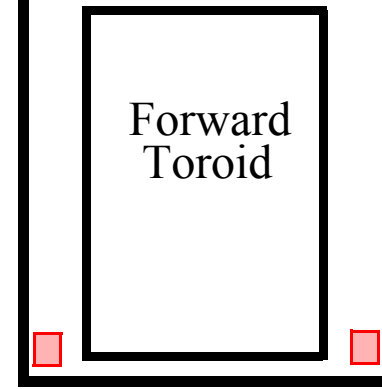
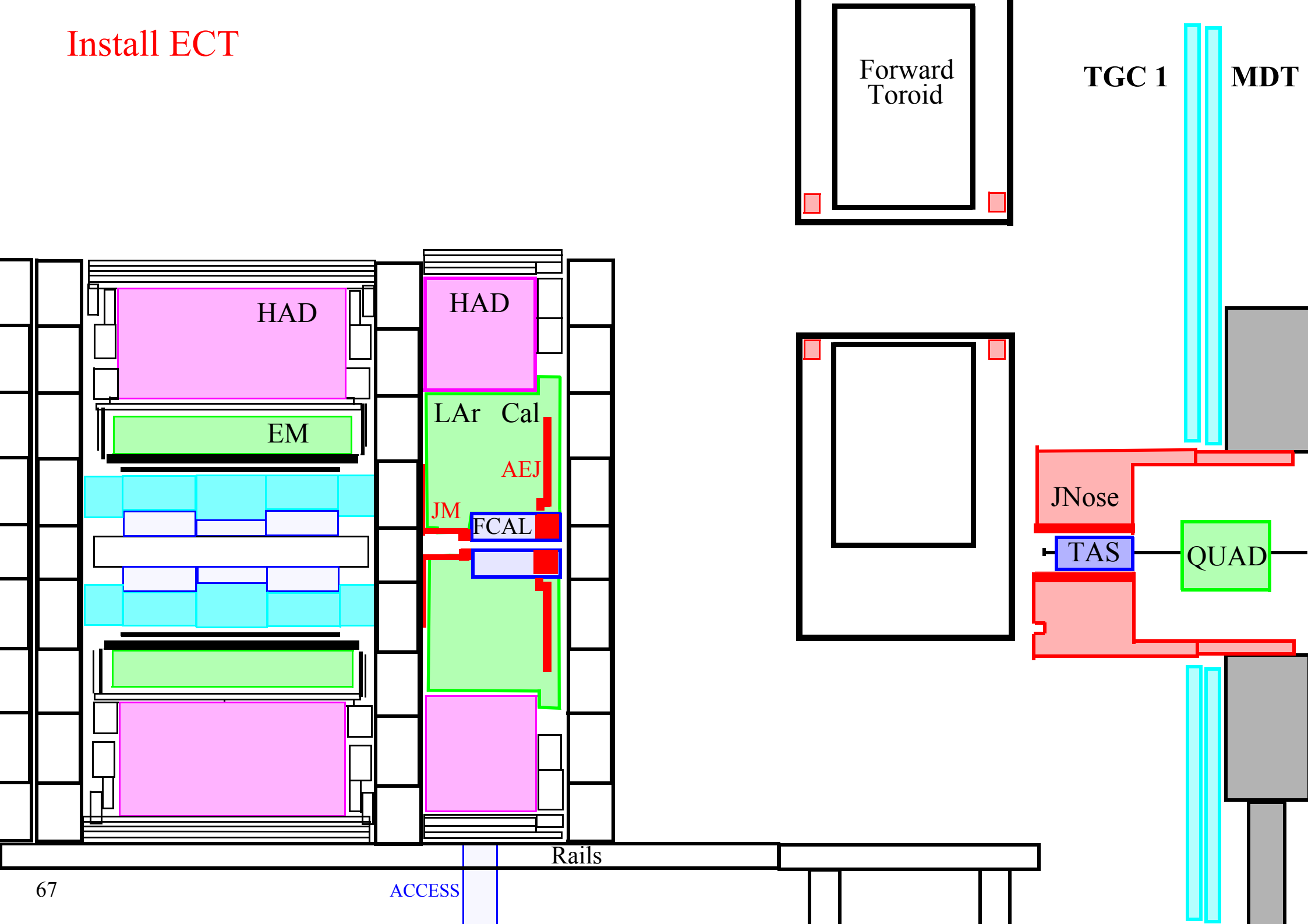




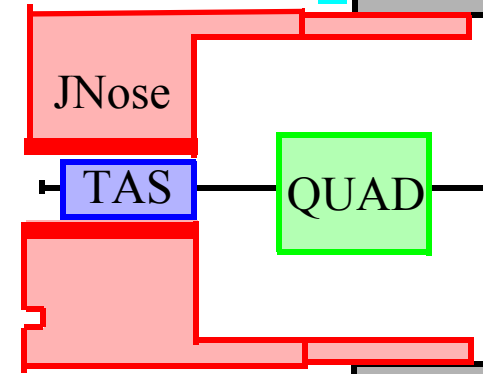
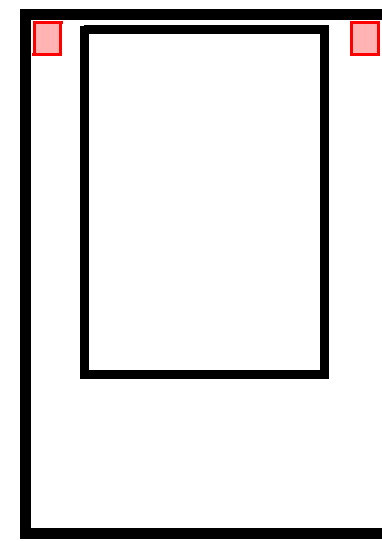
TGC 1 MDT

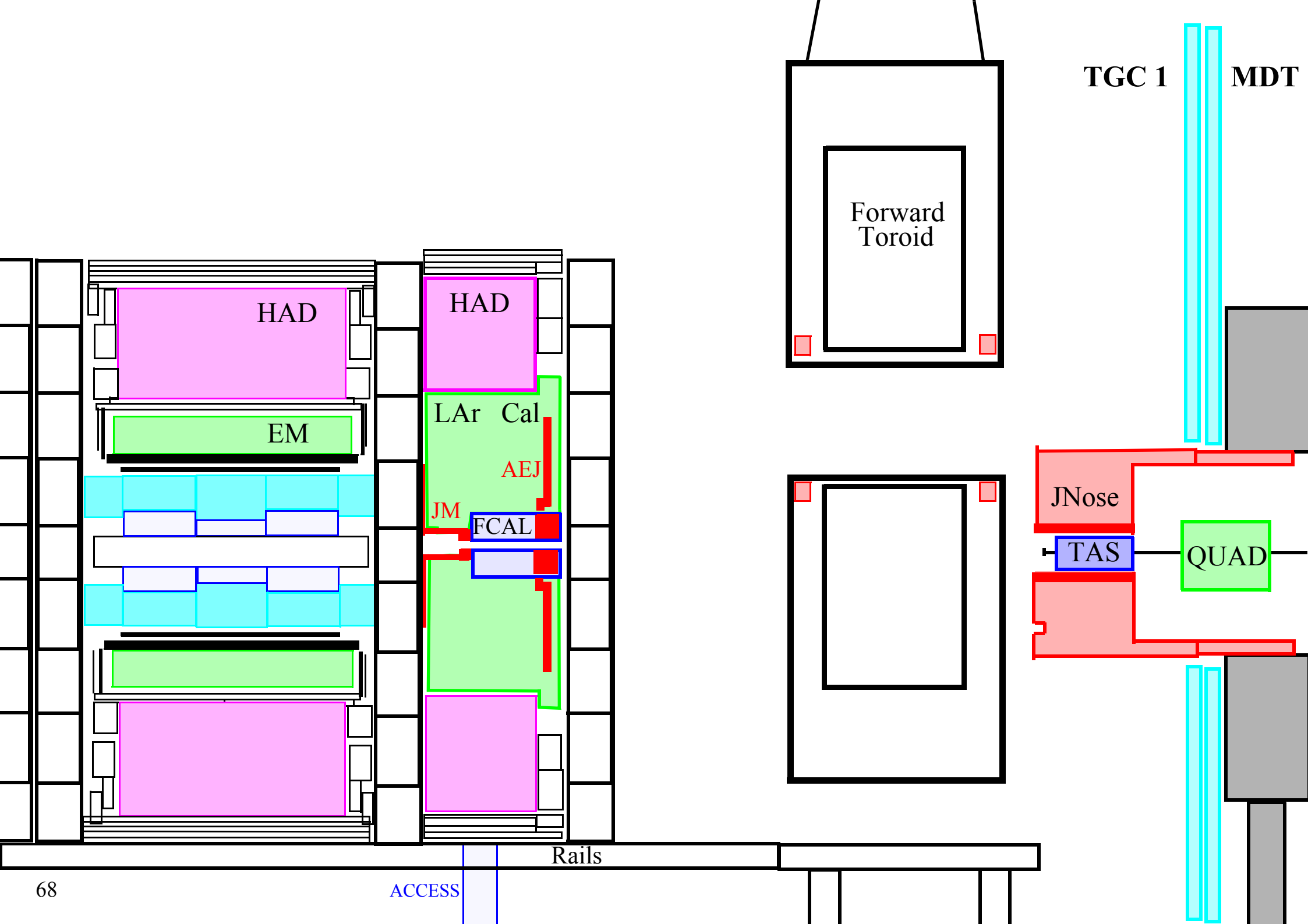


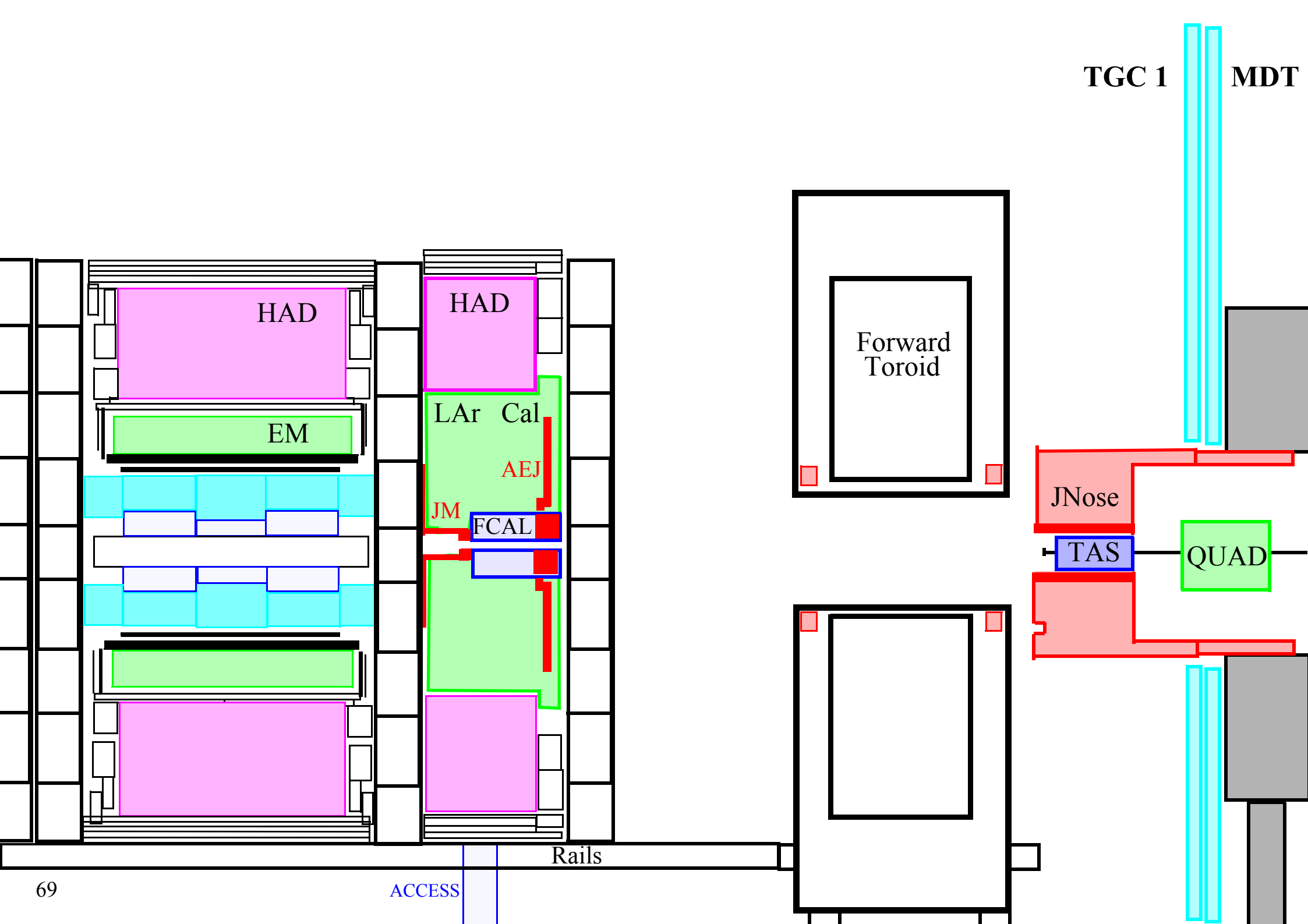
# Install ECT

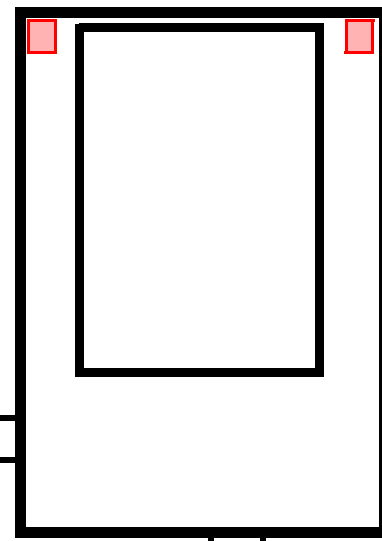
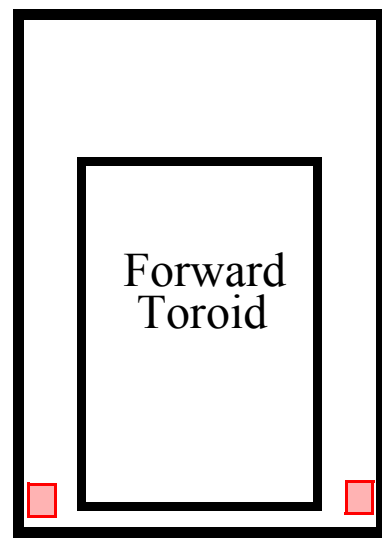
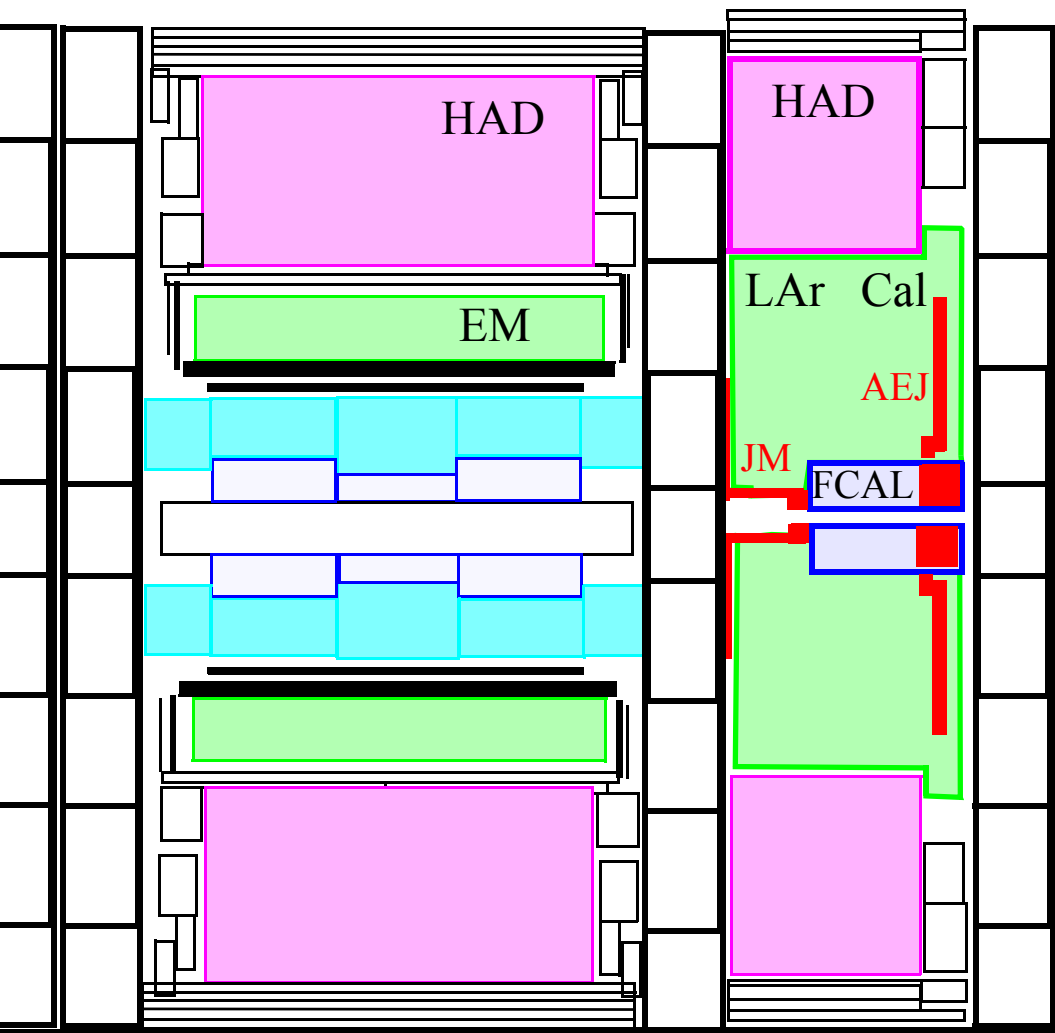


TGC 1 MDT

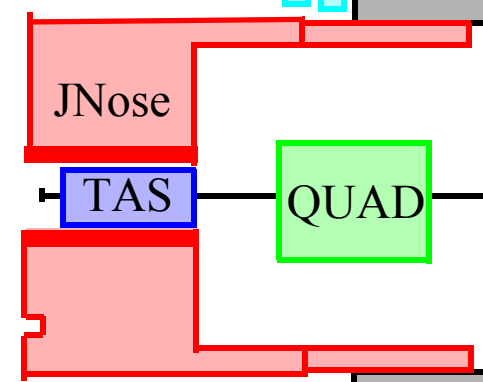


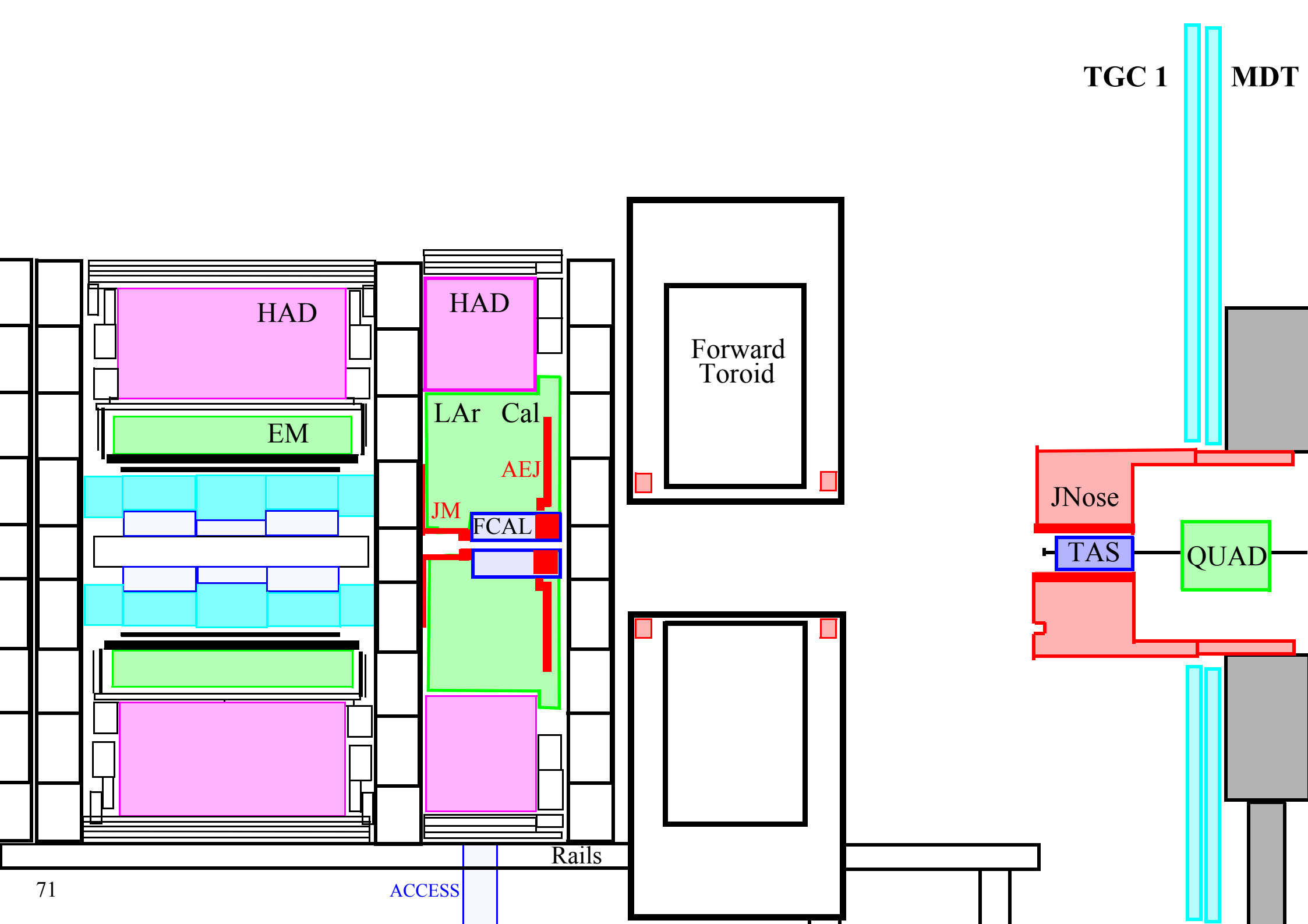




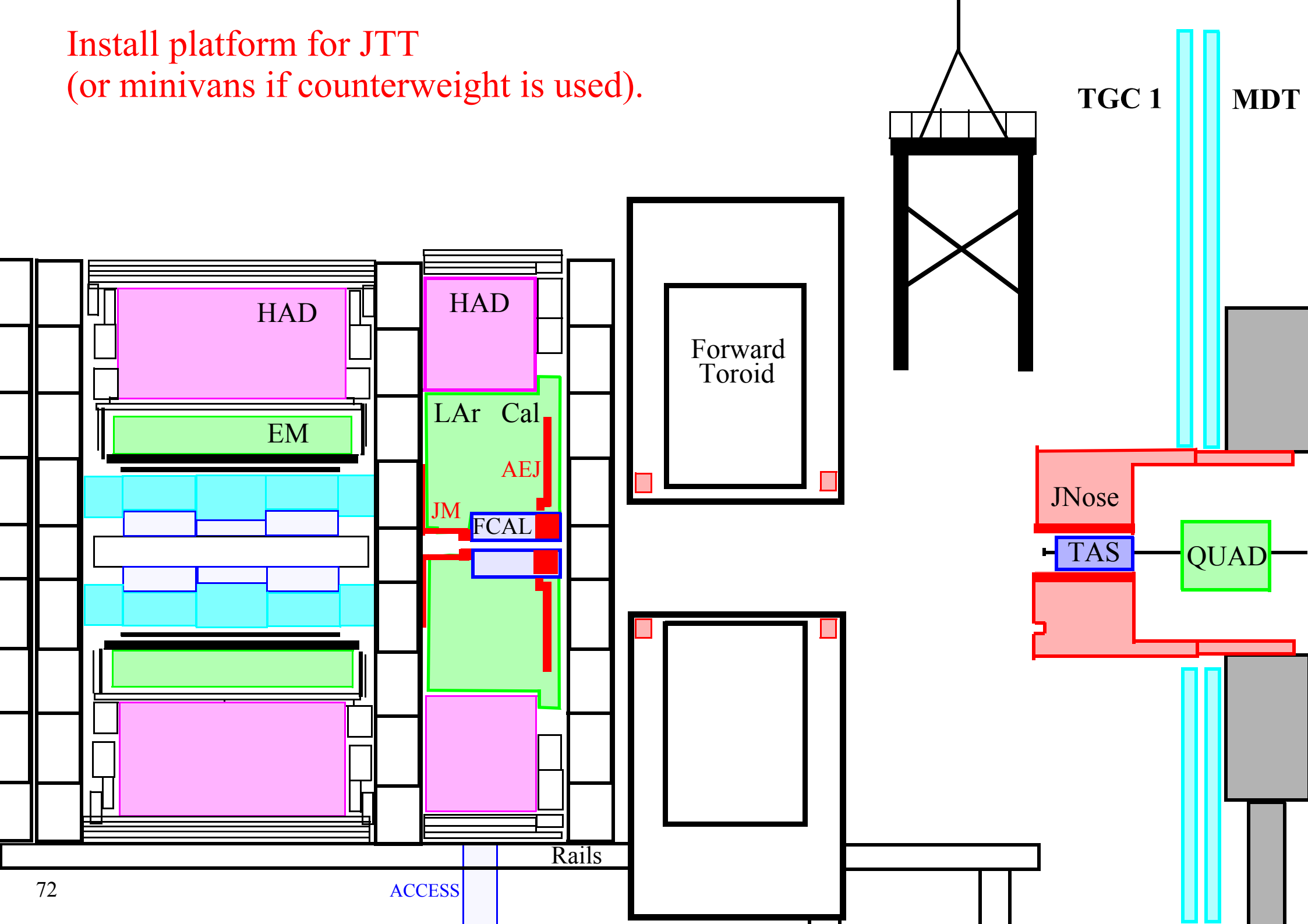


TGC 1 MDT

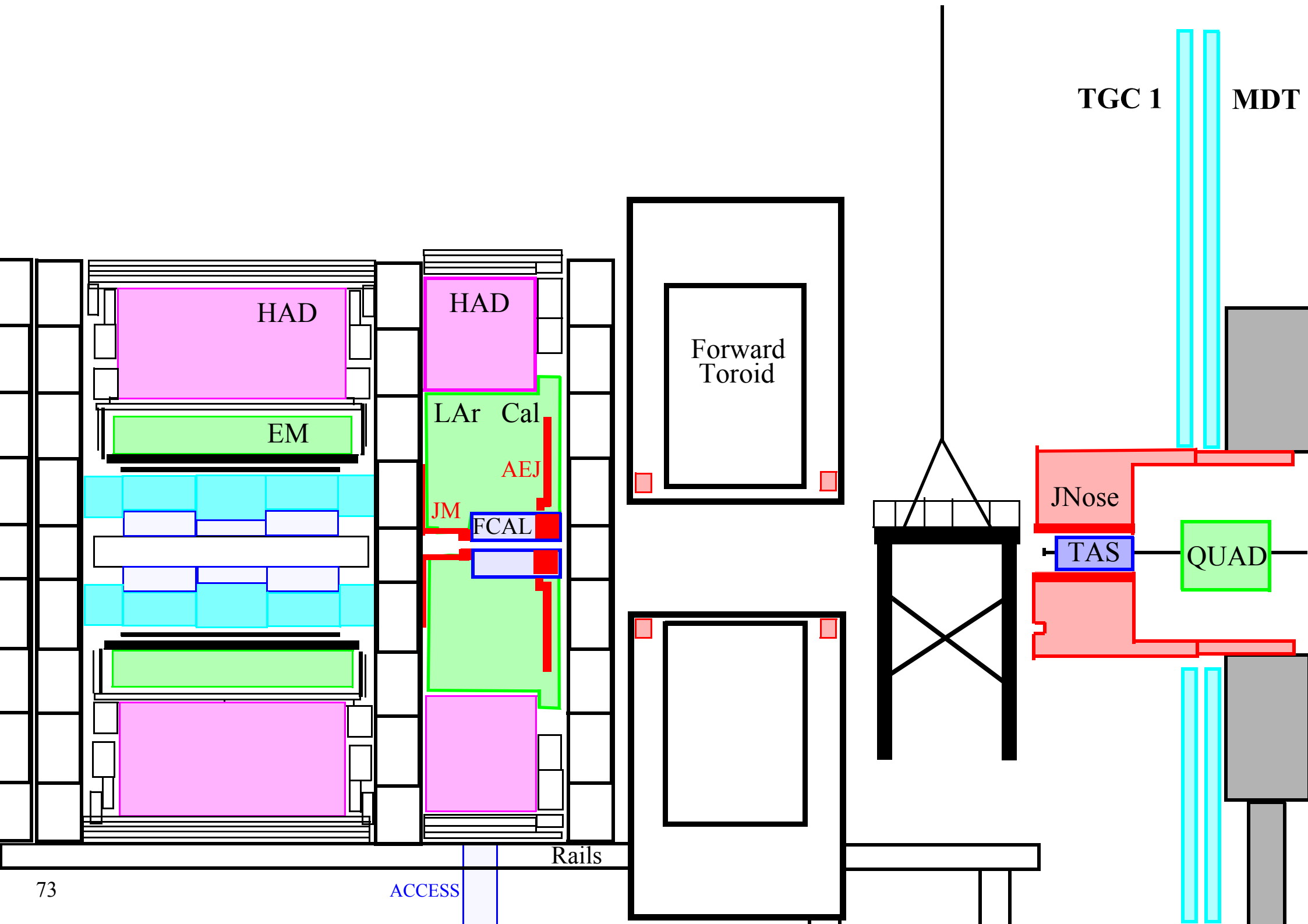




Install platform for JTT  
(or minivans if counterweight is used).







Forward  
Toroid

JNose

TAS

QUAD

TGC 1

MDT

HAD

EM

HAD

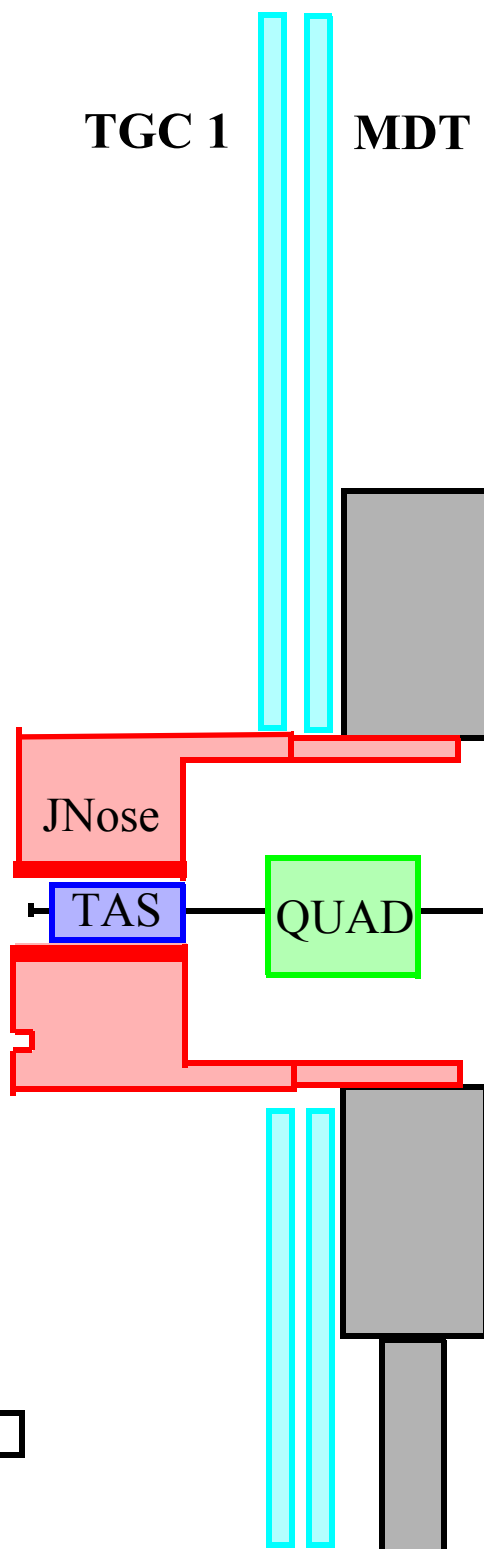
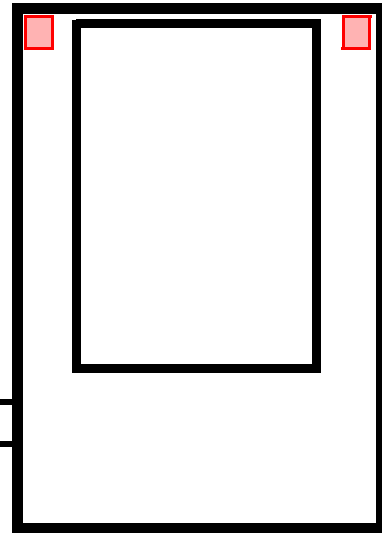
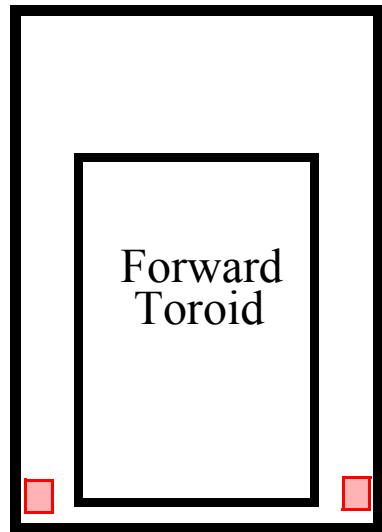
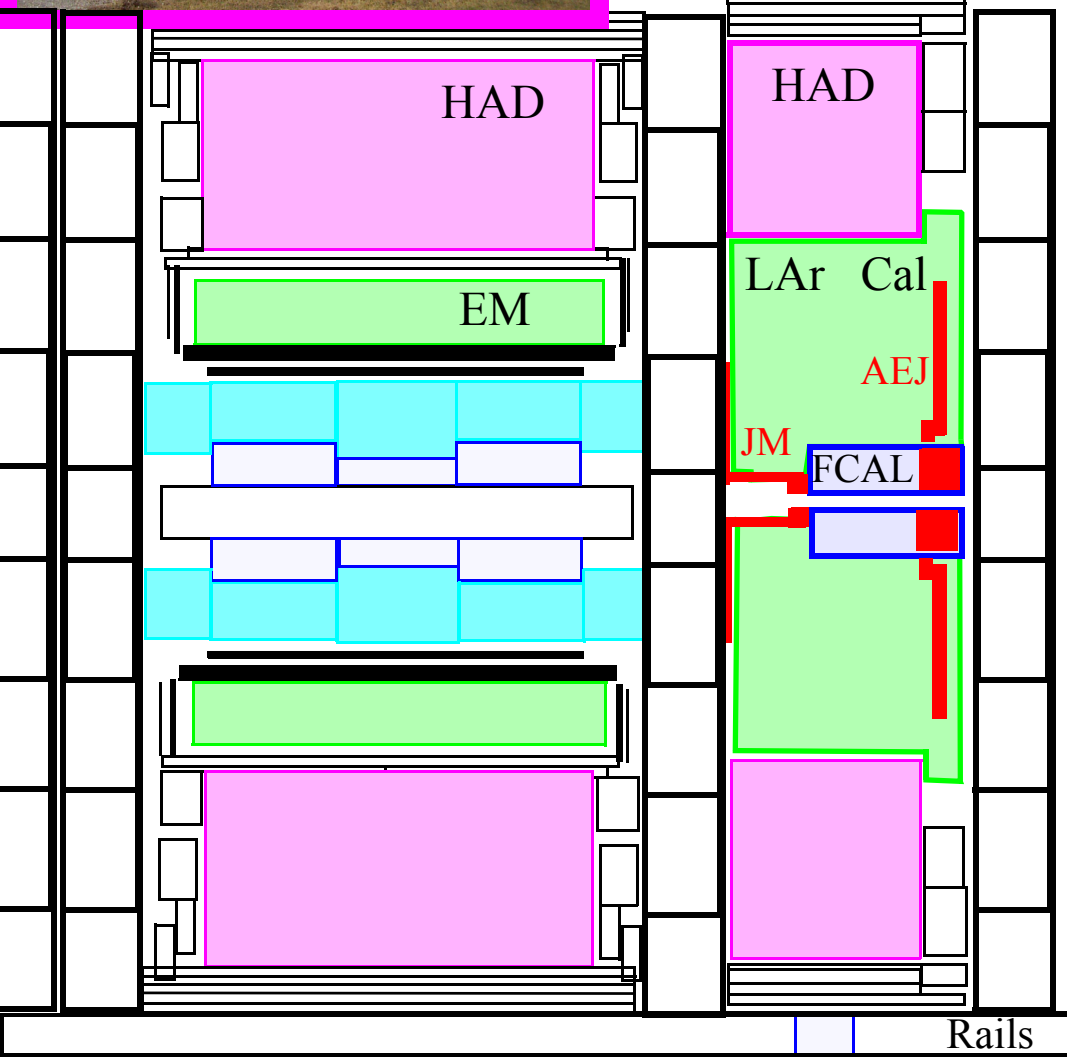
LAr Cal

AEJ

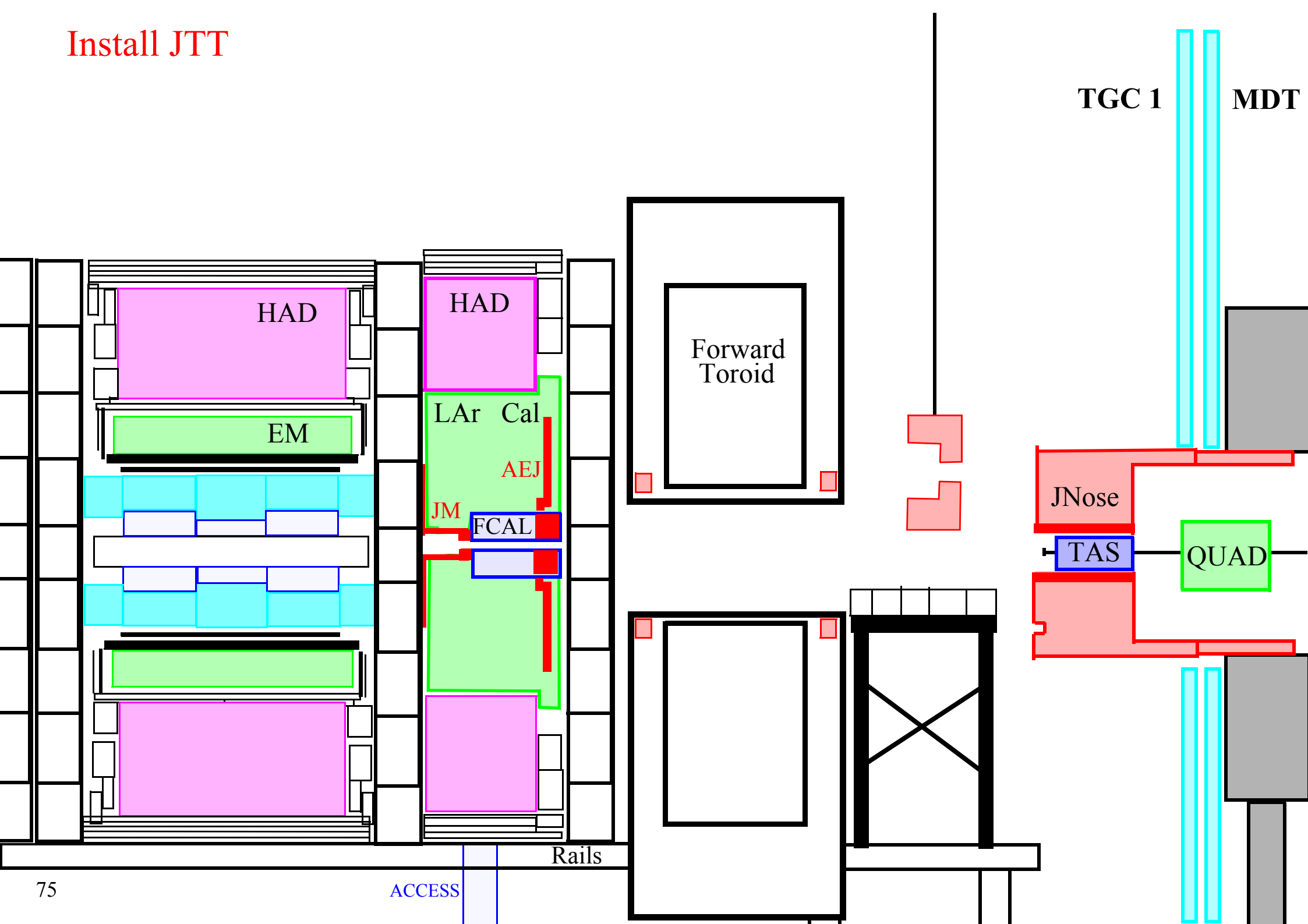
JM

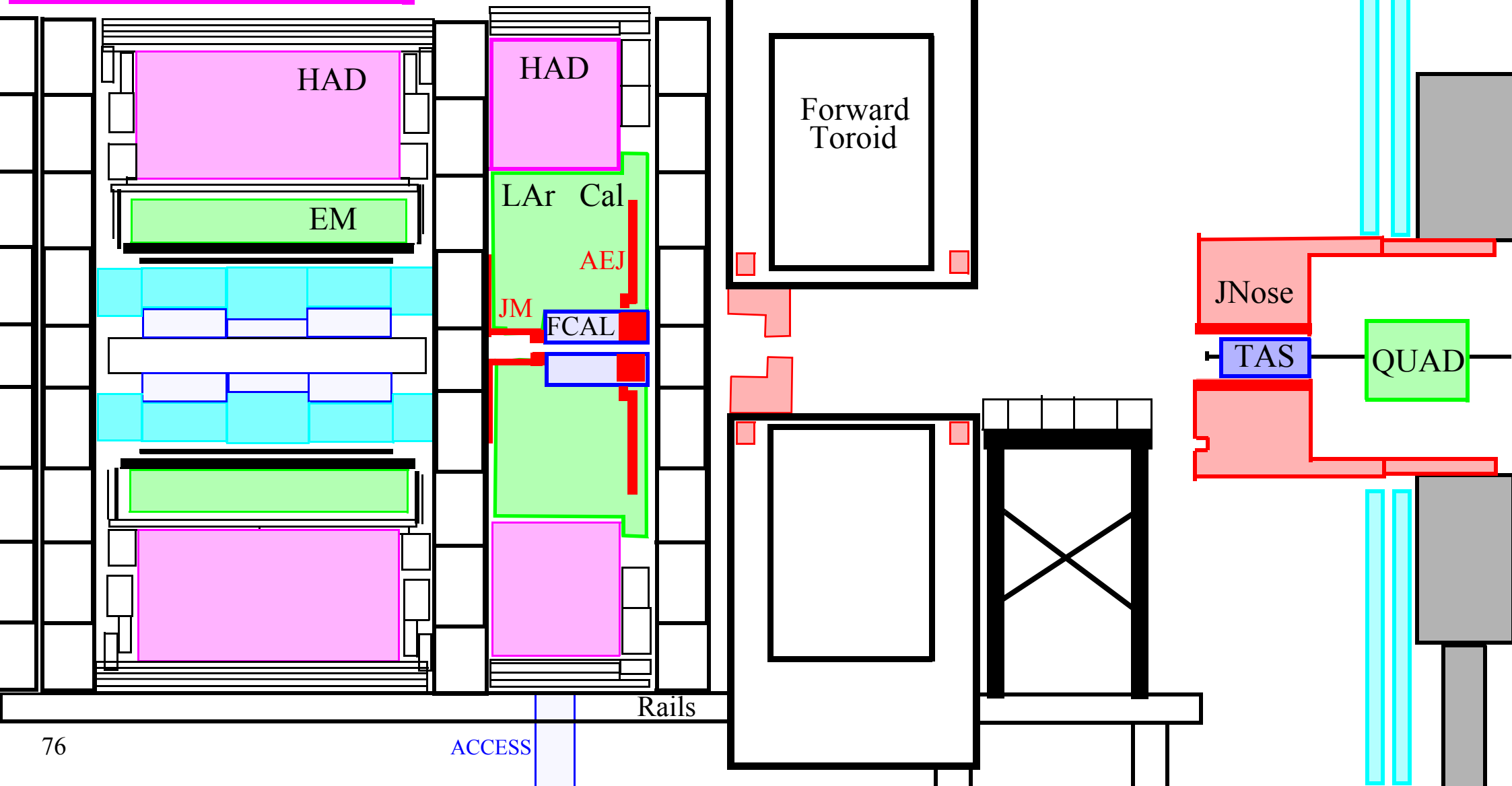
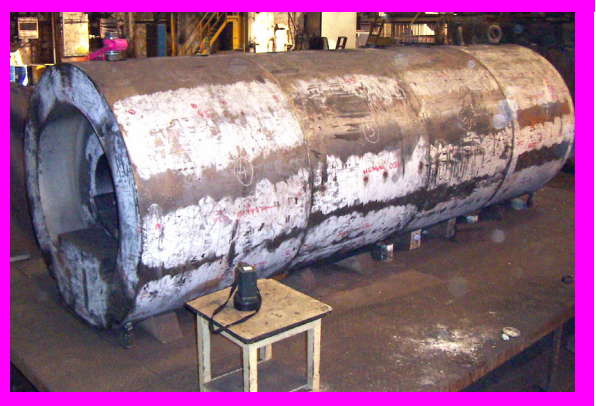
FCAL

QUAD



# Install JTT





HAD

EM

HAD

HAD

LAr Cal

AEJ

JM

FCAL

Forward  
Toroid

JNose

TAS

QUAD

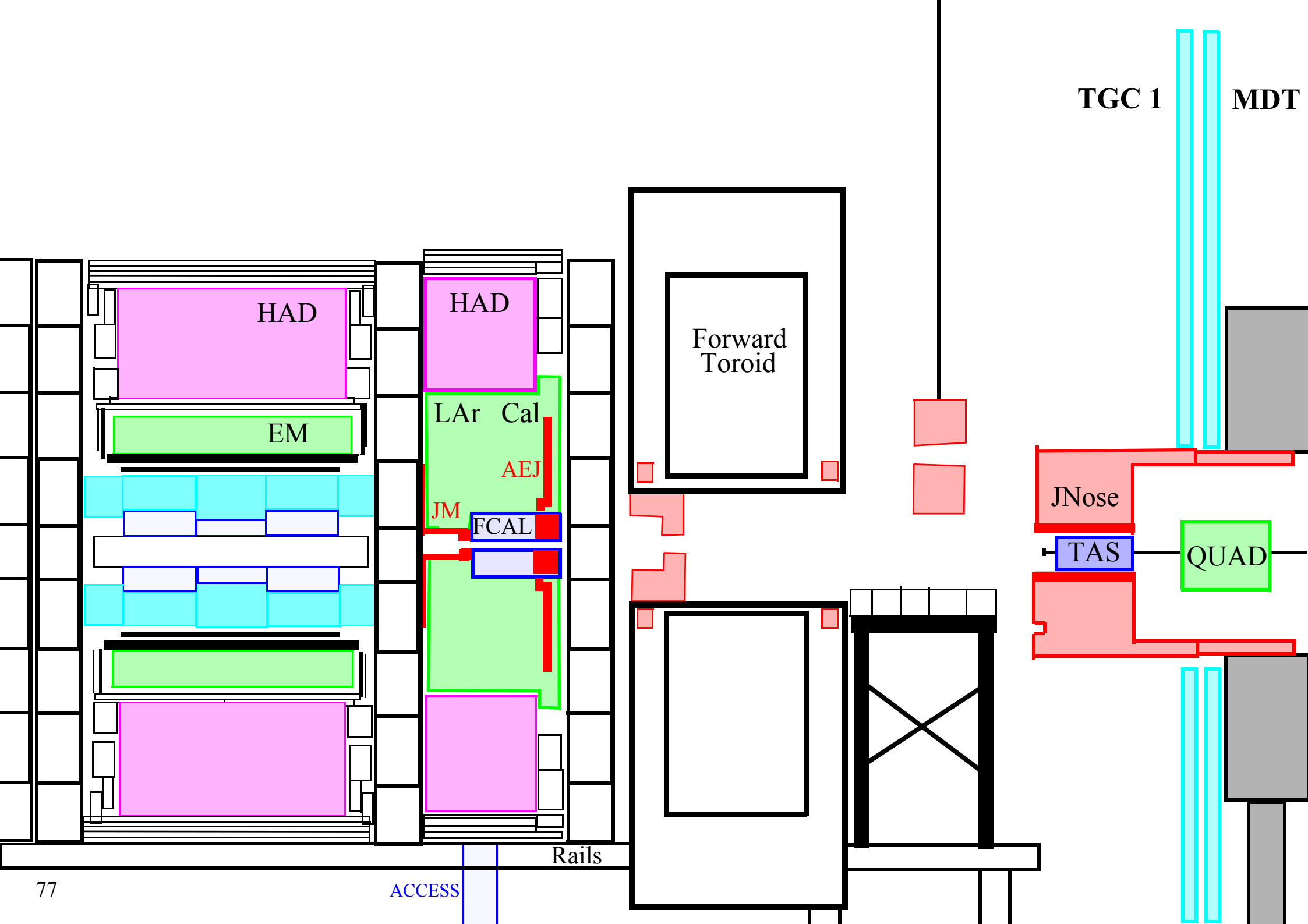
TGC 1

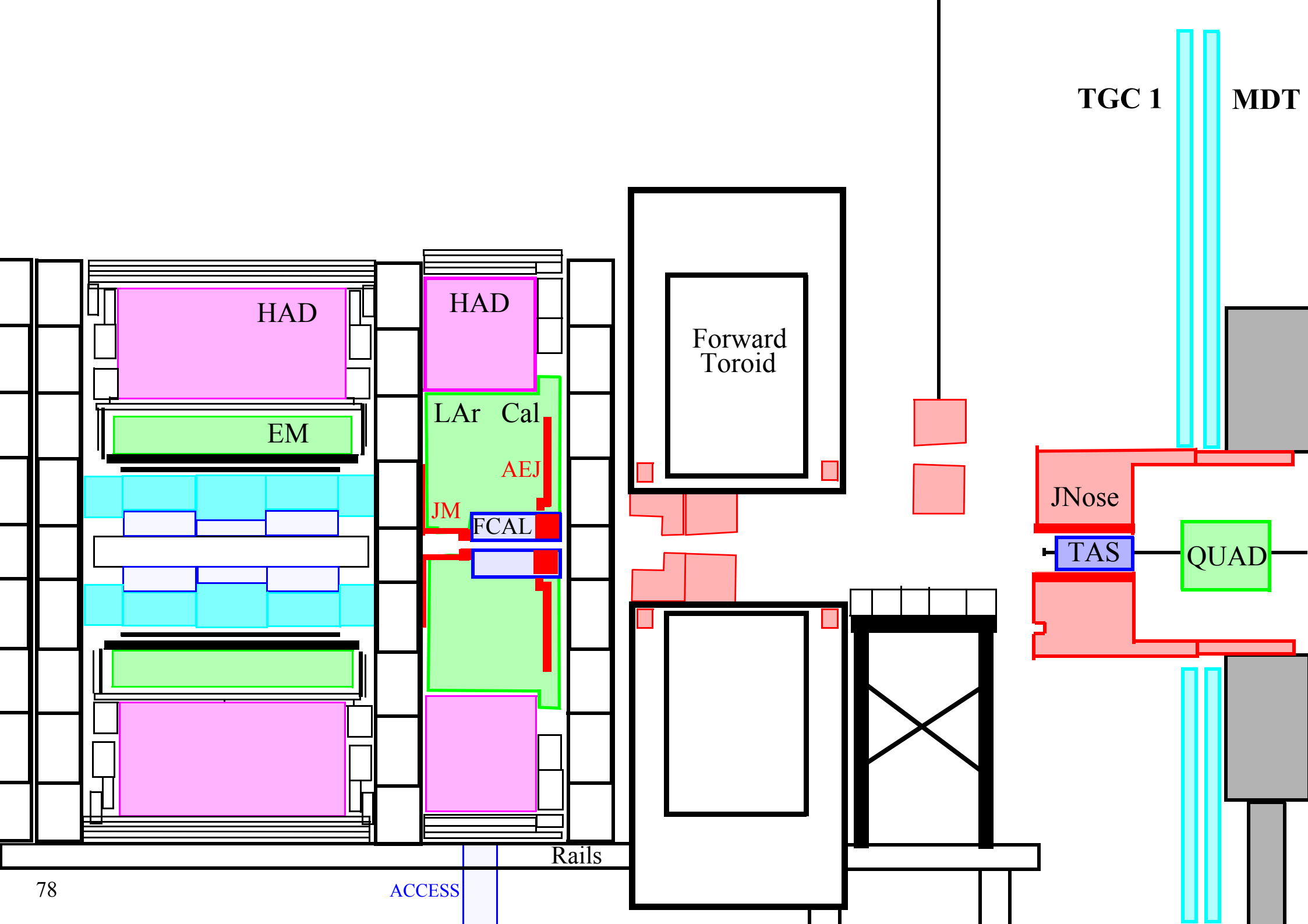
MDT

Rails

ACCESS

76





HAD

HAD

Forward  
Toroid

EM

LAr Cal

AEJ

JM

FCAL

JNose

TAS

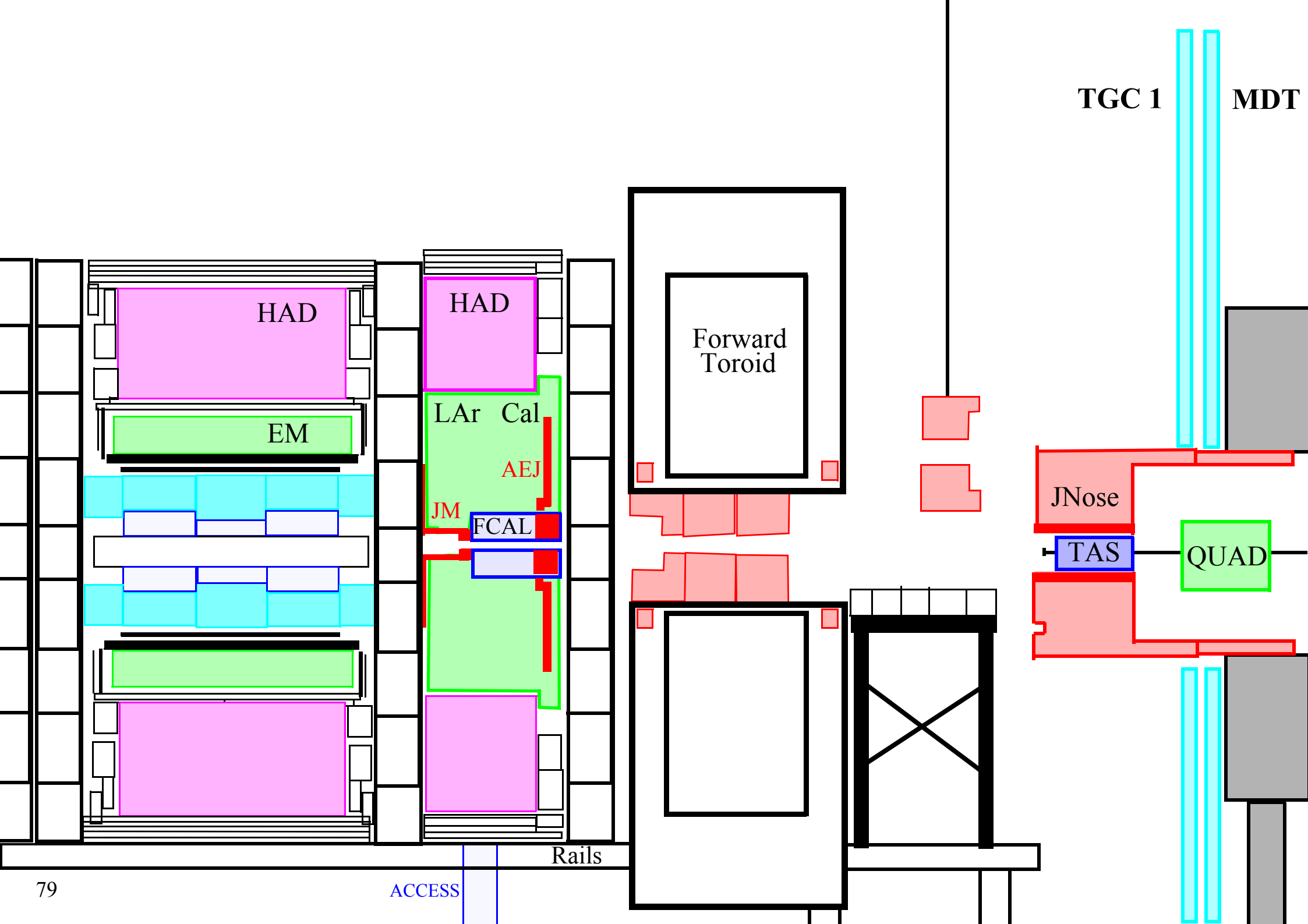
QUAD

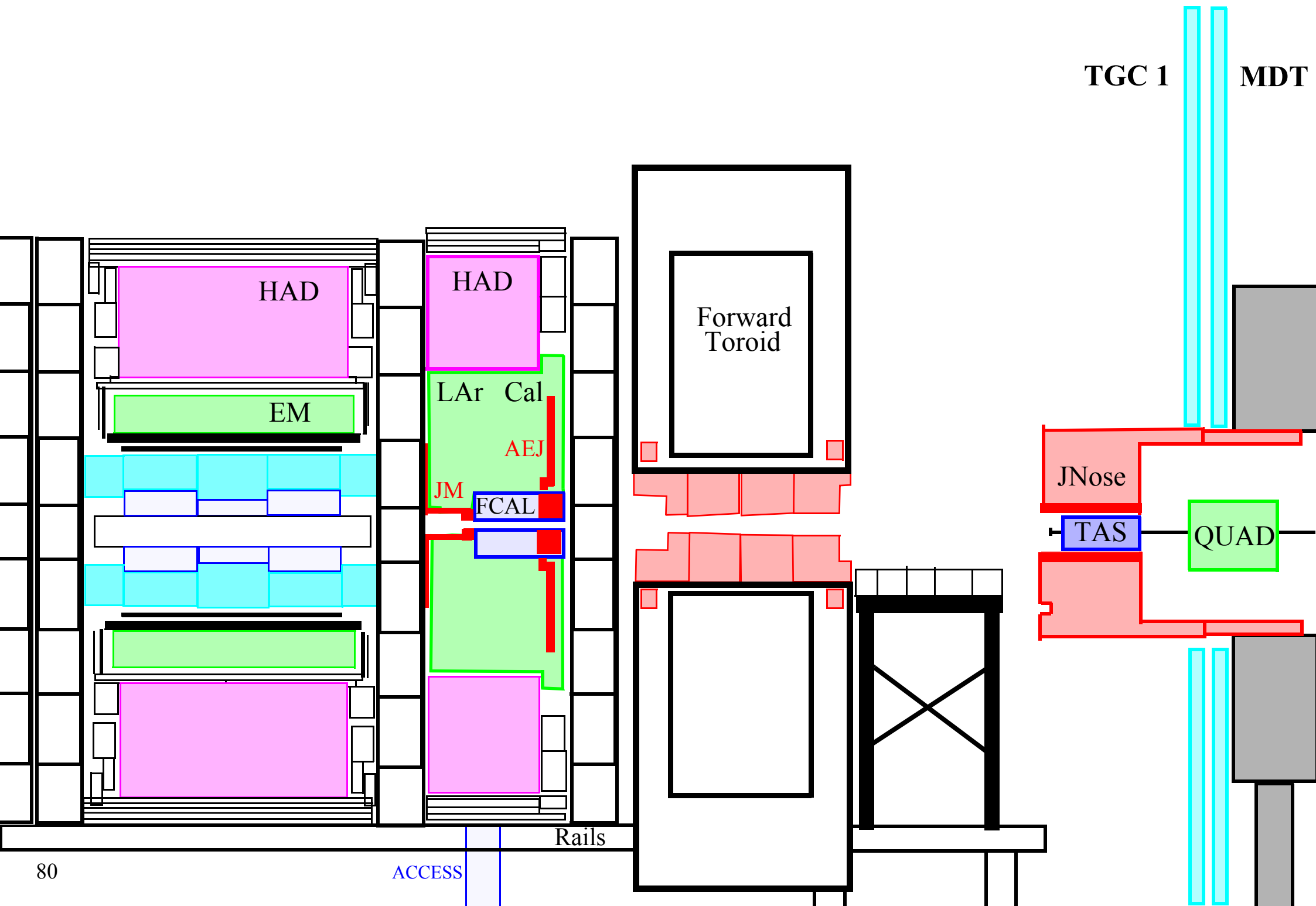
TGC 1

MDT

Rails

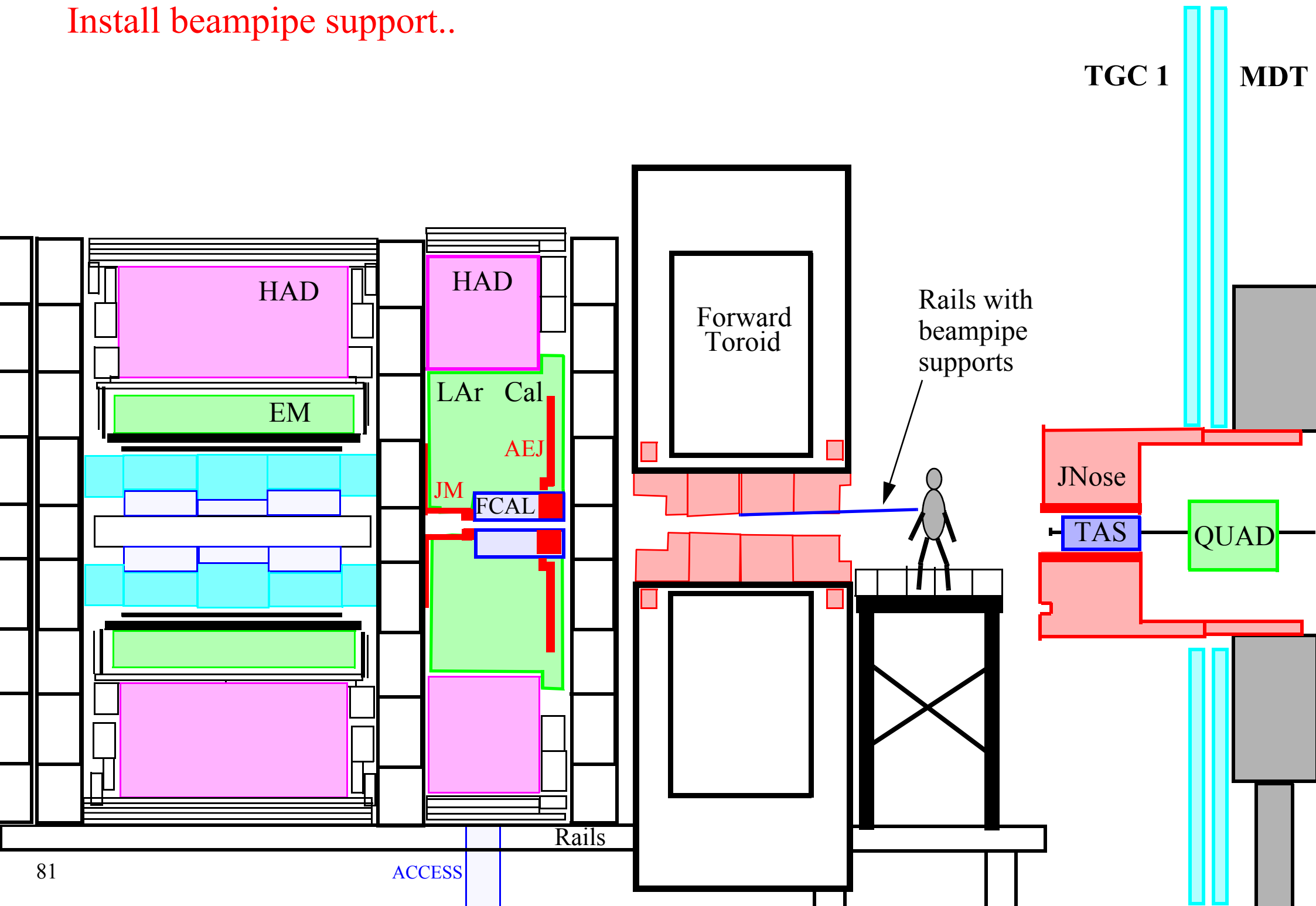
ACCESS



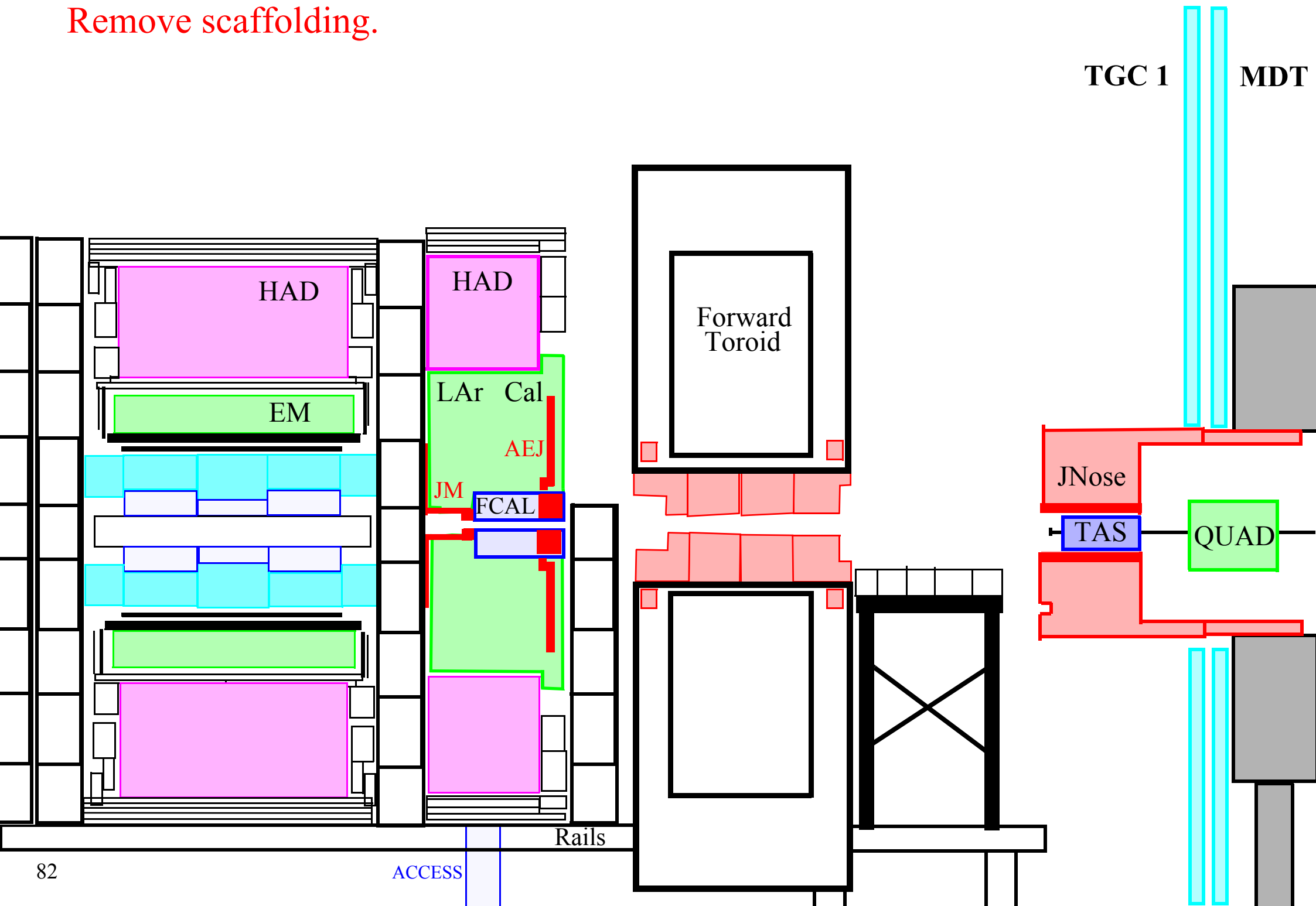


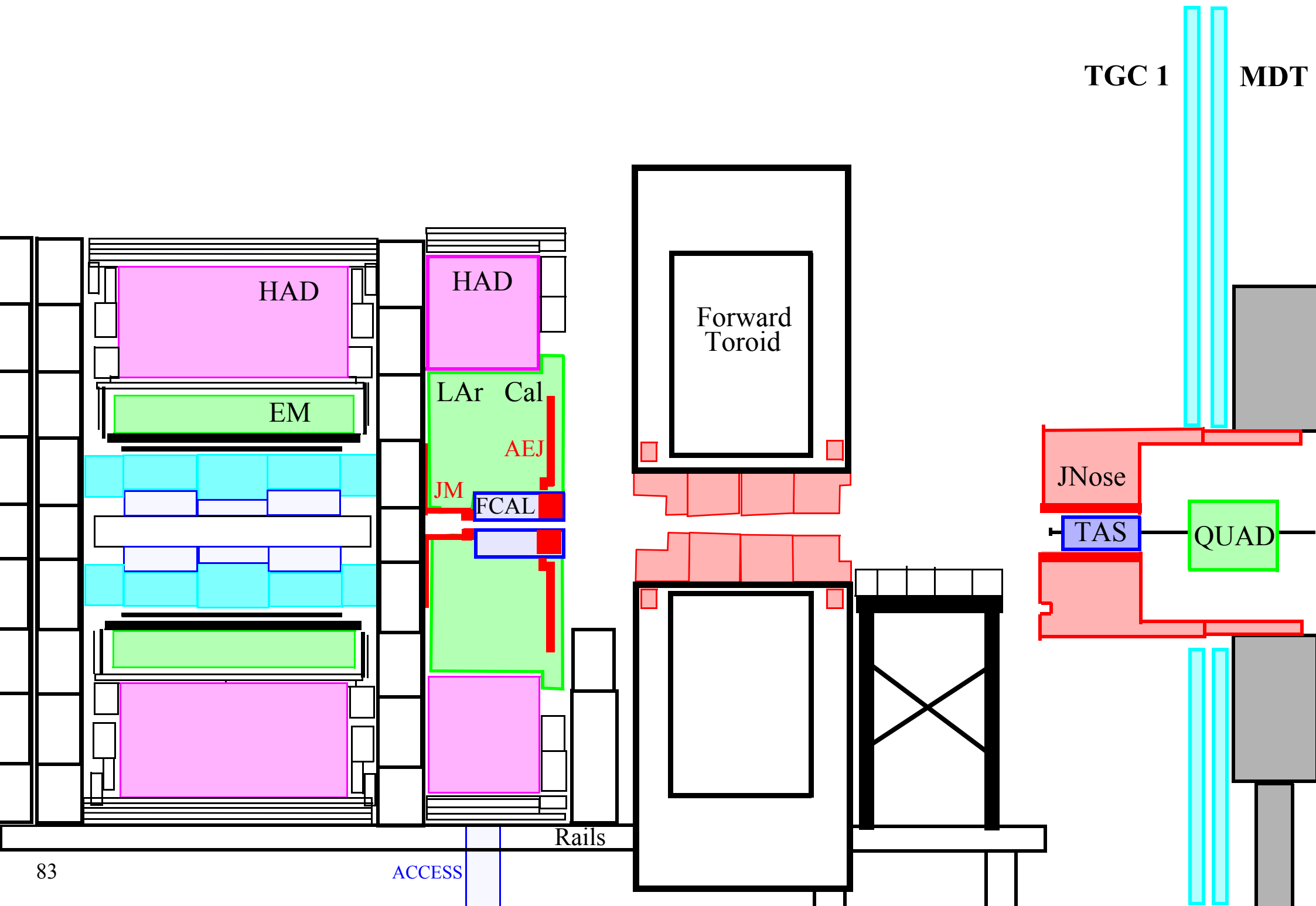


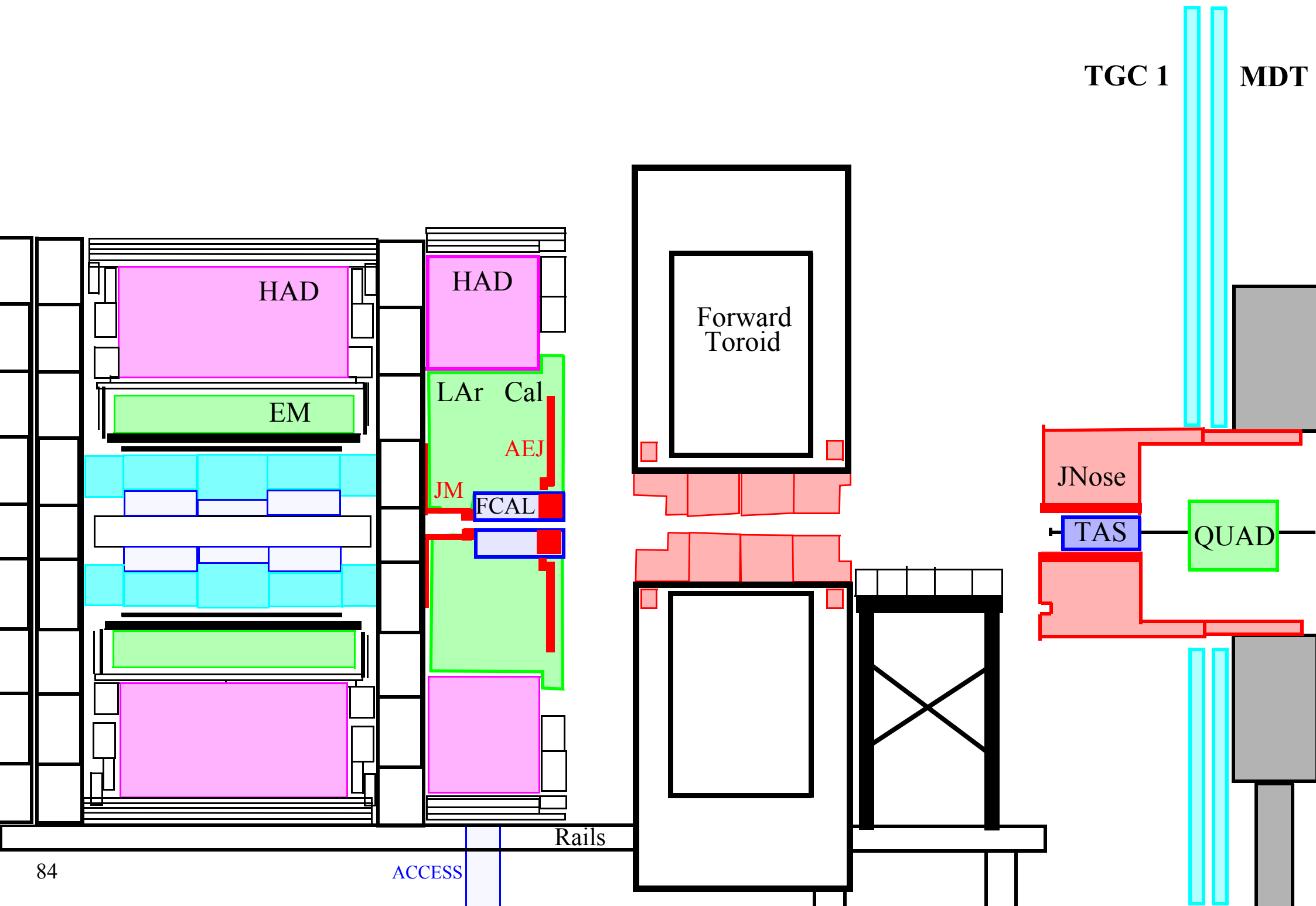
# Install beampipe support..



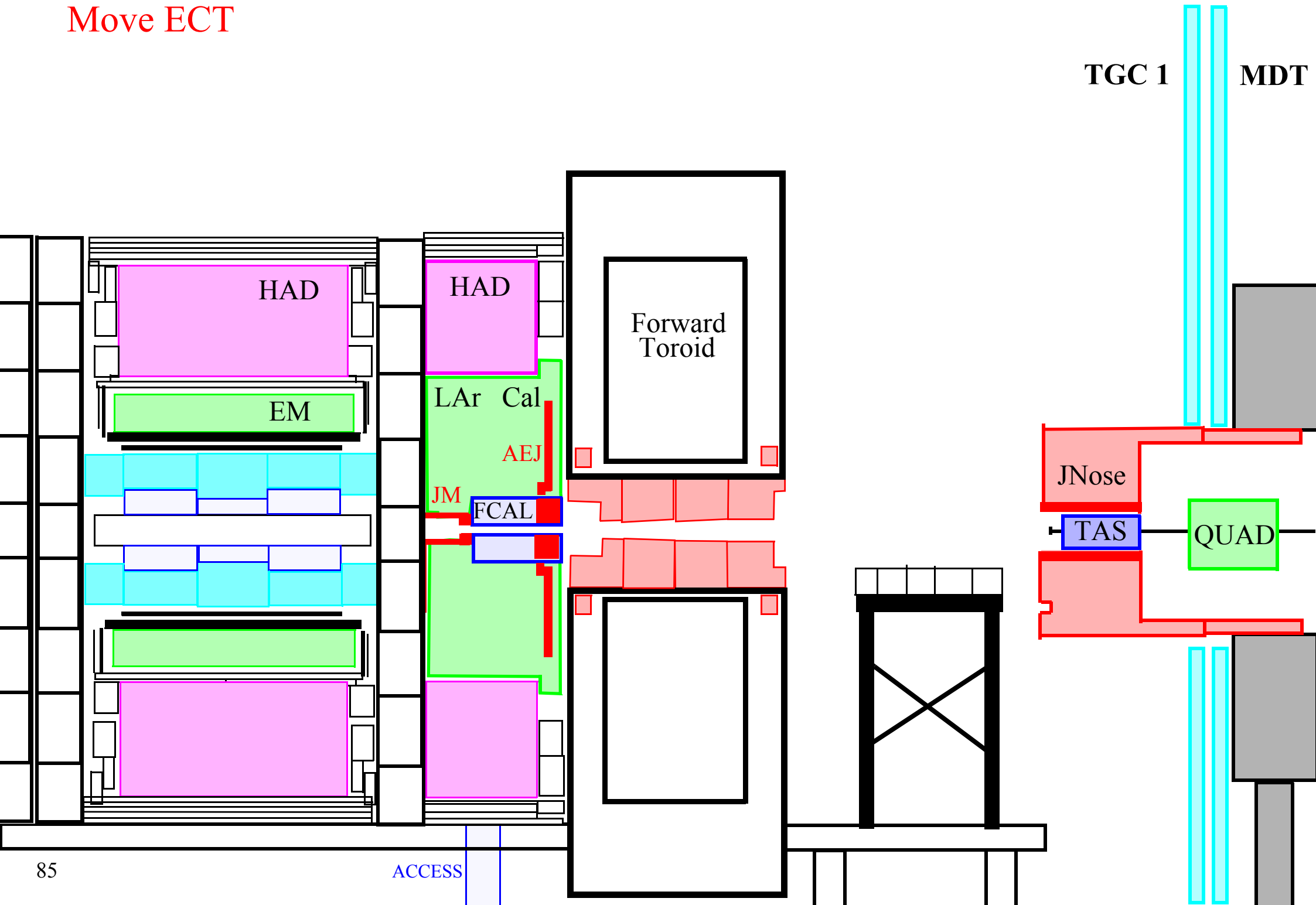
Remove scaffolding.



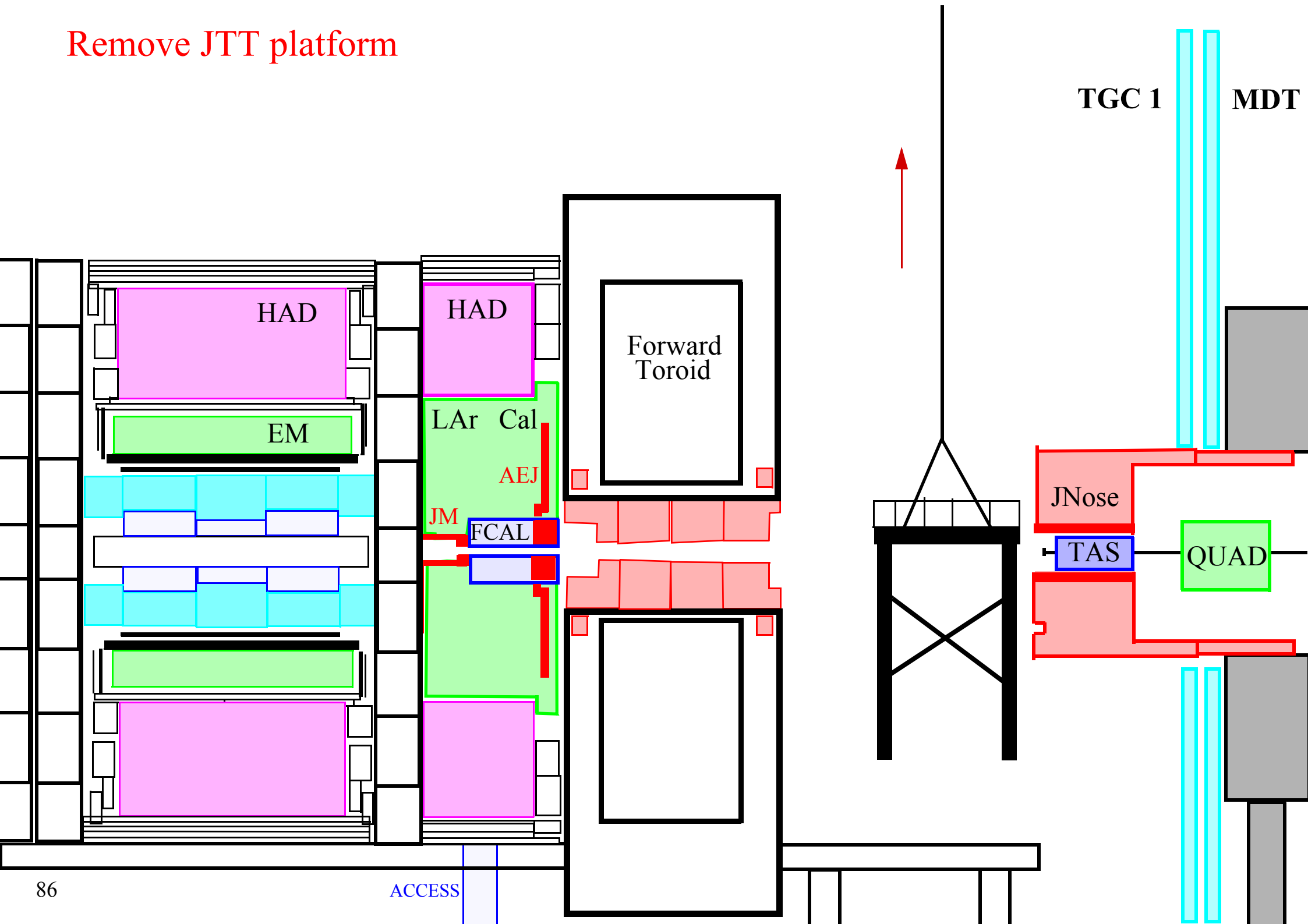


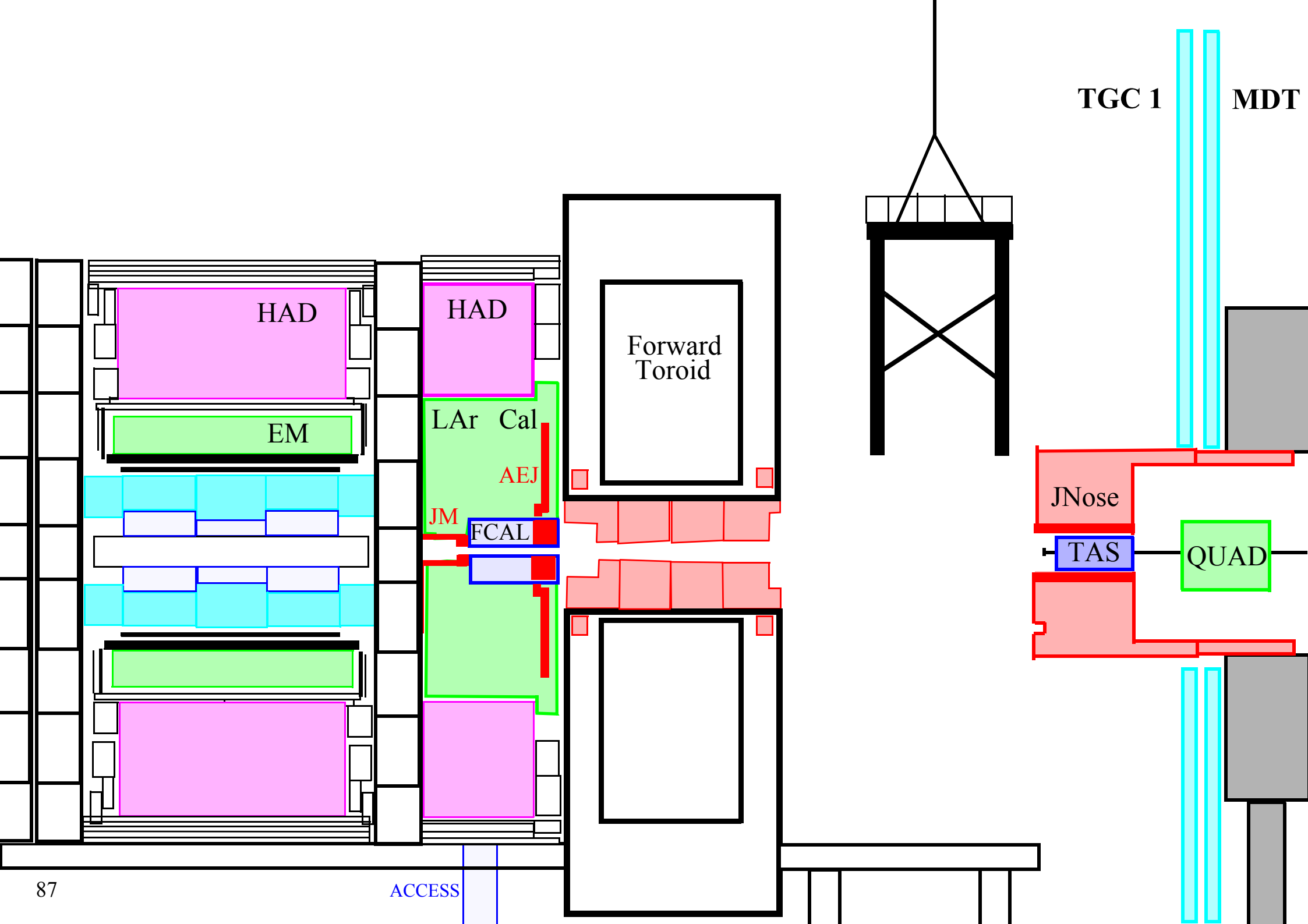


# Move ECT



Remove JTT platform





HAD

EM

HAD

HAD

LAr Cal

AEJ

JM

FCAL

Forward  
Toroid

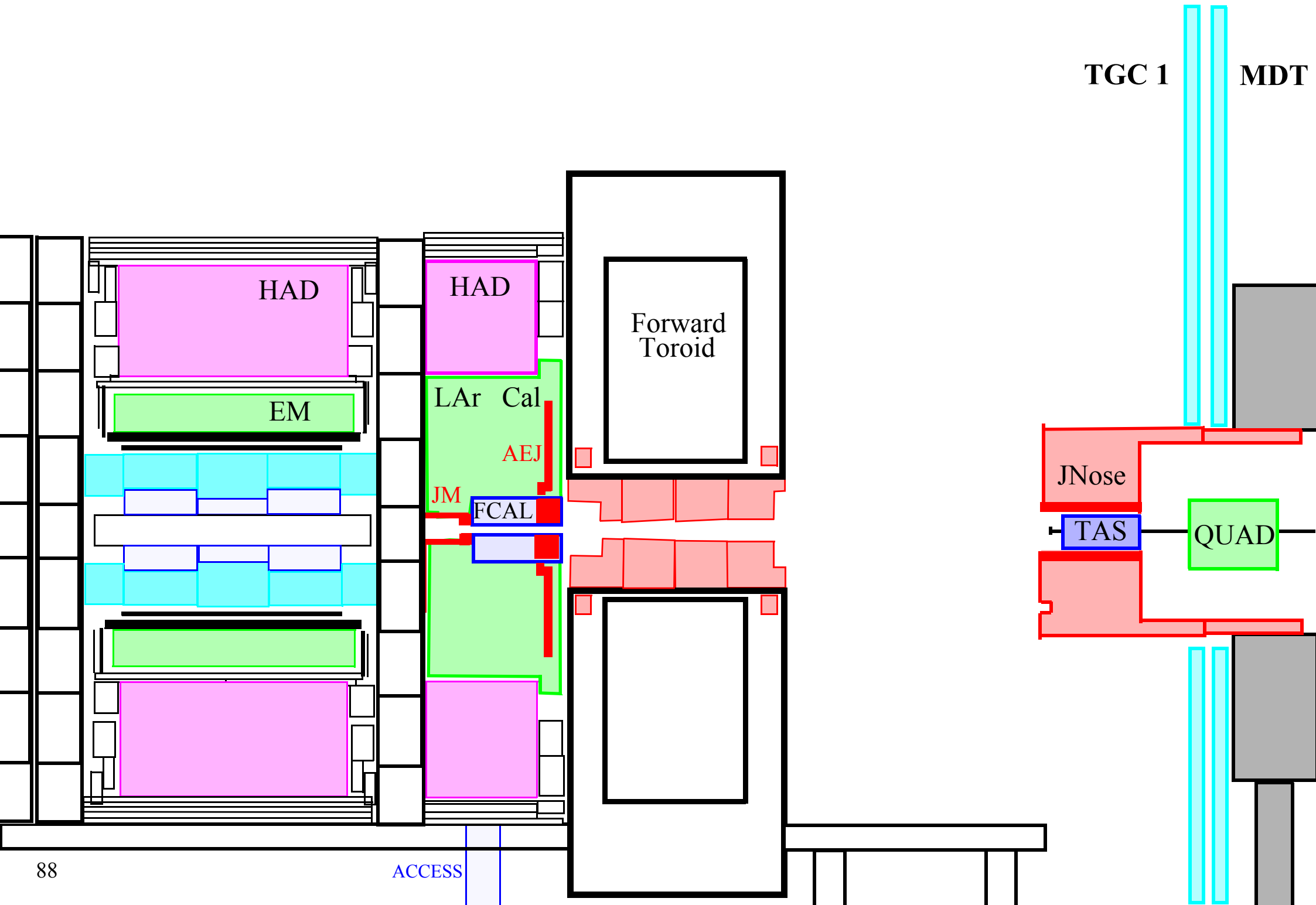
TGC 1

MDT

JNose

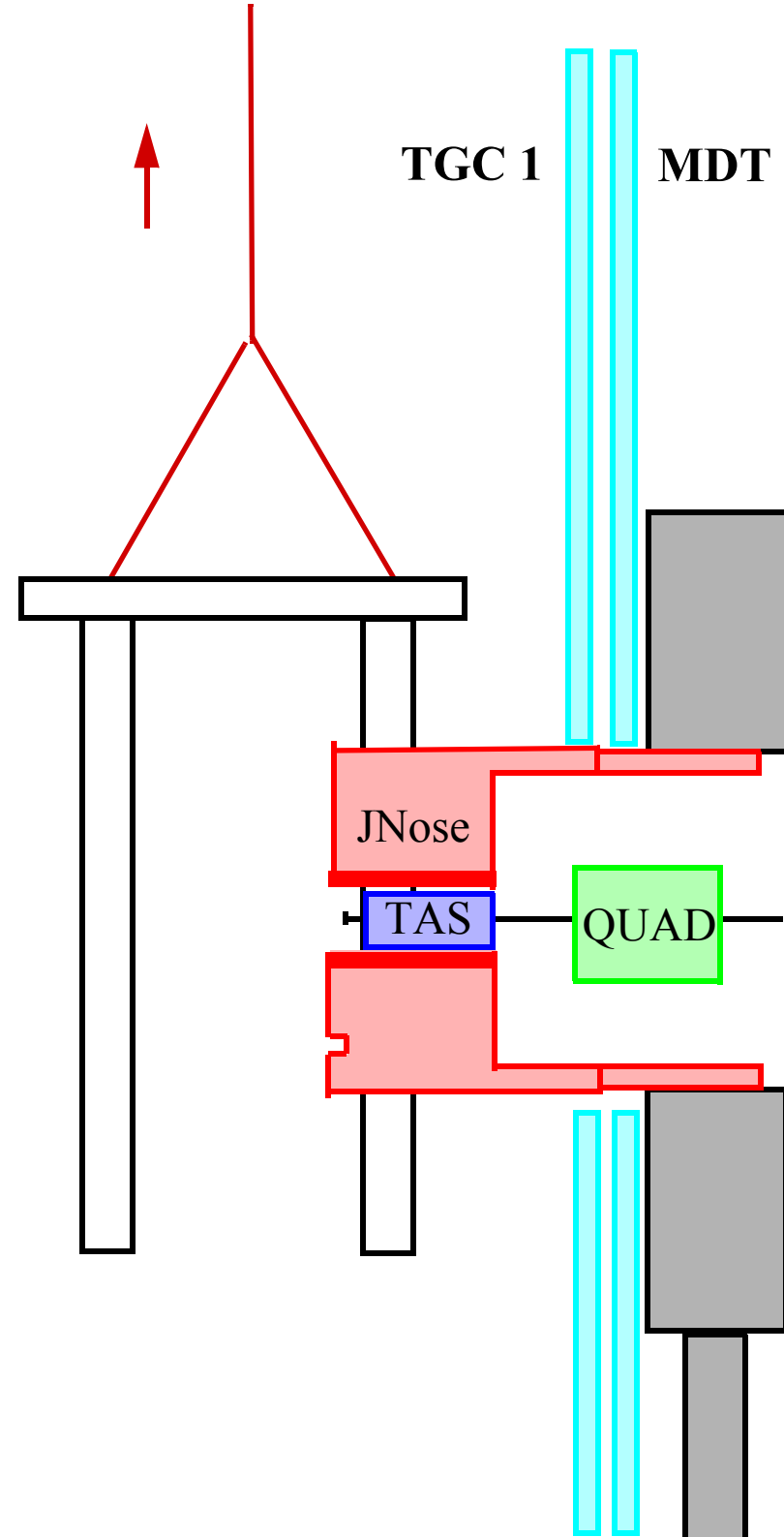
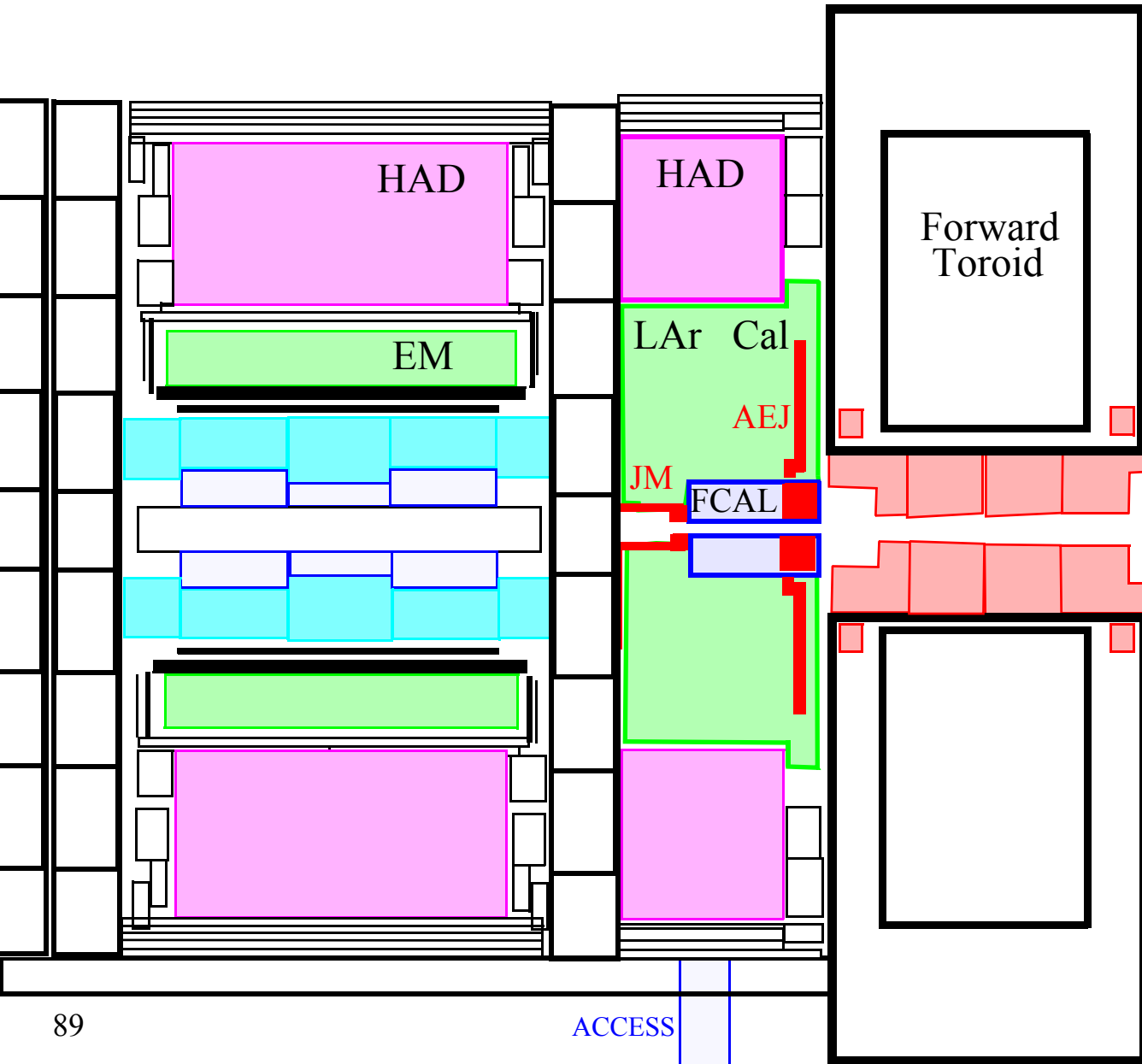
TAS

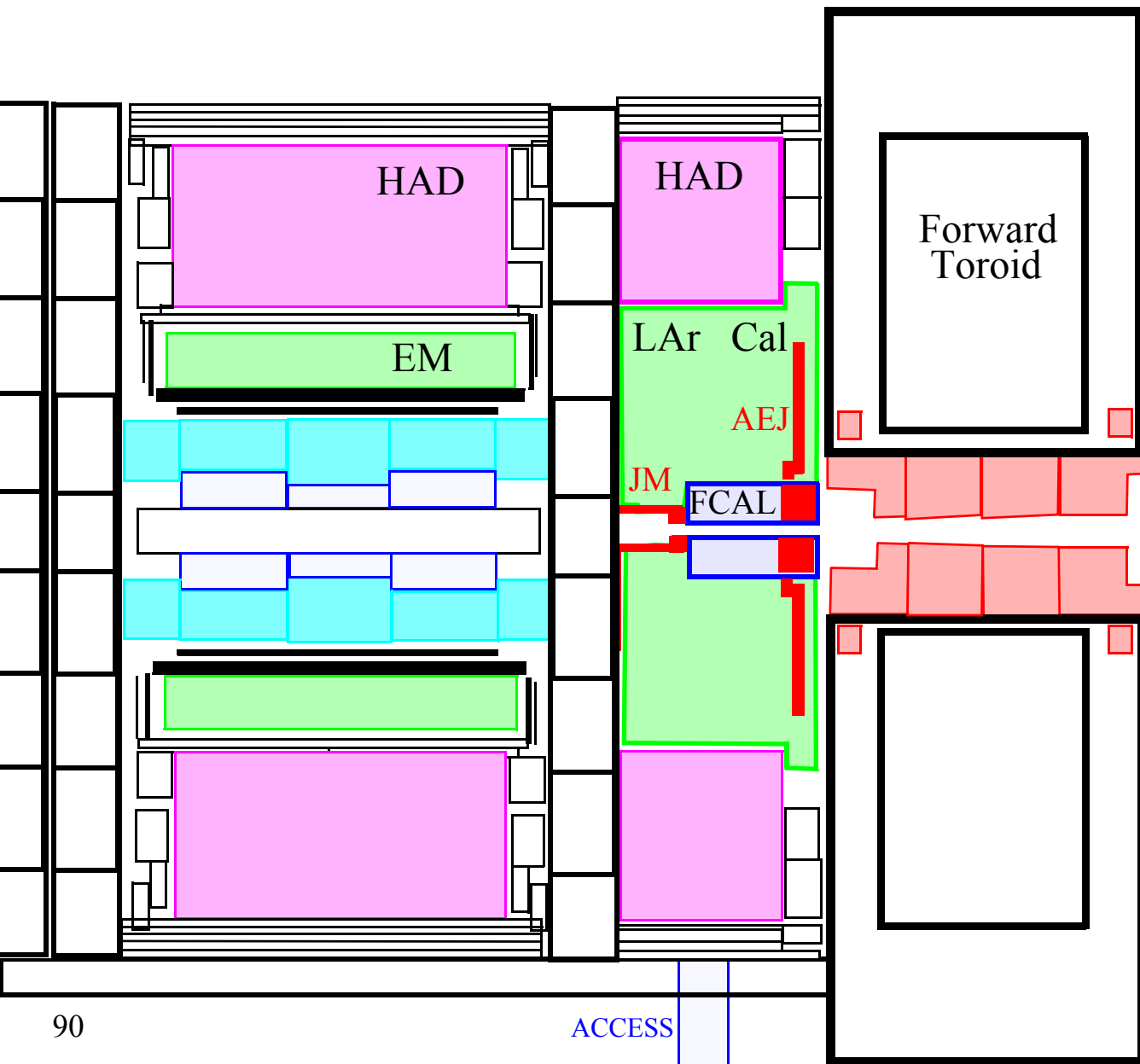
QUAD





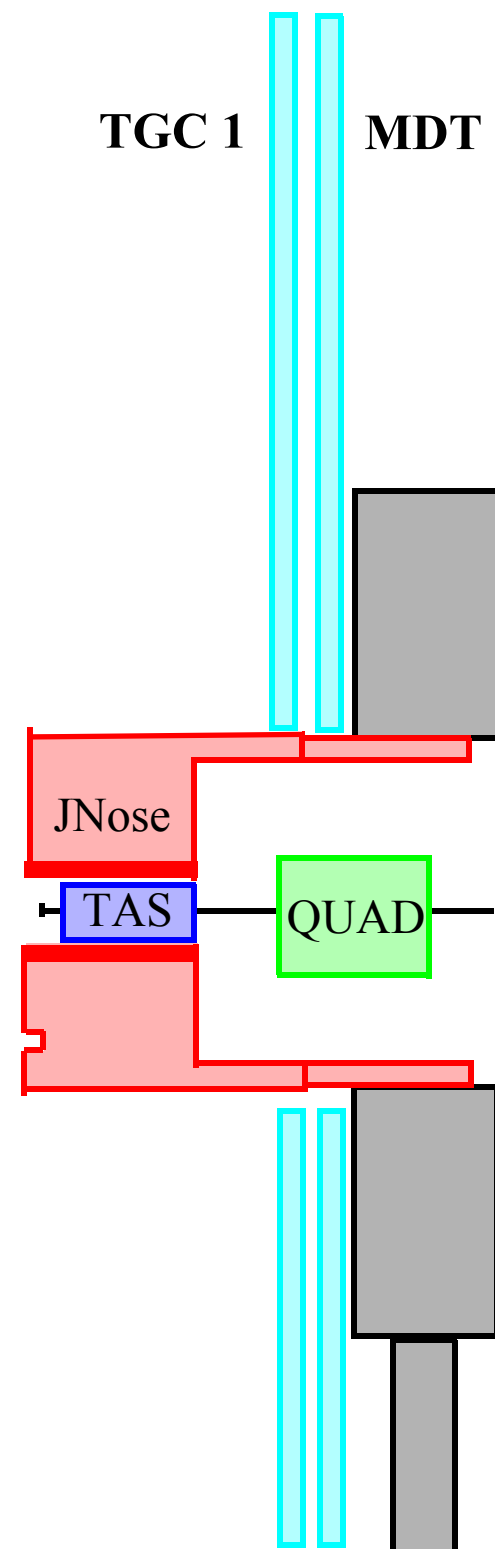
Remove HF truck





90

ACCESS



TGC 1

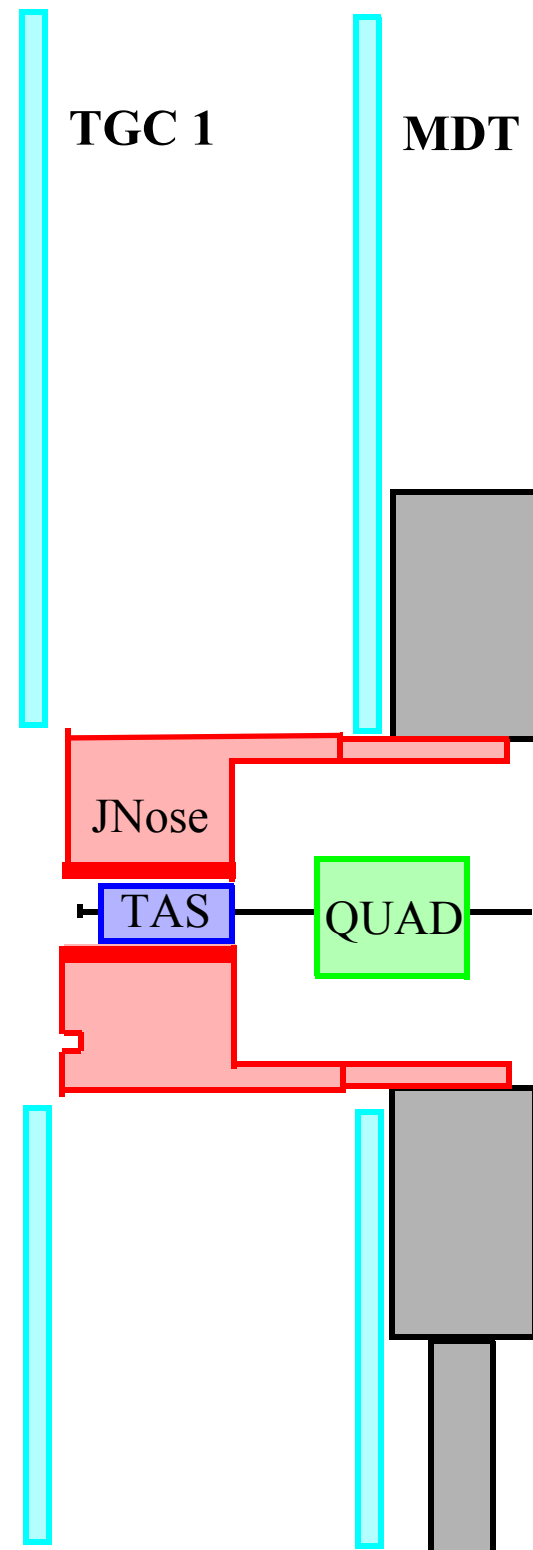
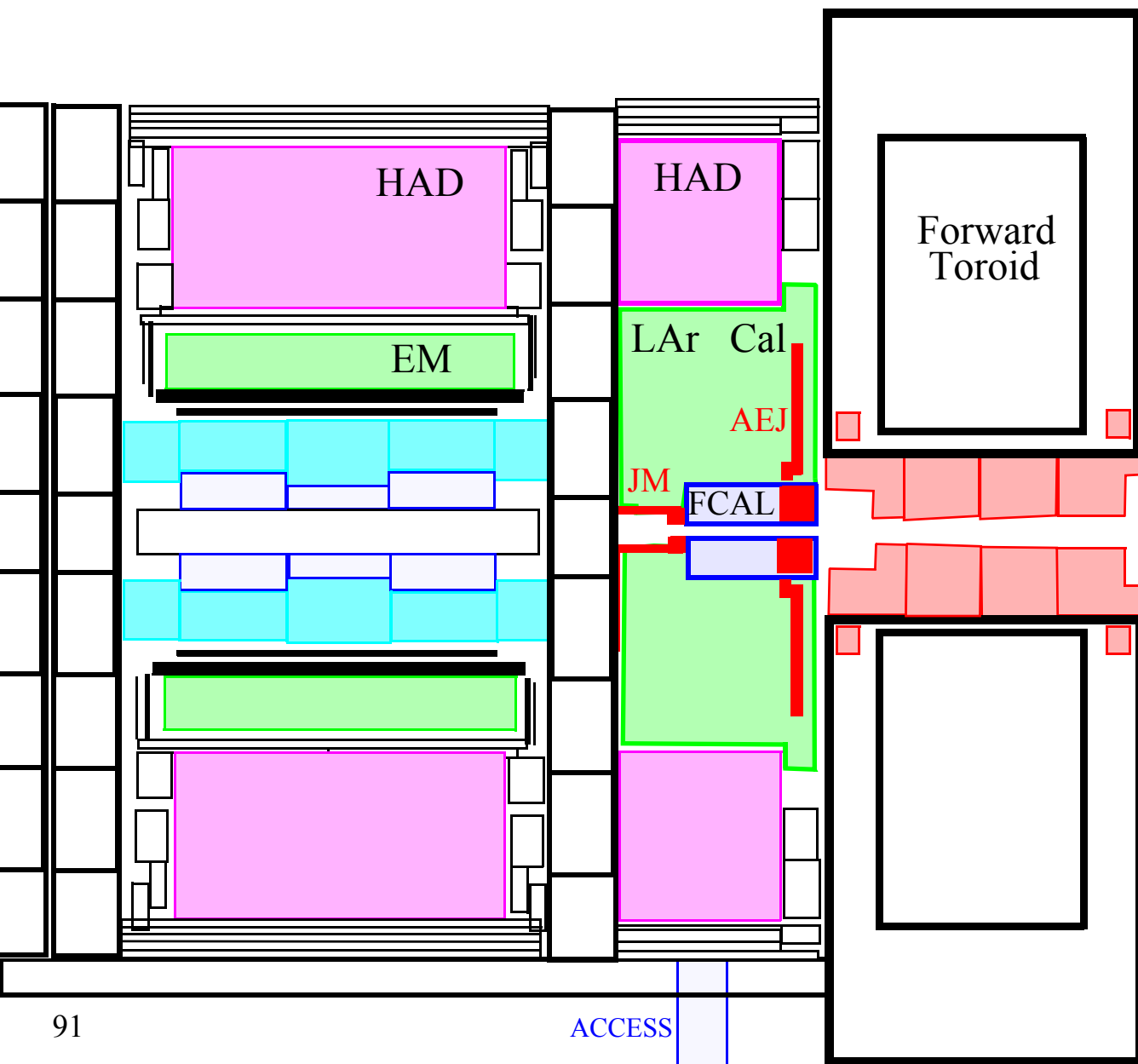
MDT

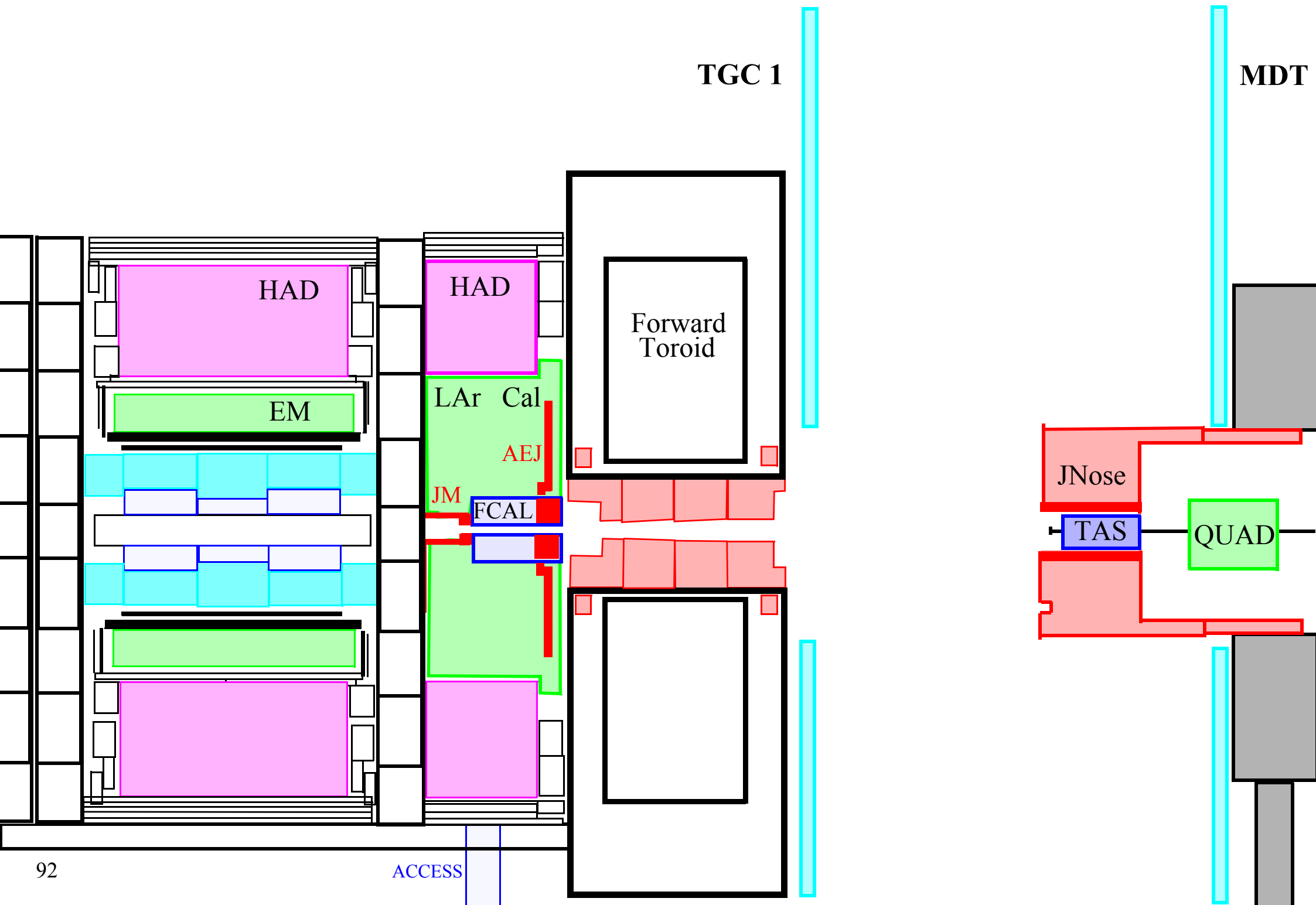
JNose

TAS

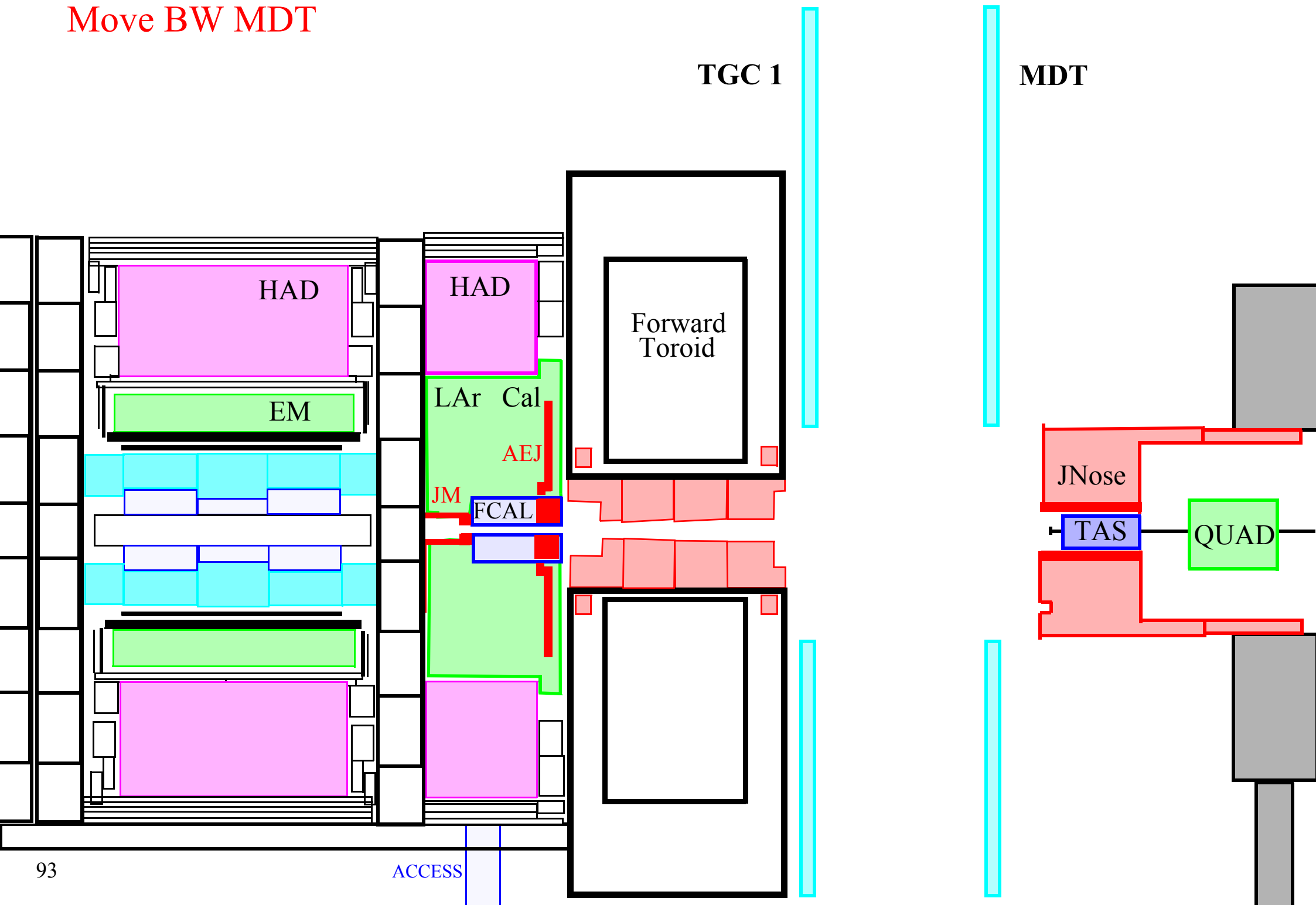
QUAD

# Move TGC1





# Move BW MDT



TGC 1

MDT

HAD

EM

HAD

LAr Cal

AEJ

JM

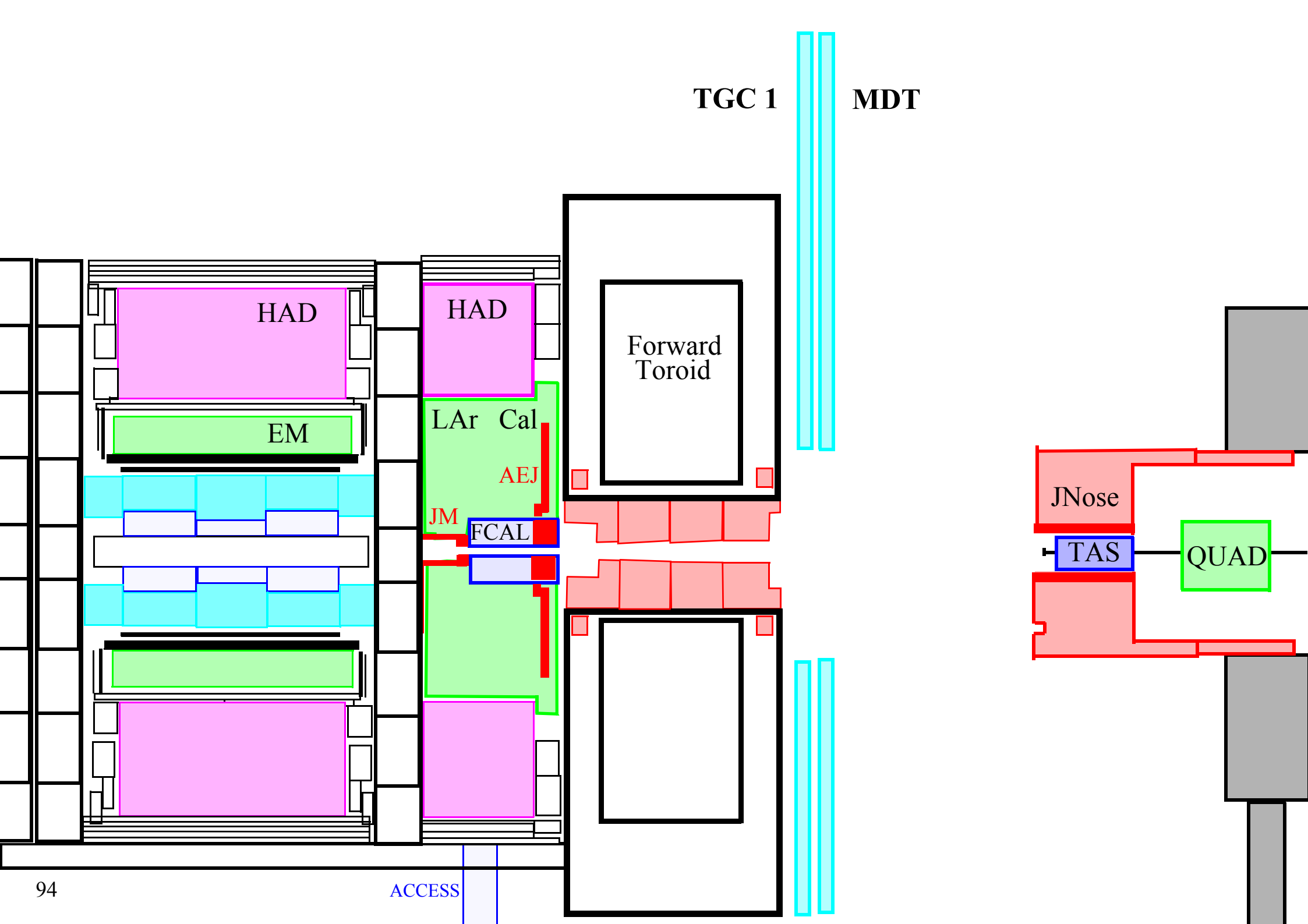
FCAL

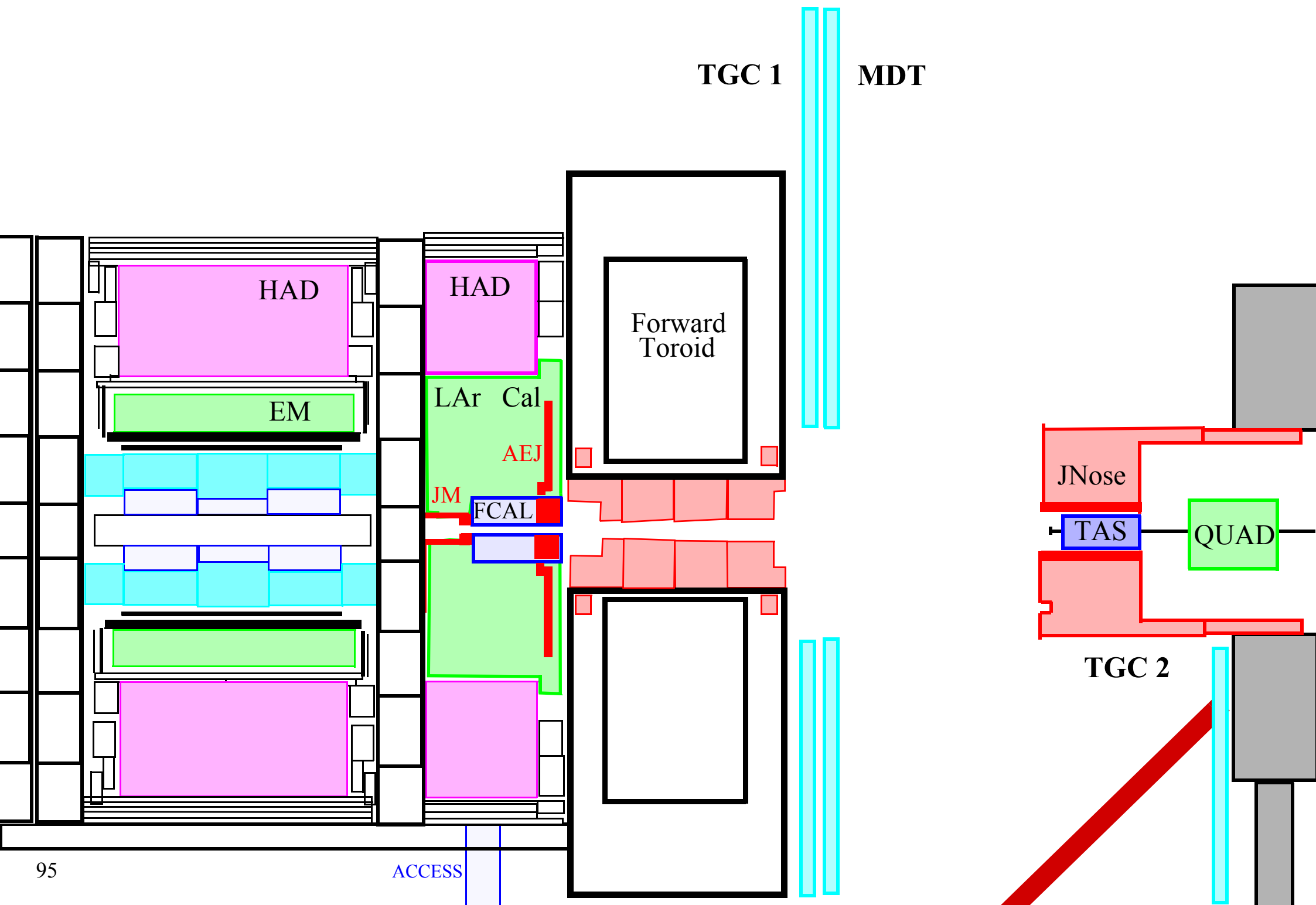
Forward  
Toroid

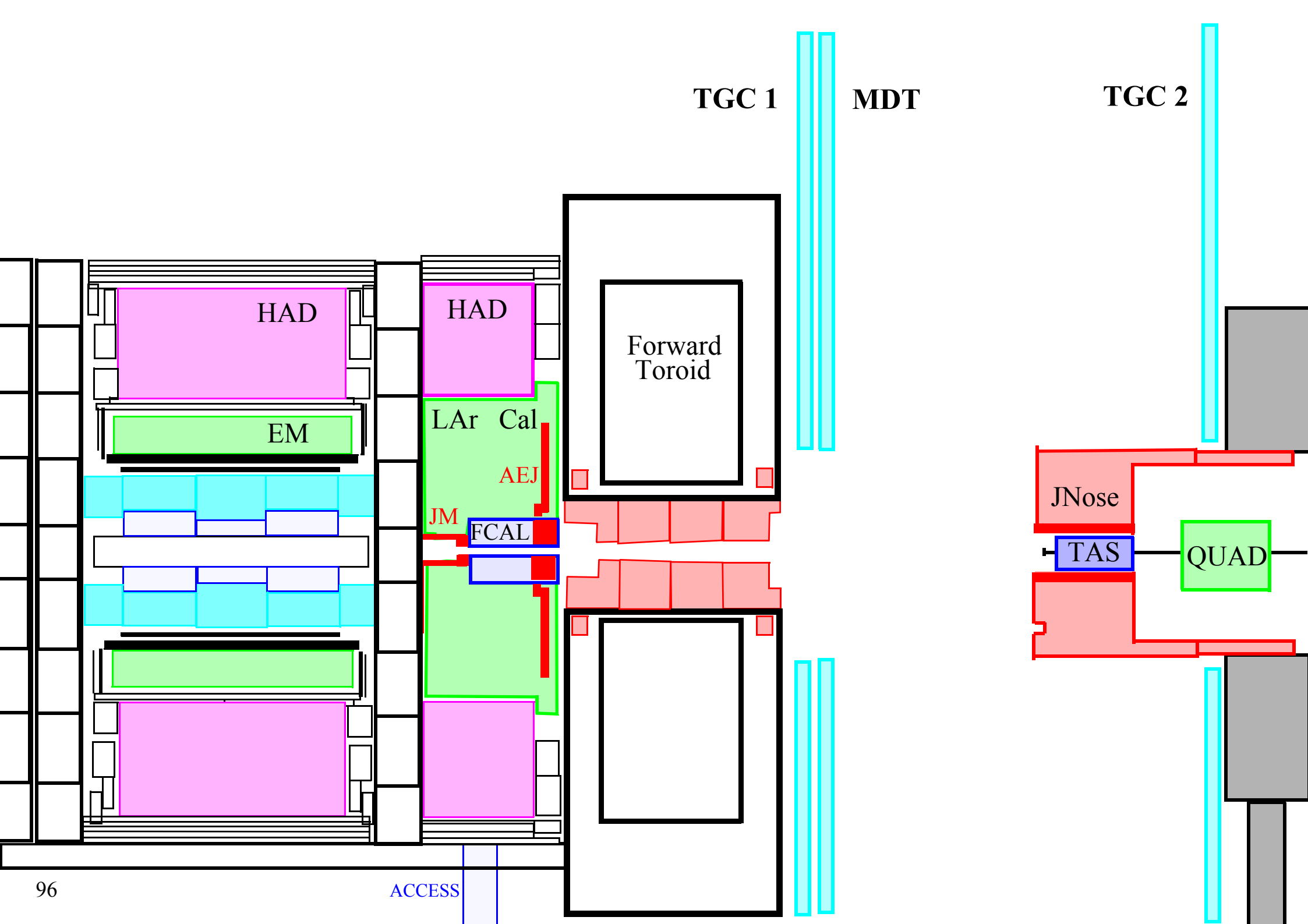
JNose

TAS

QUAD

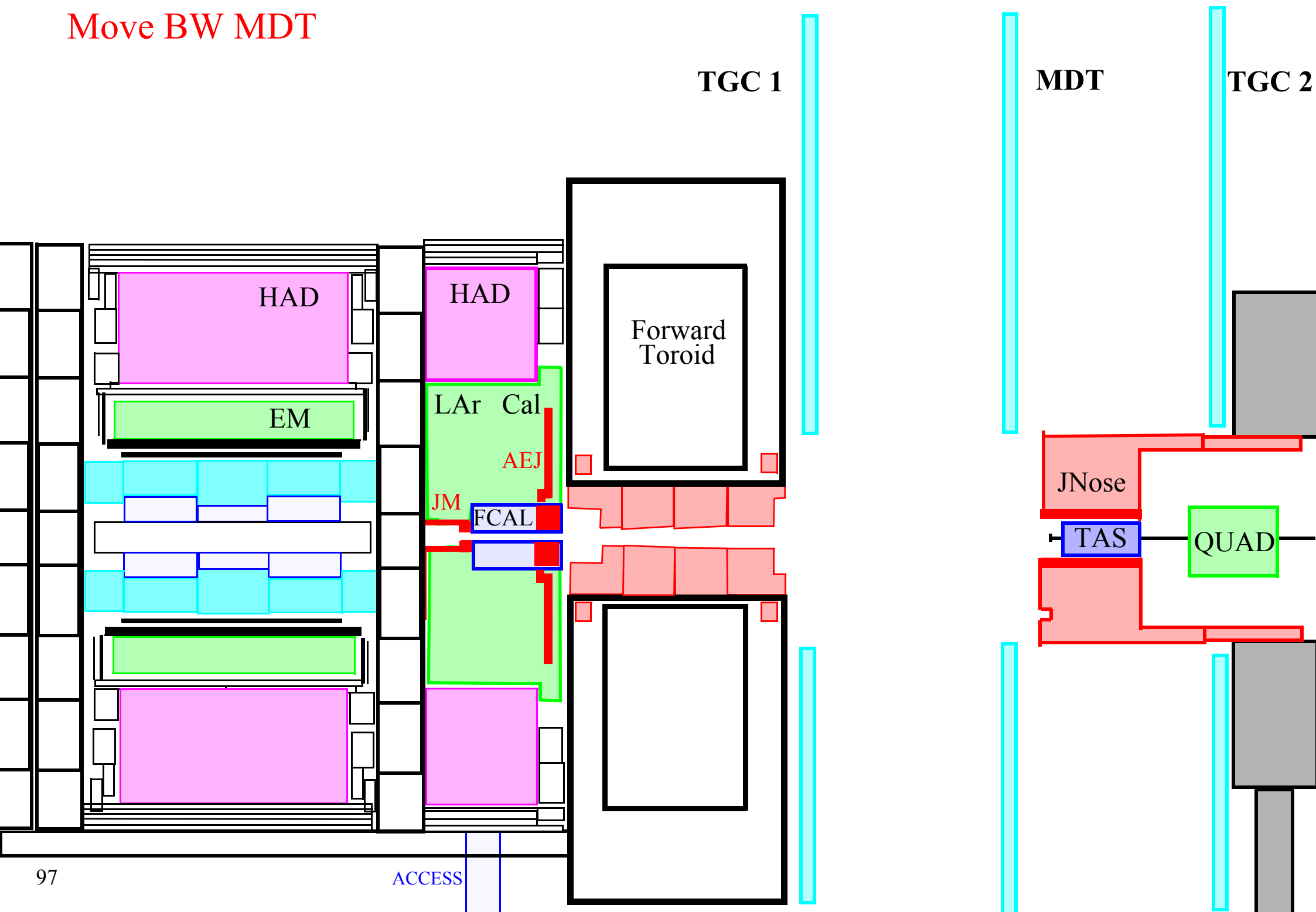




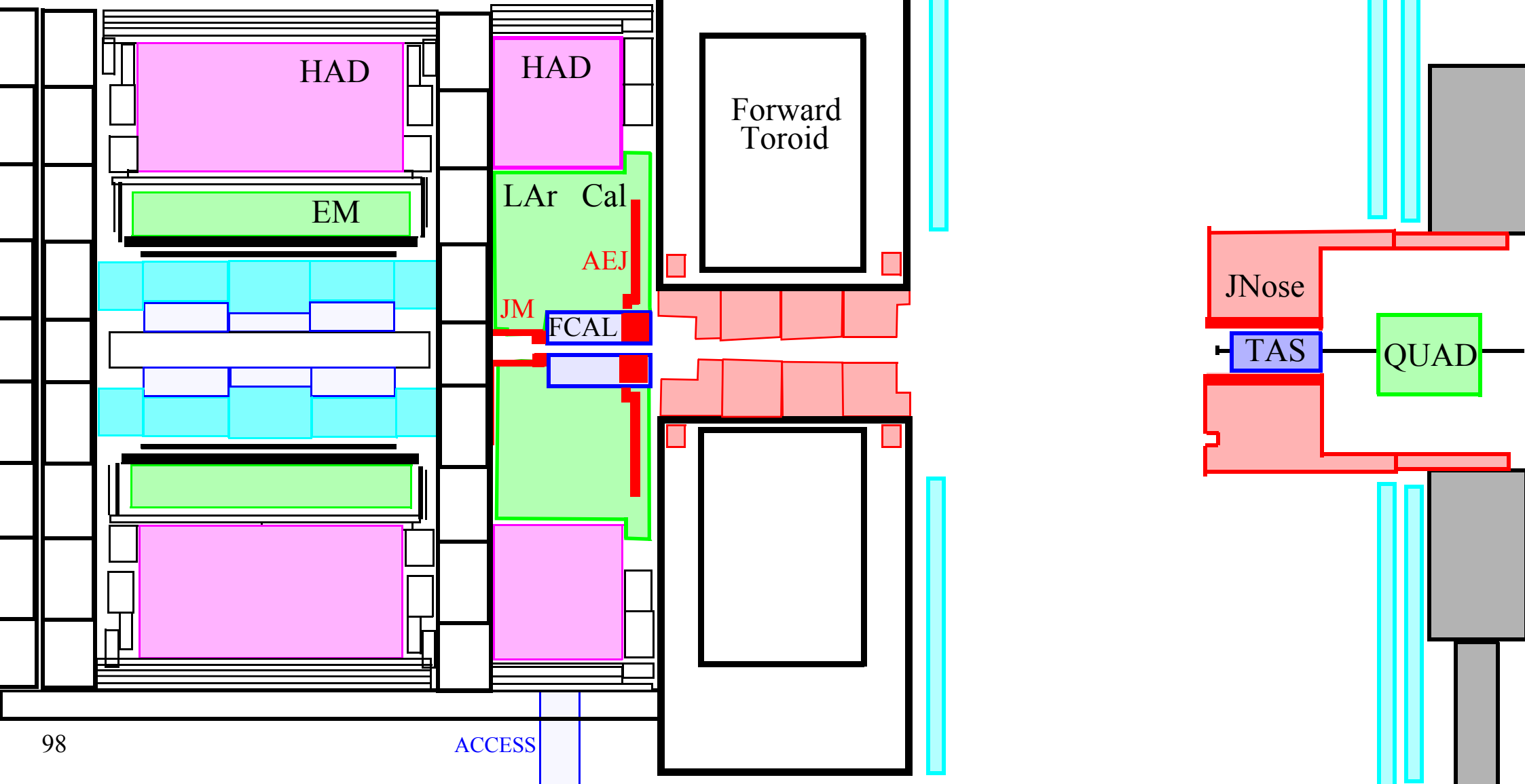




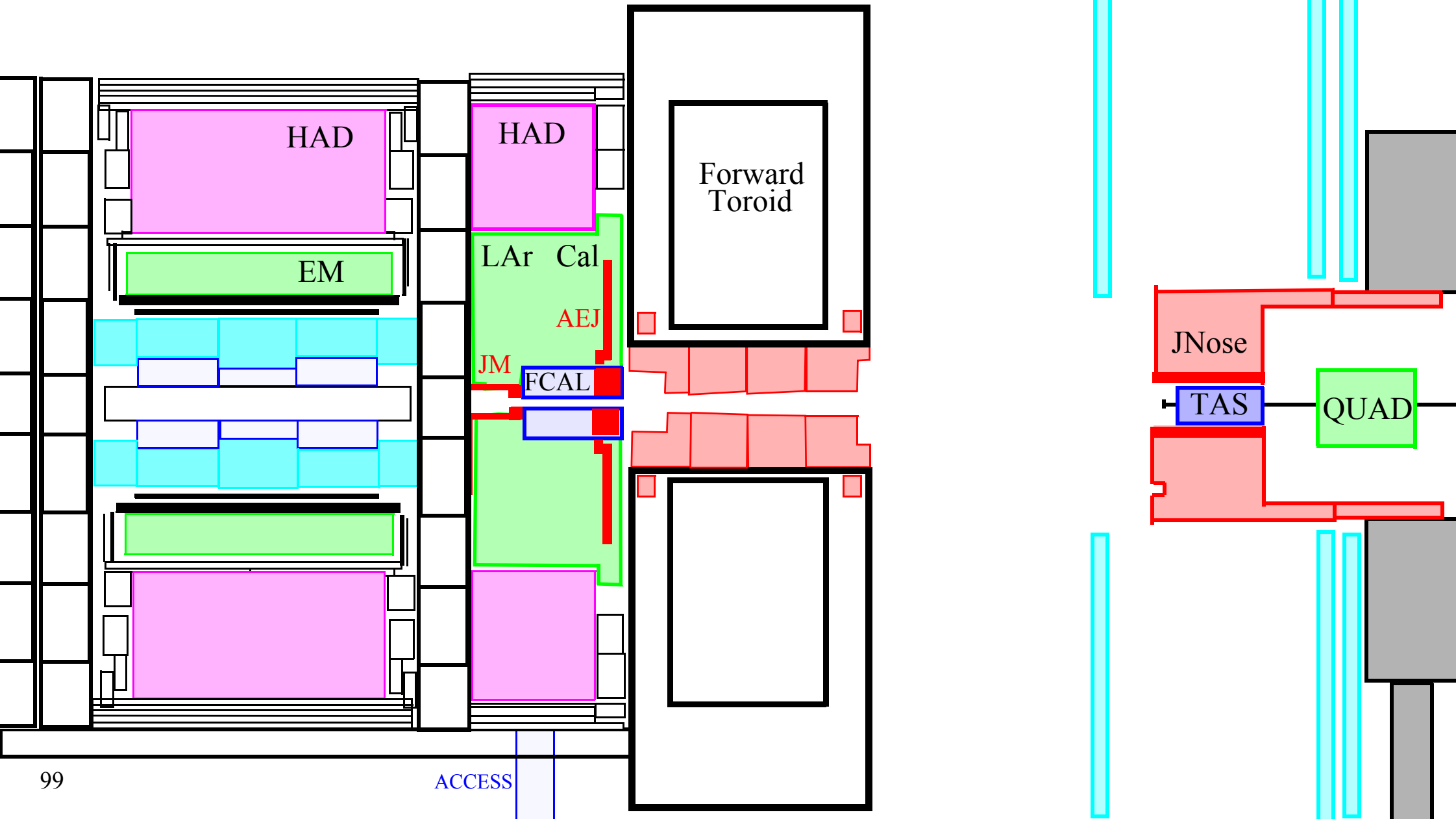
# Move BW MDT

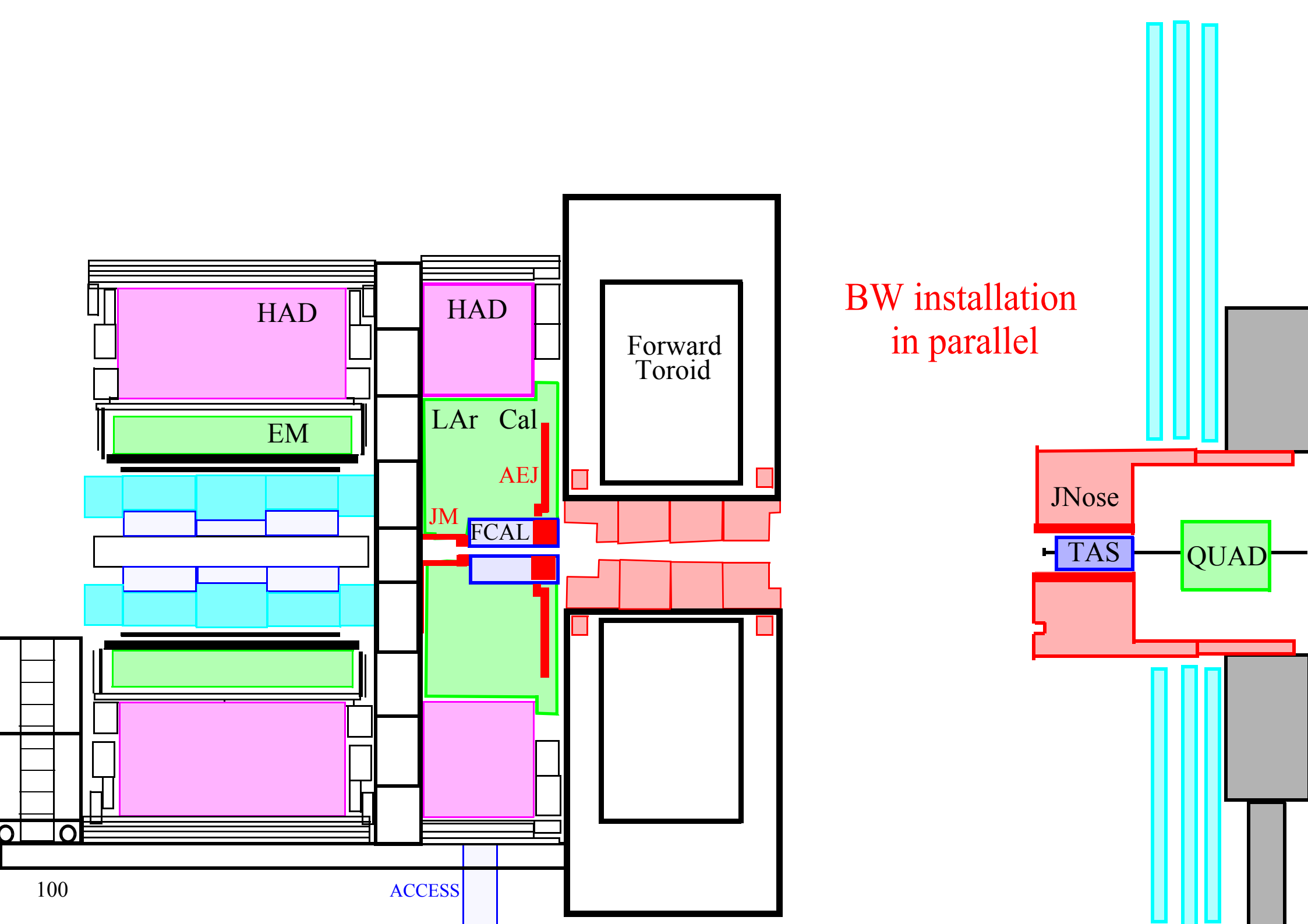


# TGC 1



# Move TGC1



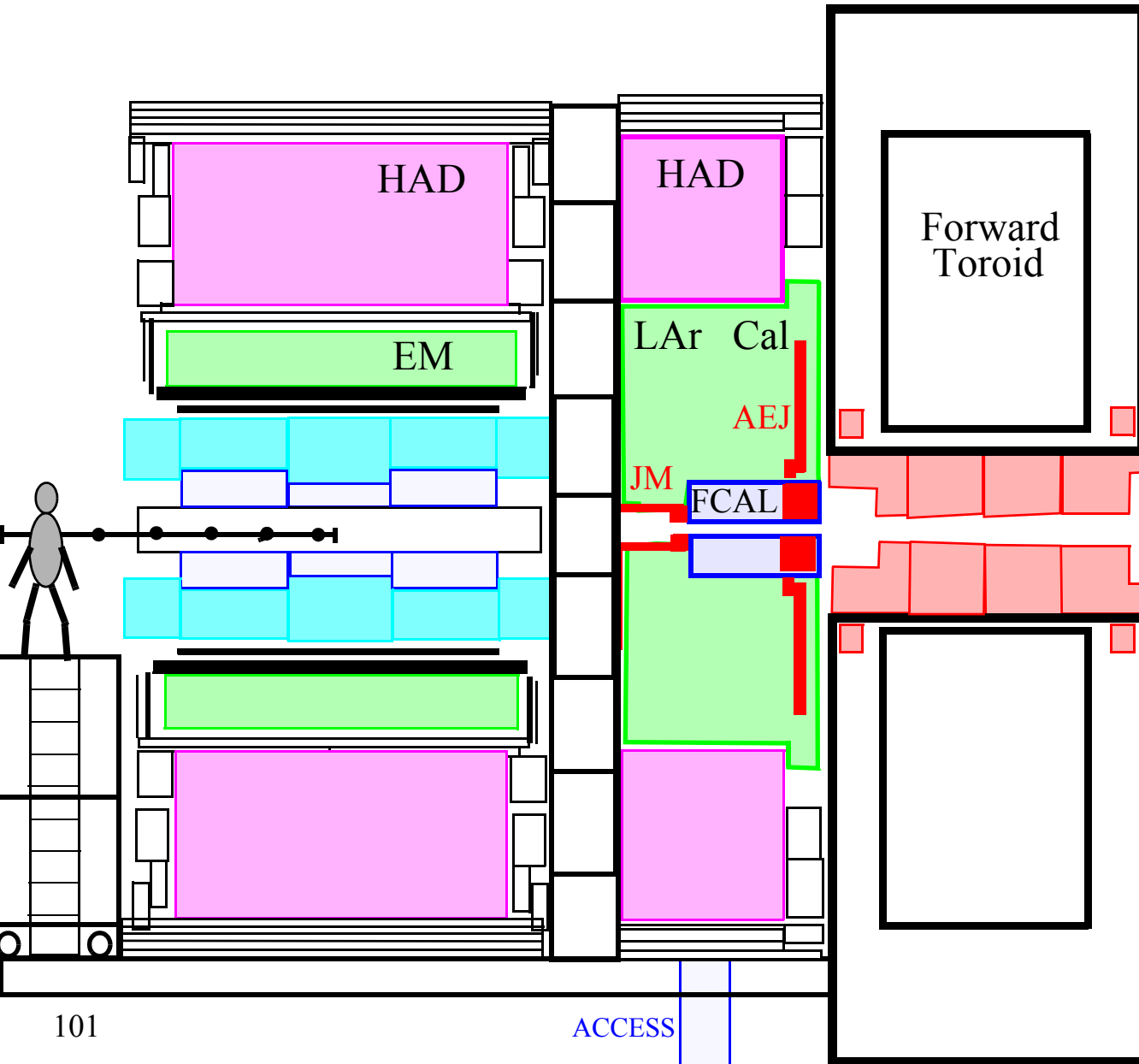


BW installation  
in parallel

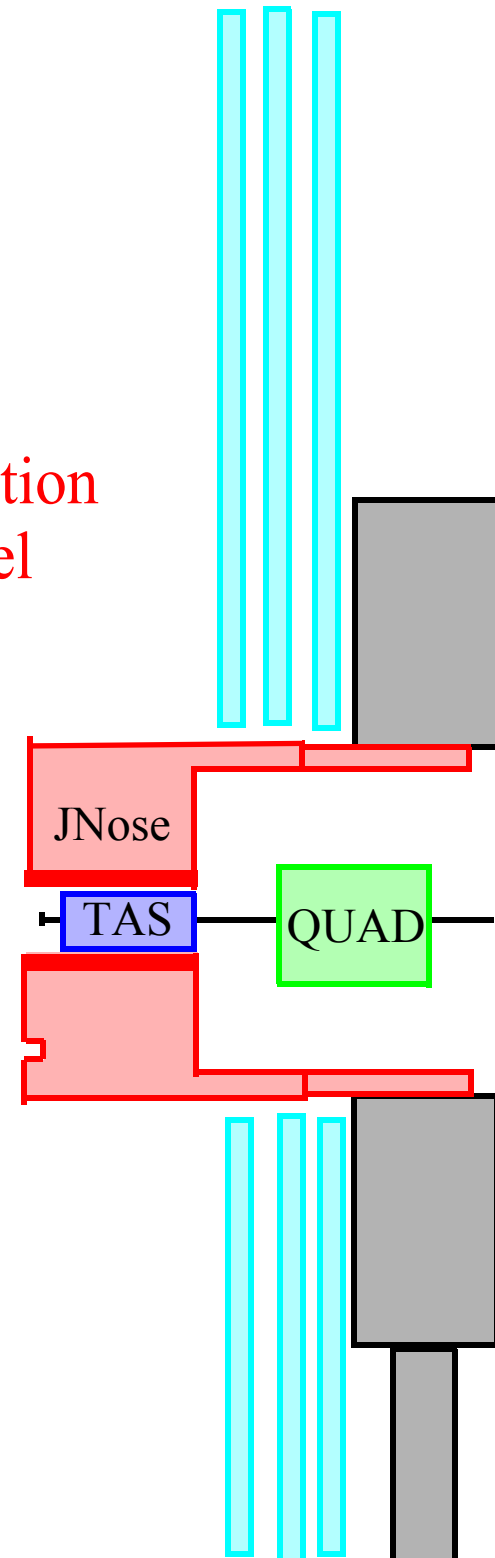
100

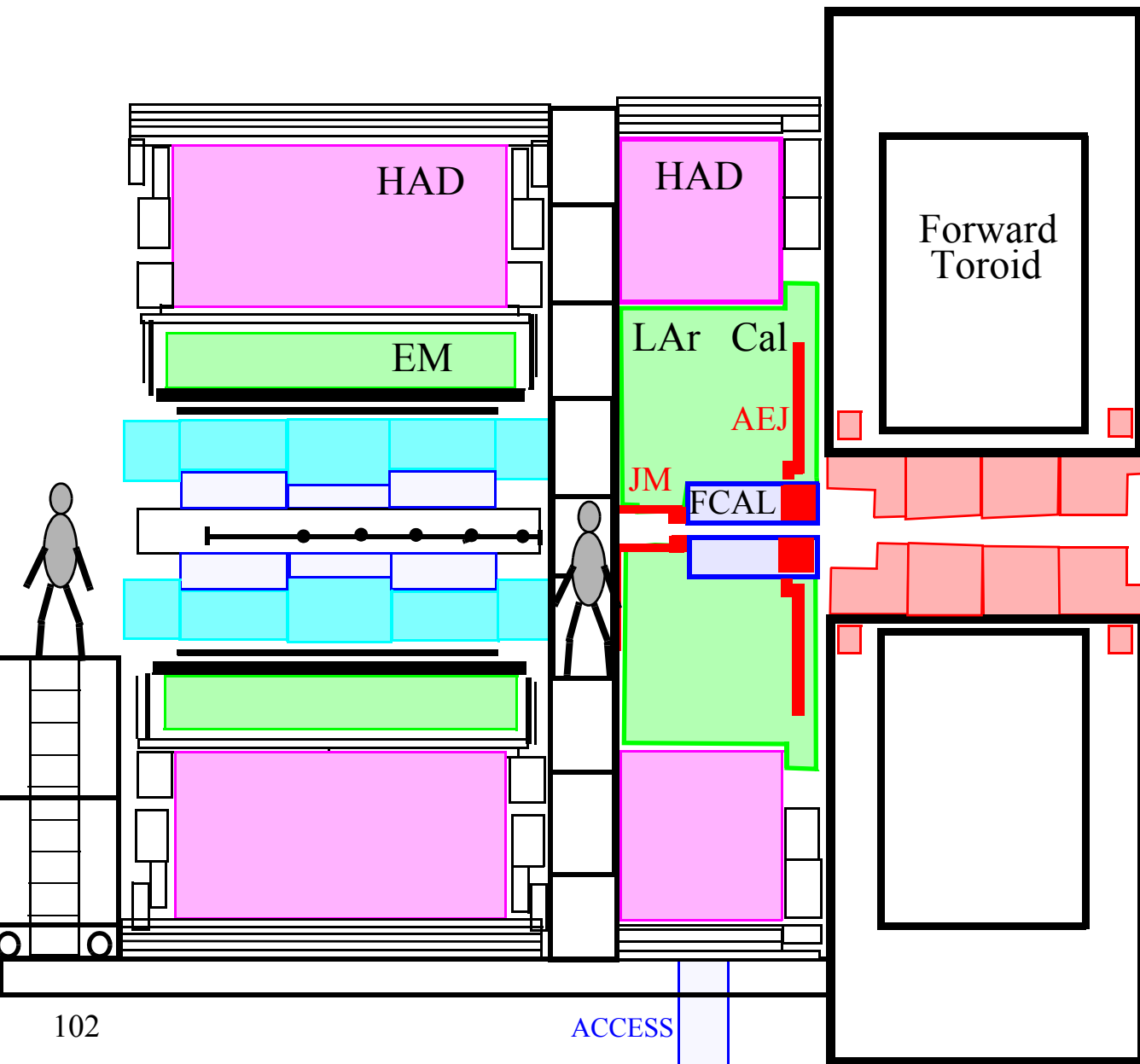
ACCESS

# Install VA beampipe

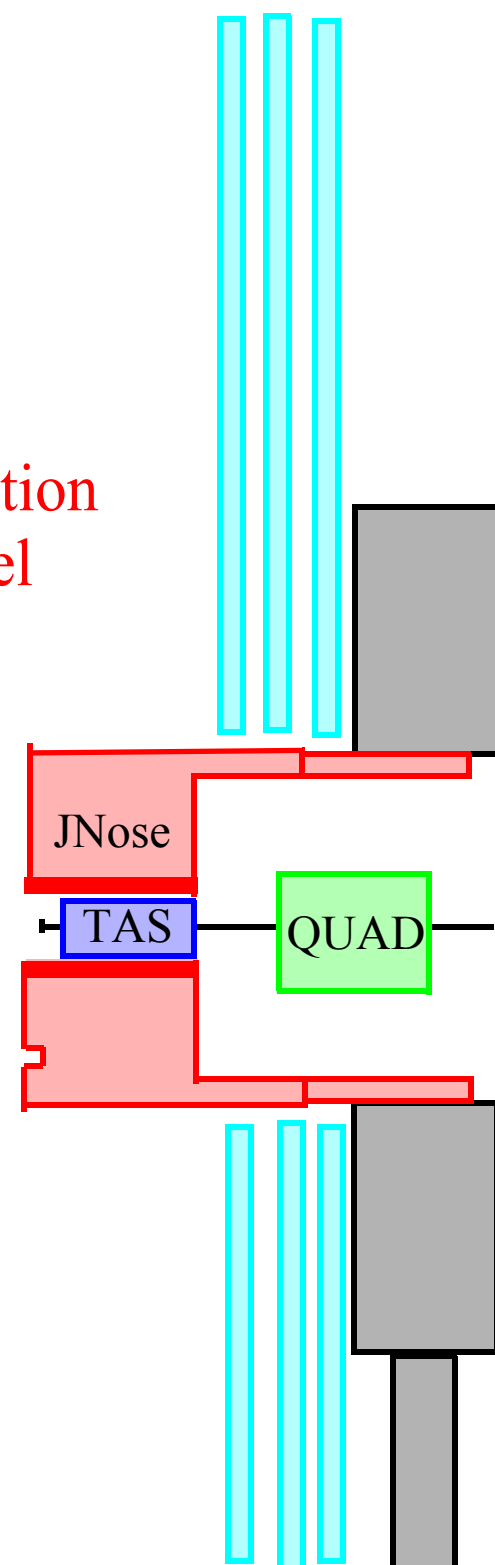


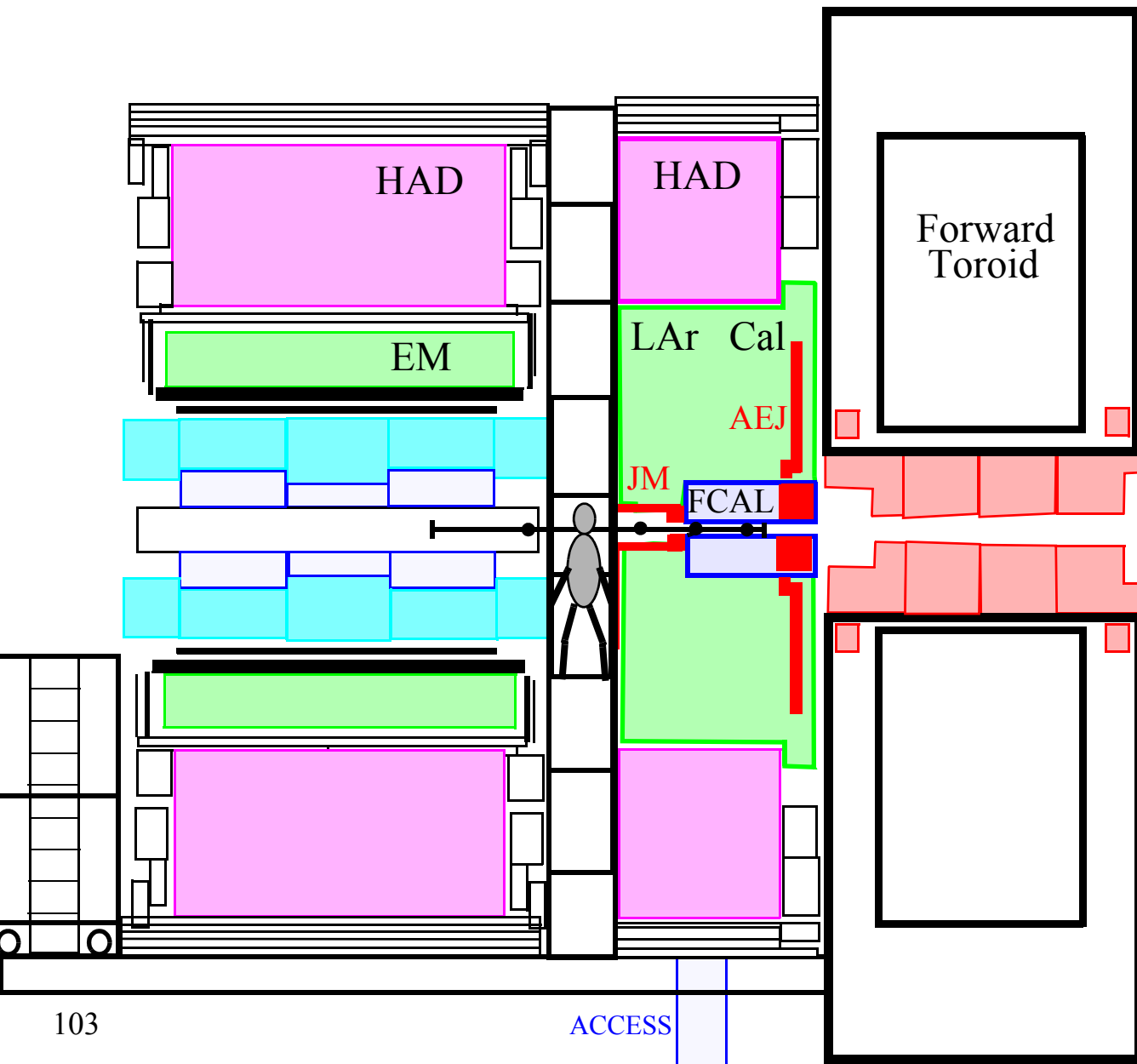
BW installation  
in parallel



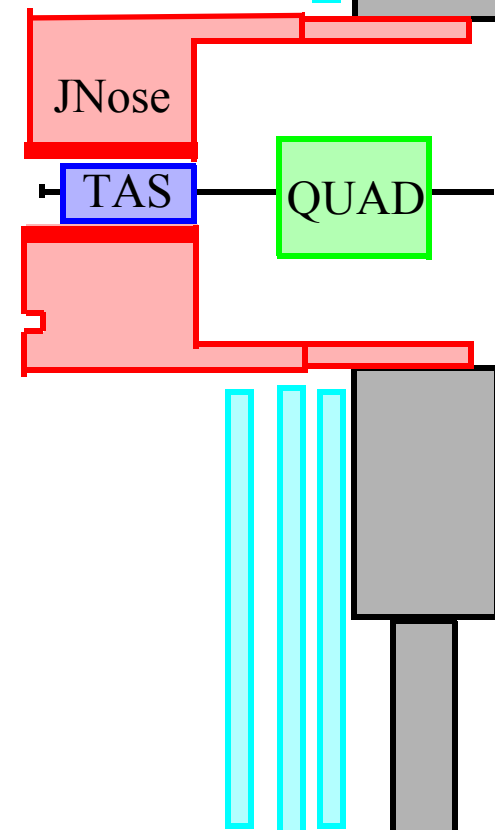


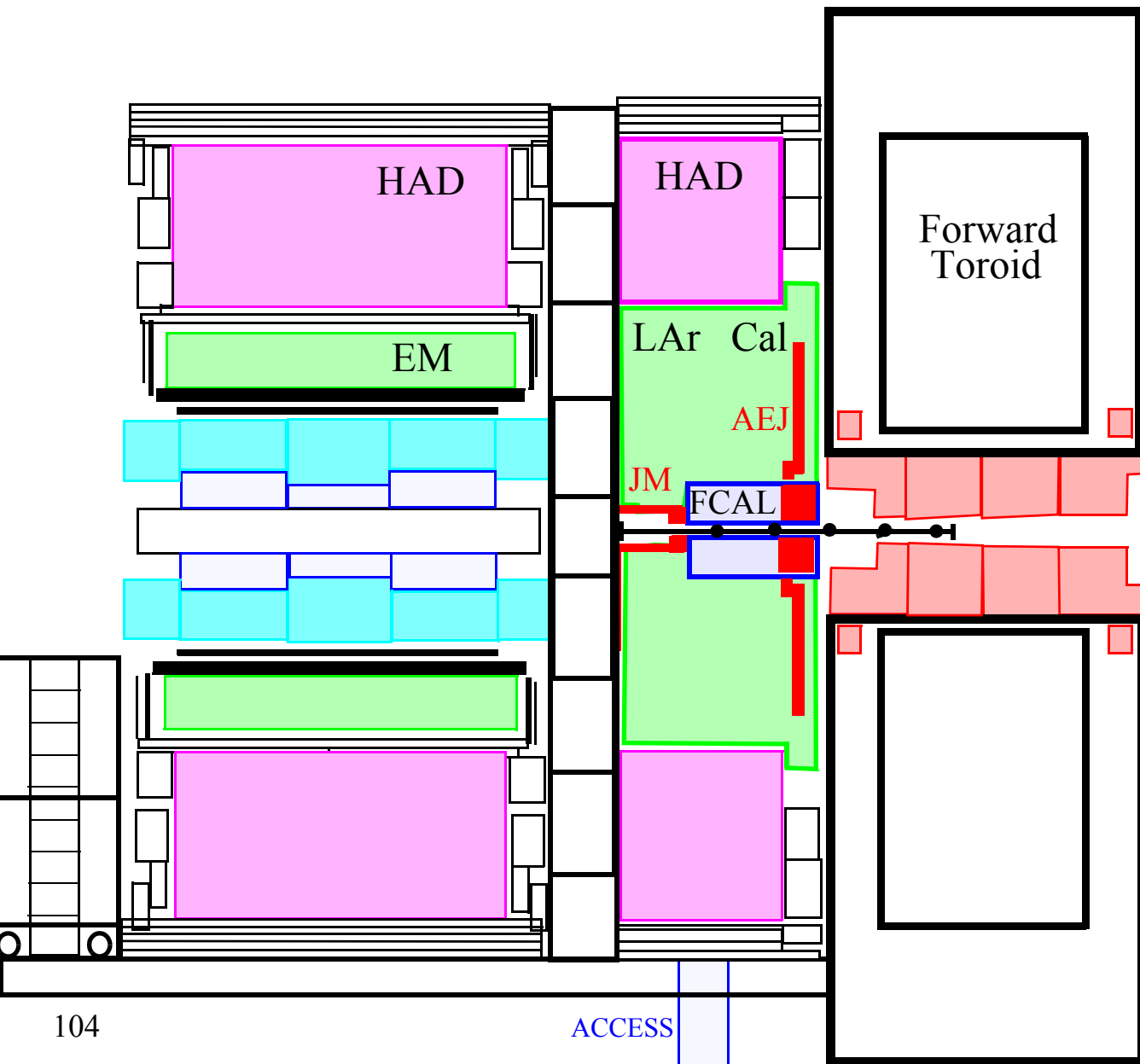
BW installation  
in parallel



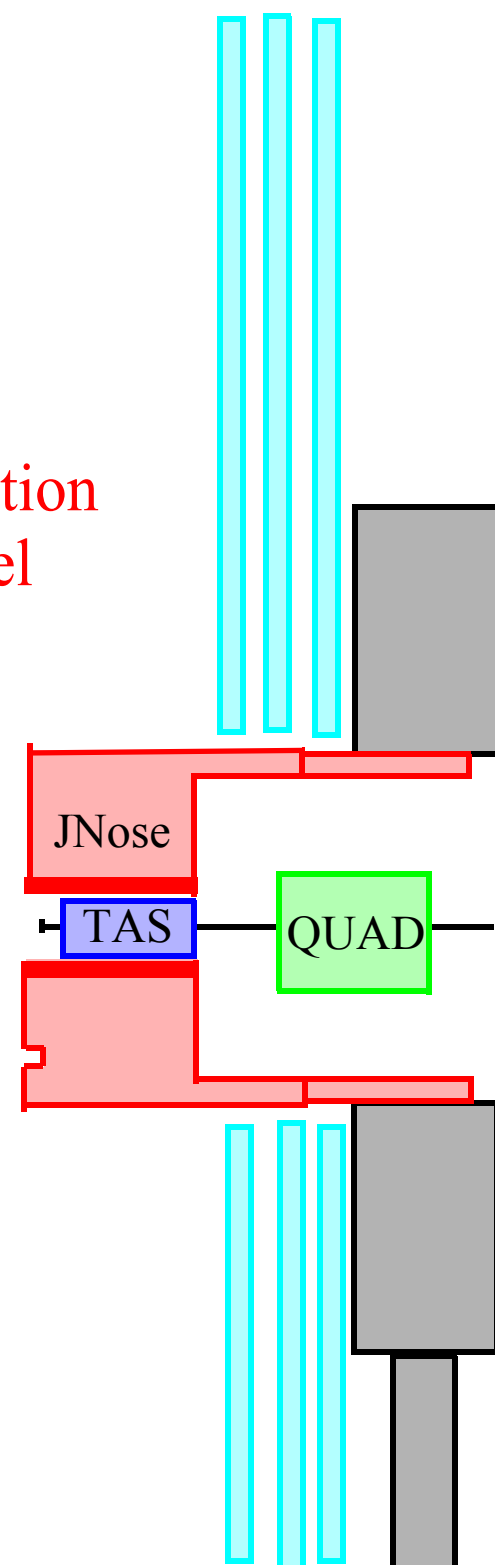


BW installation  
in parallel





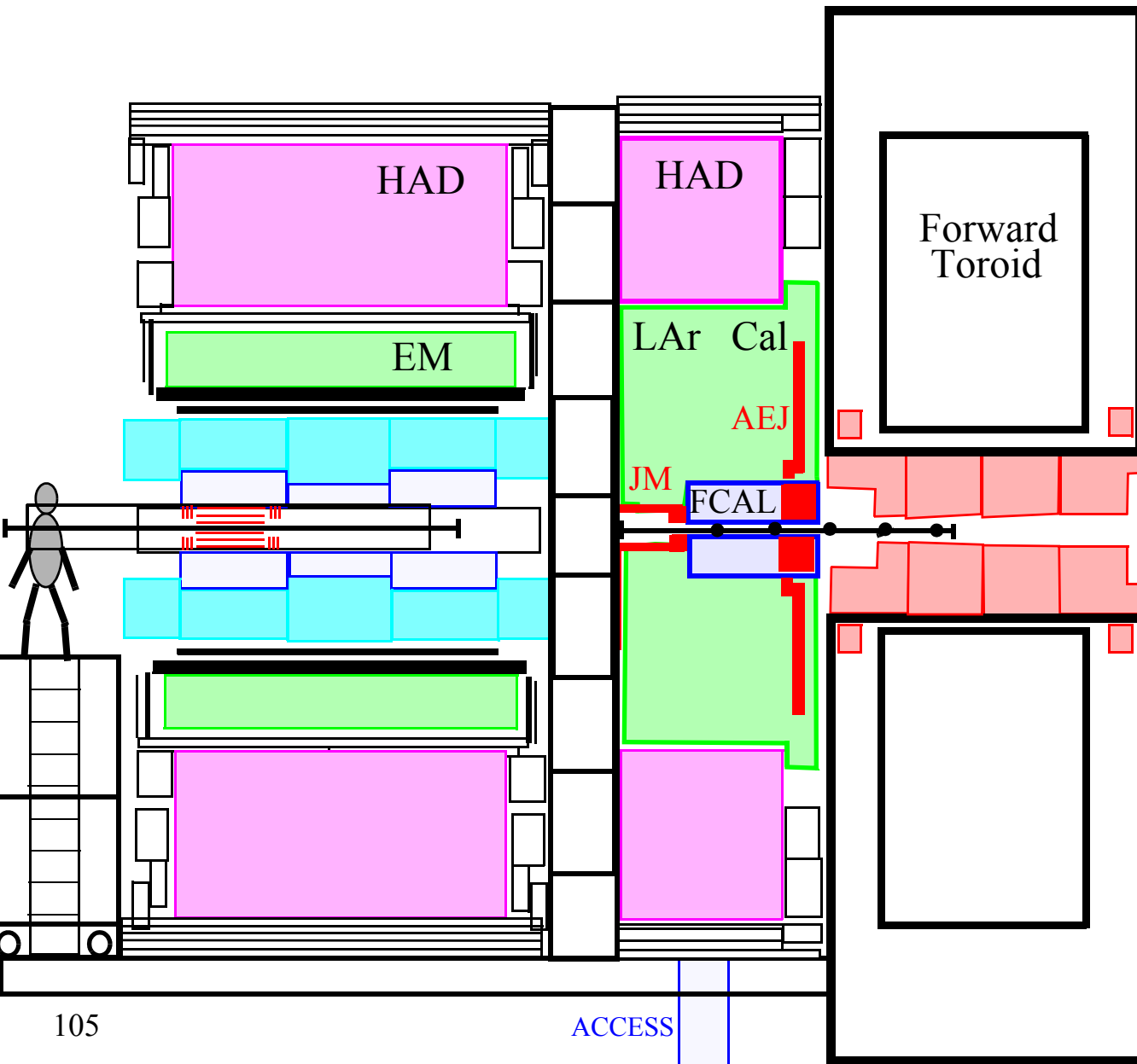
BW installation  
in parallel



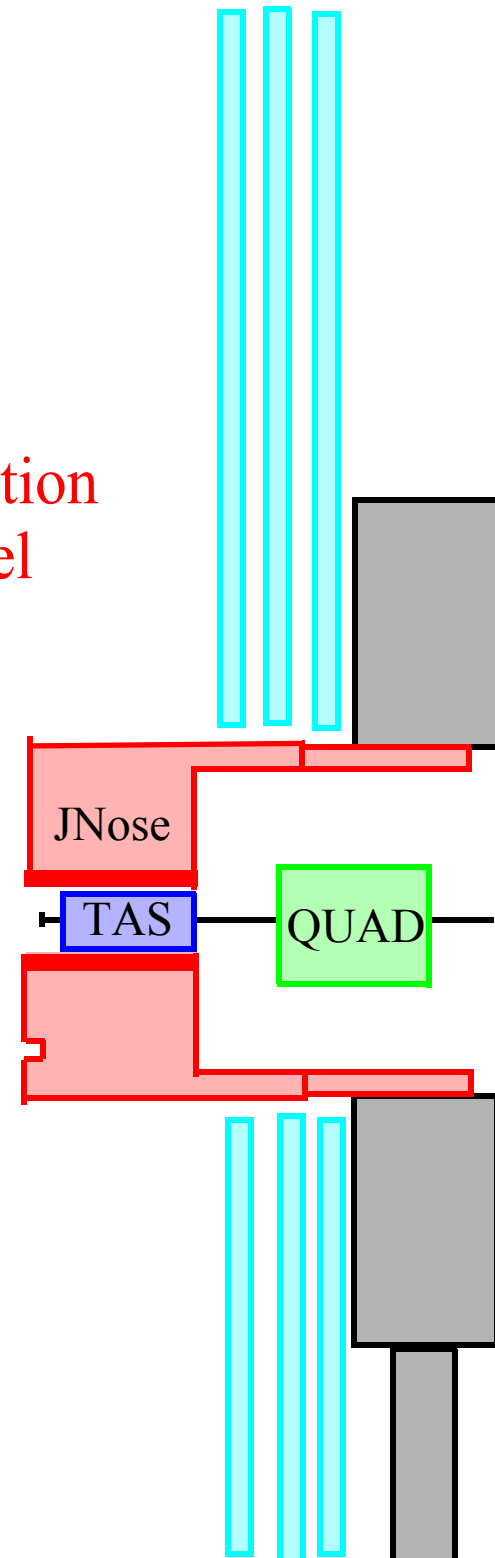


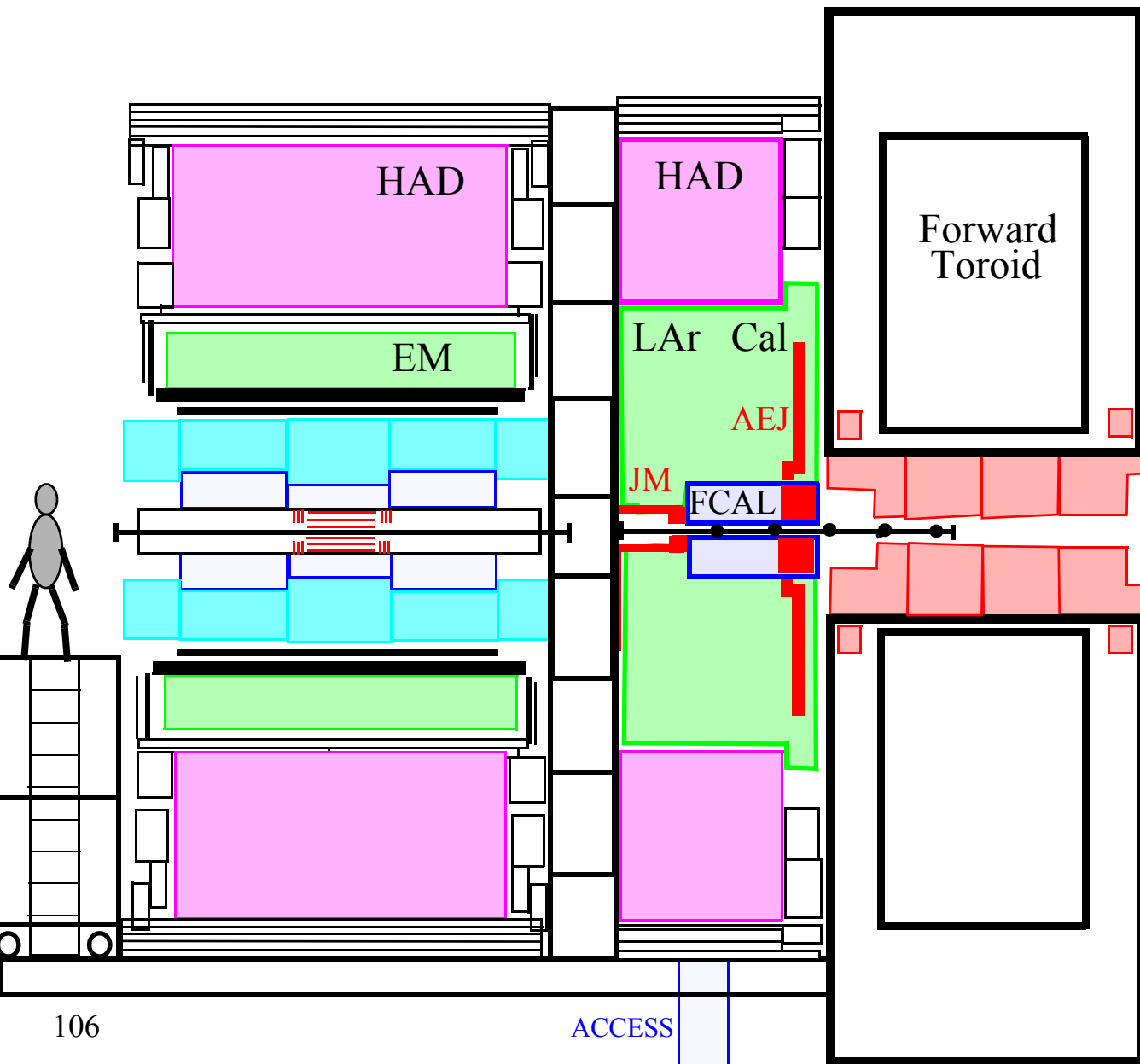
# Install pixel detector

Is space sufficient for ID ?

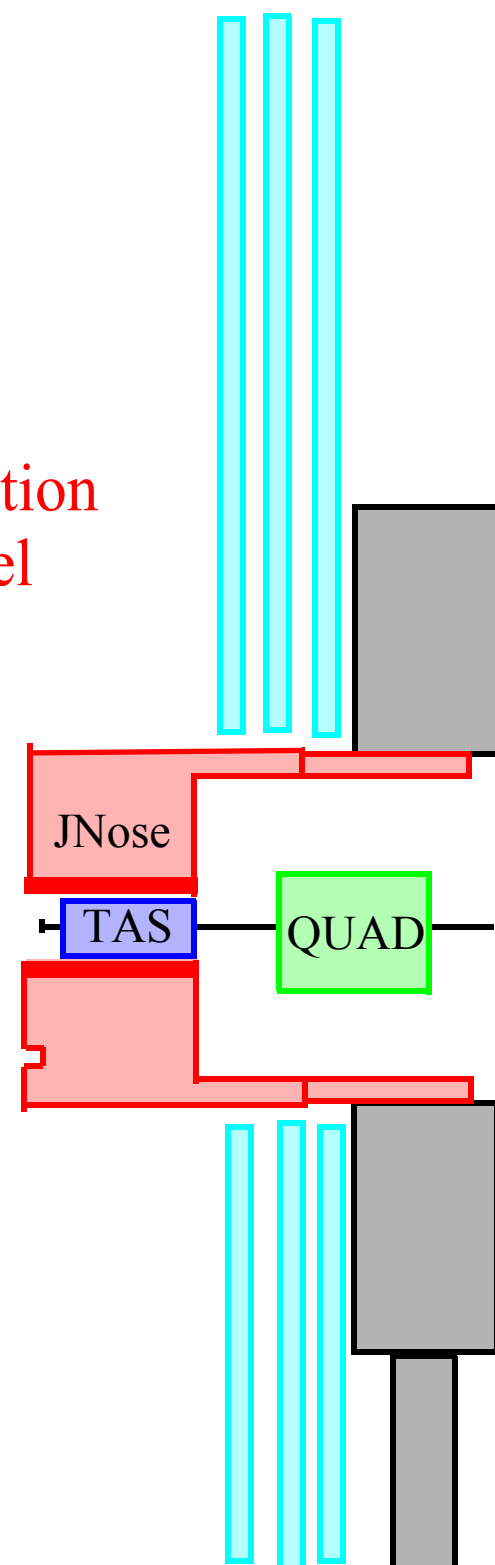


BW installation  
in parallel

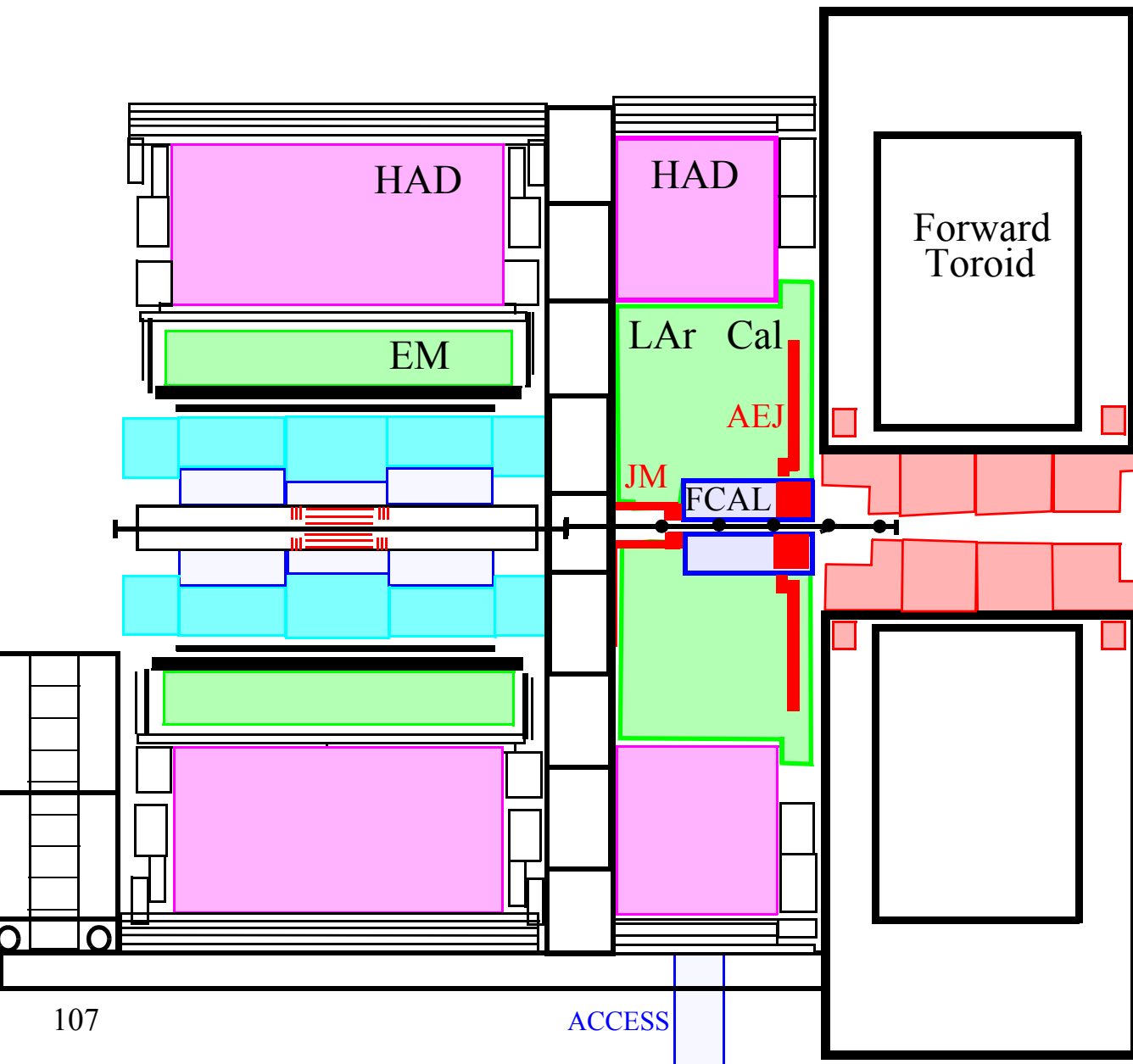




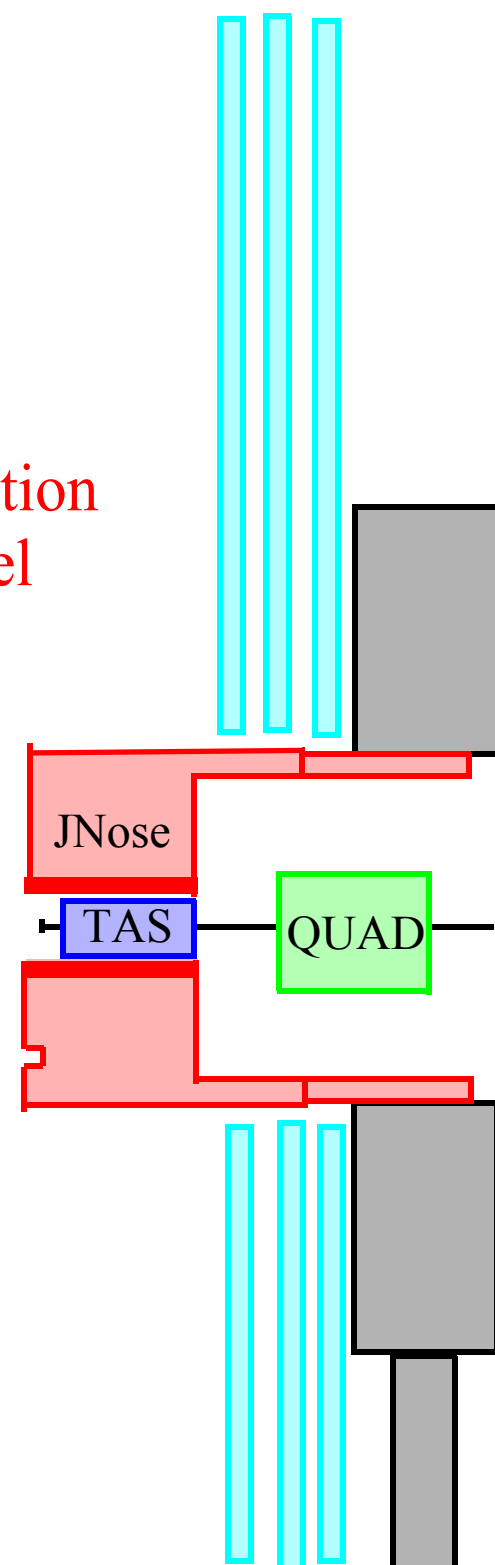
BW installation  
in parallel



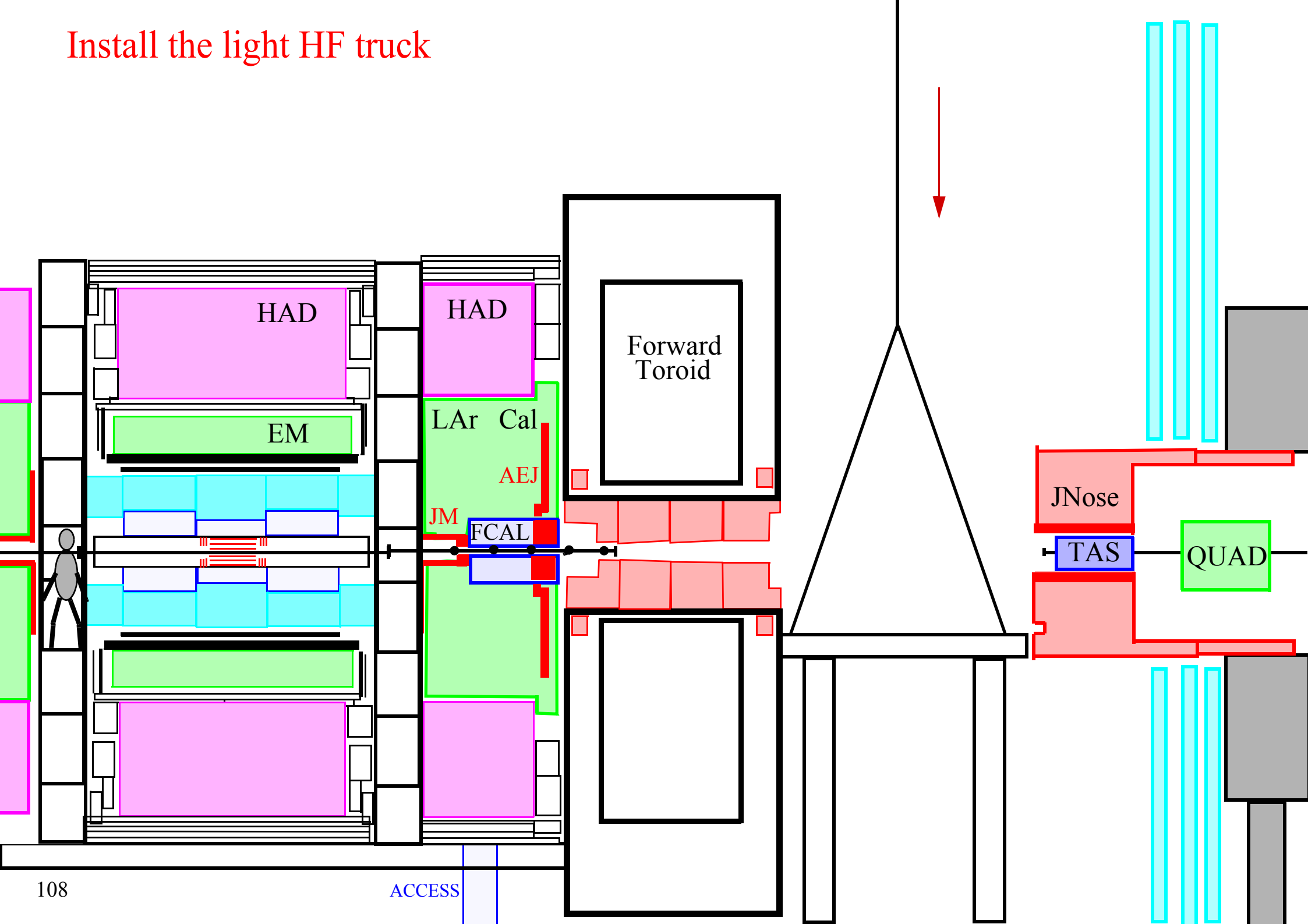
# Connect the VA and VI beampipes

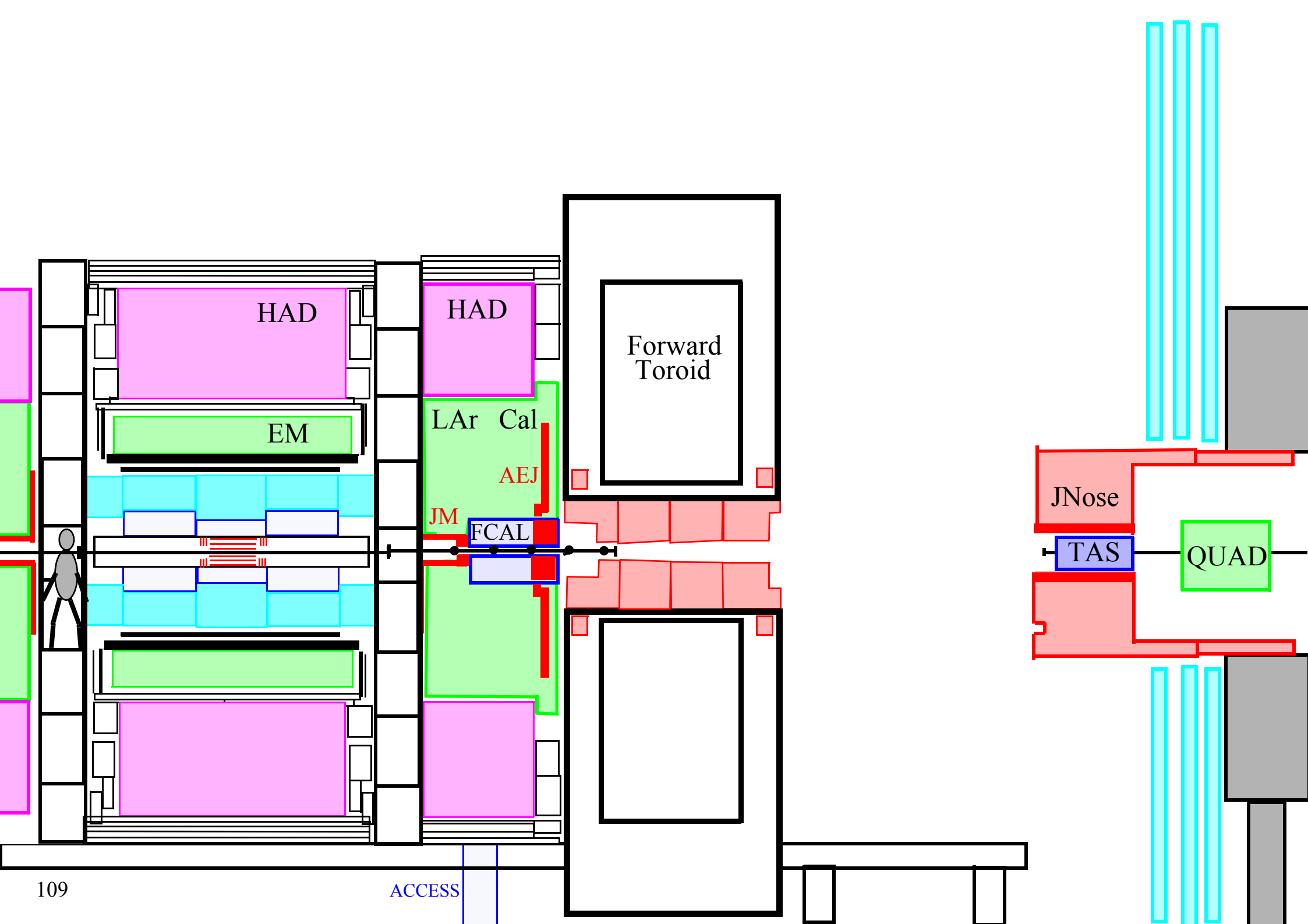


BW installation  
in parallel

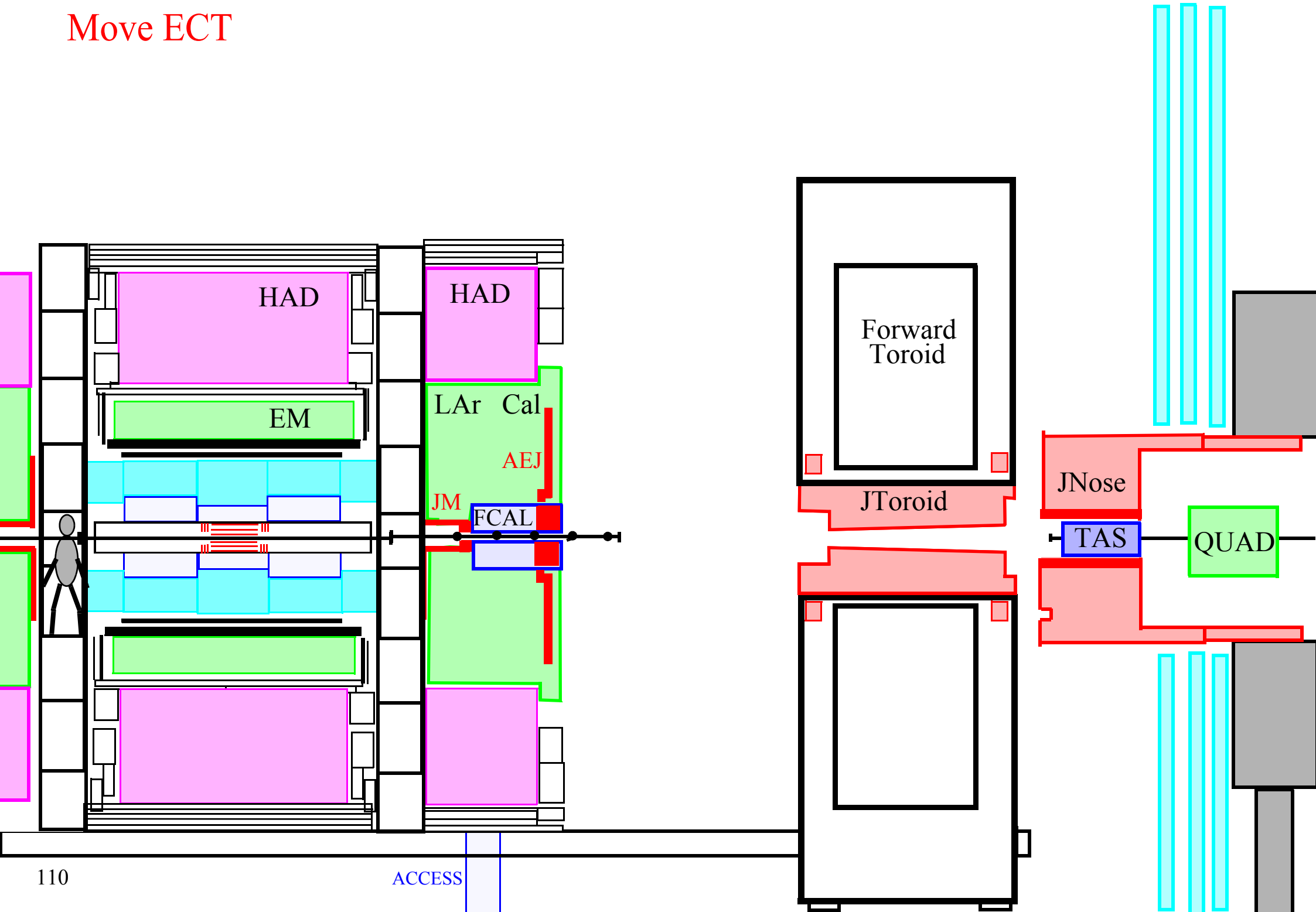


# Install the light HF truck

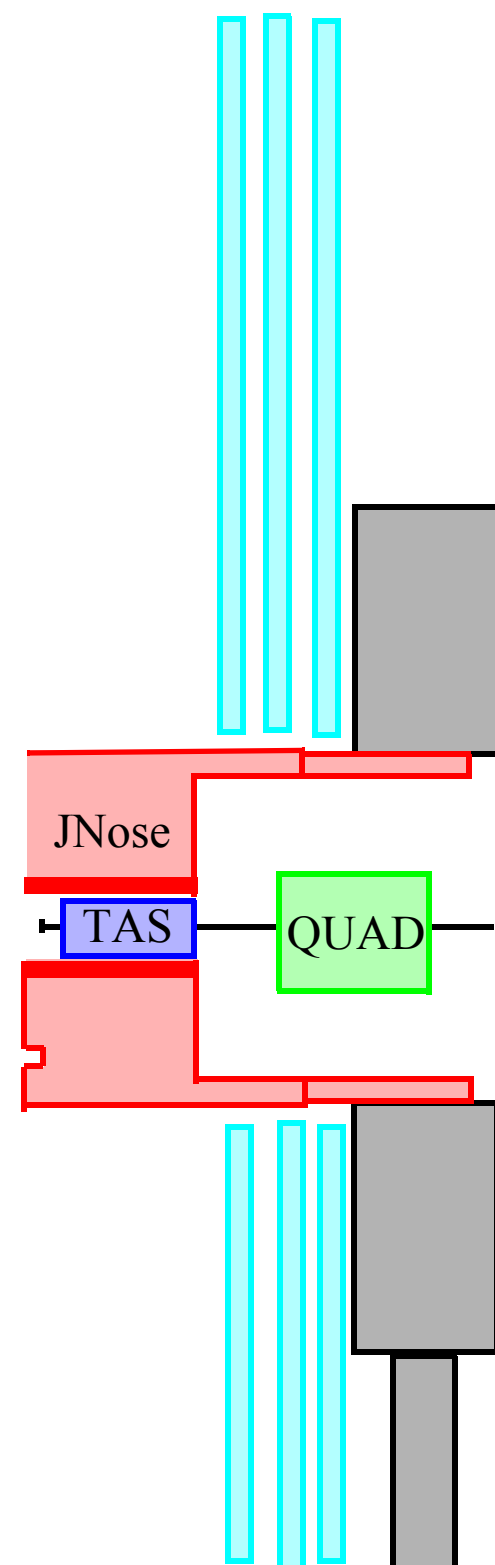
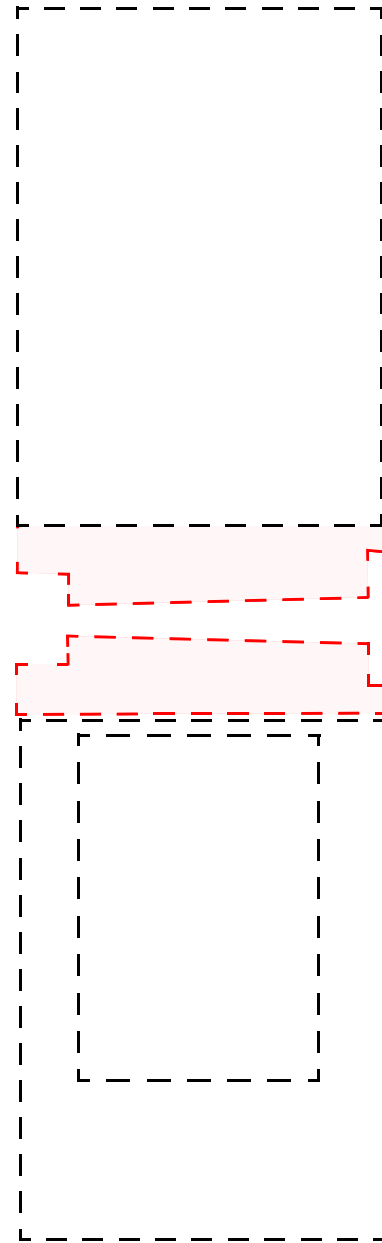
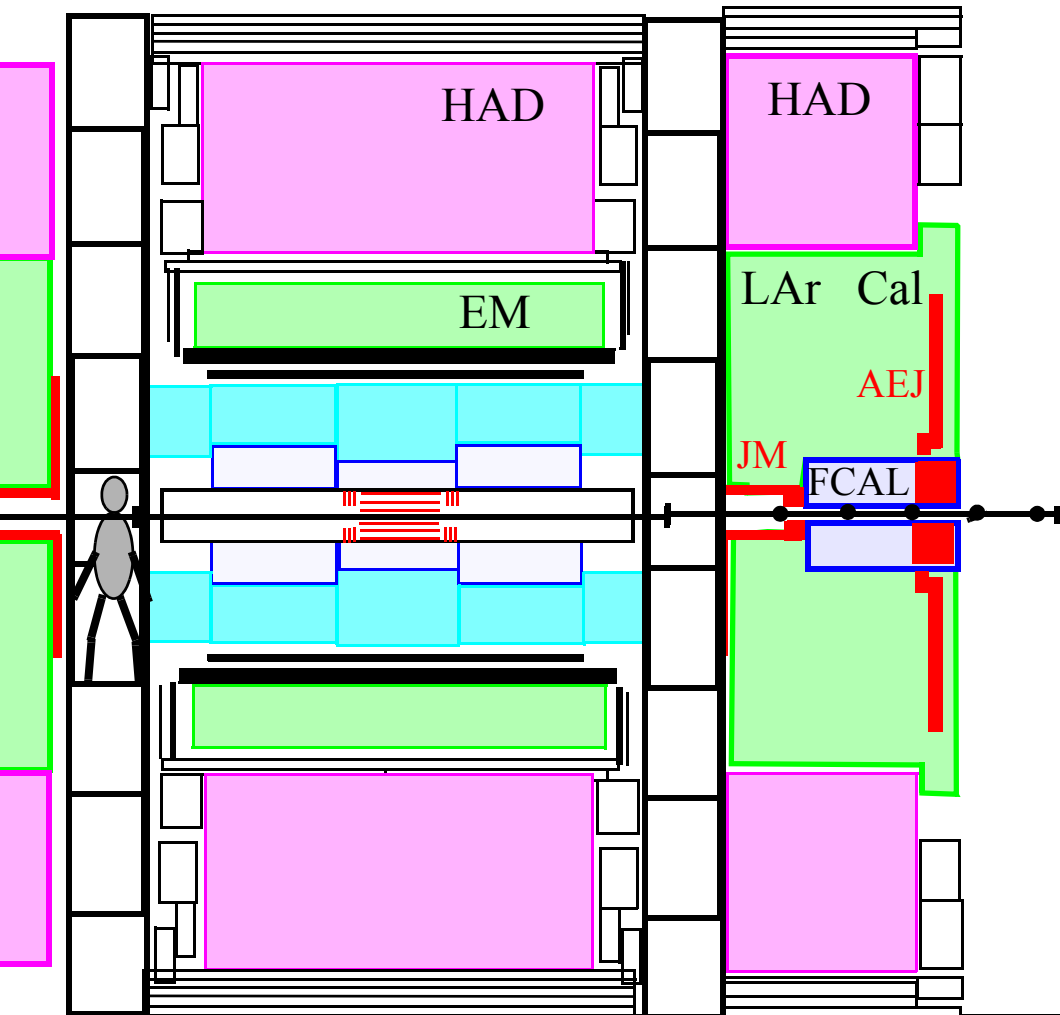




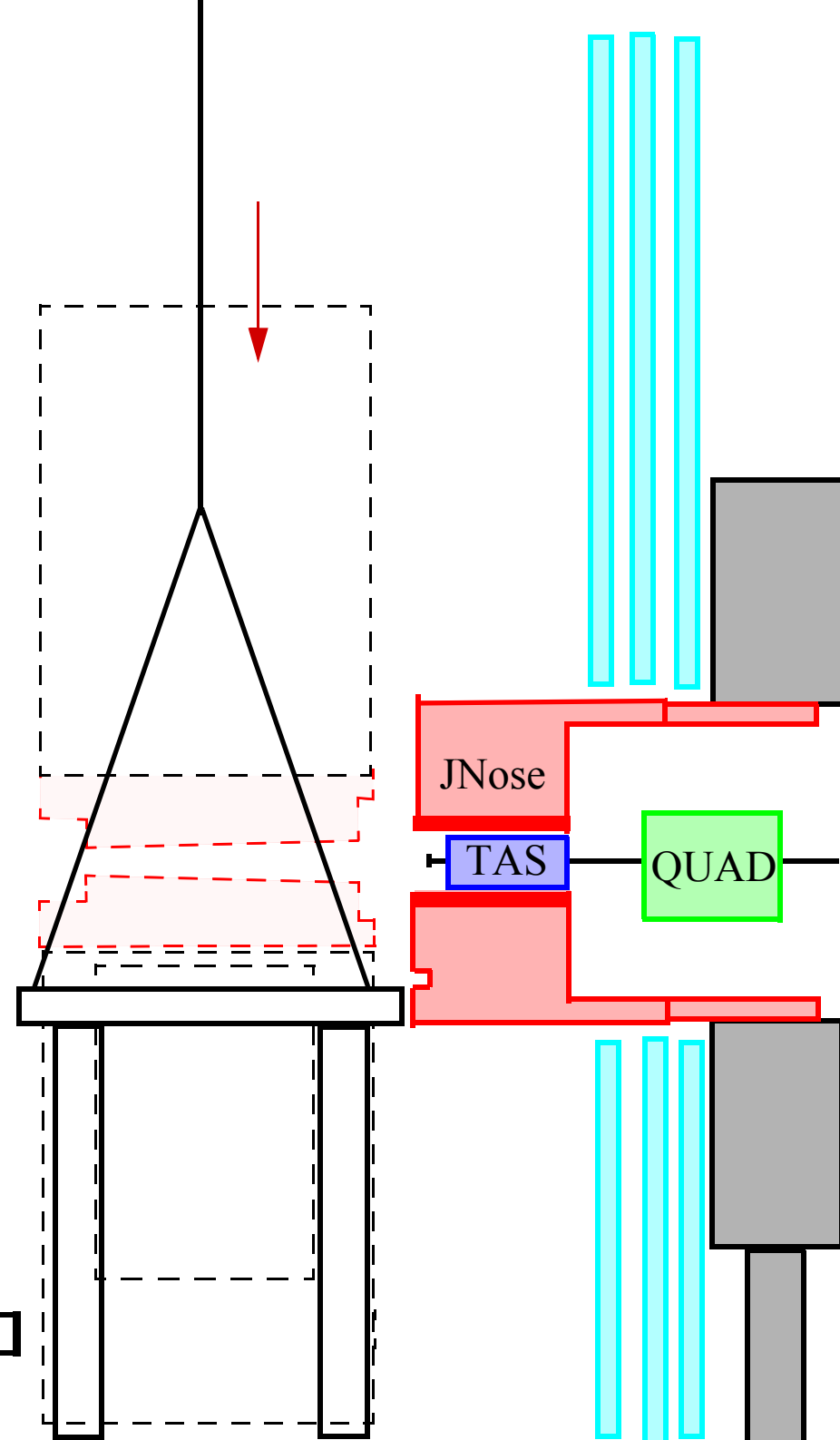
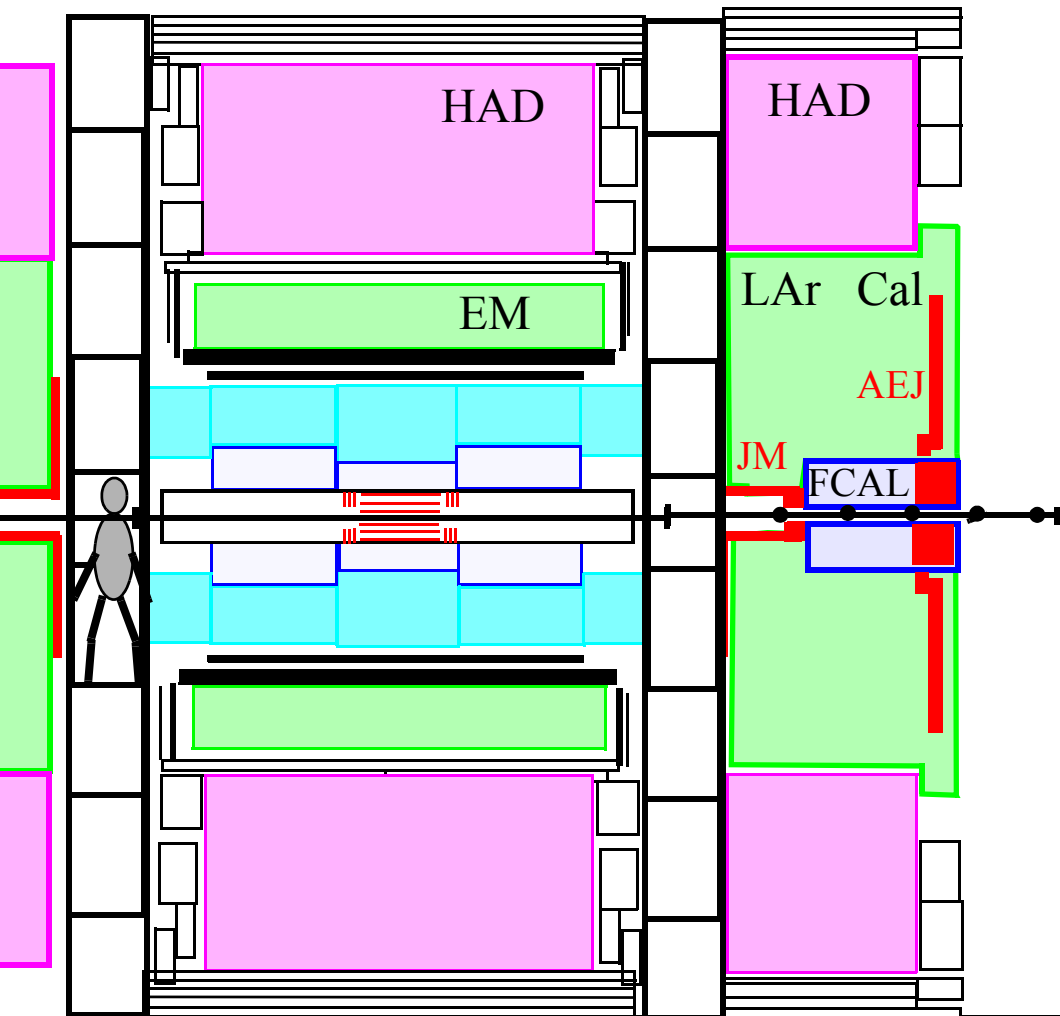
# Move ECT



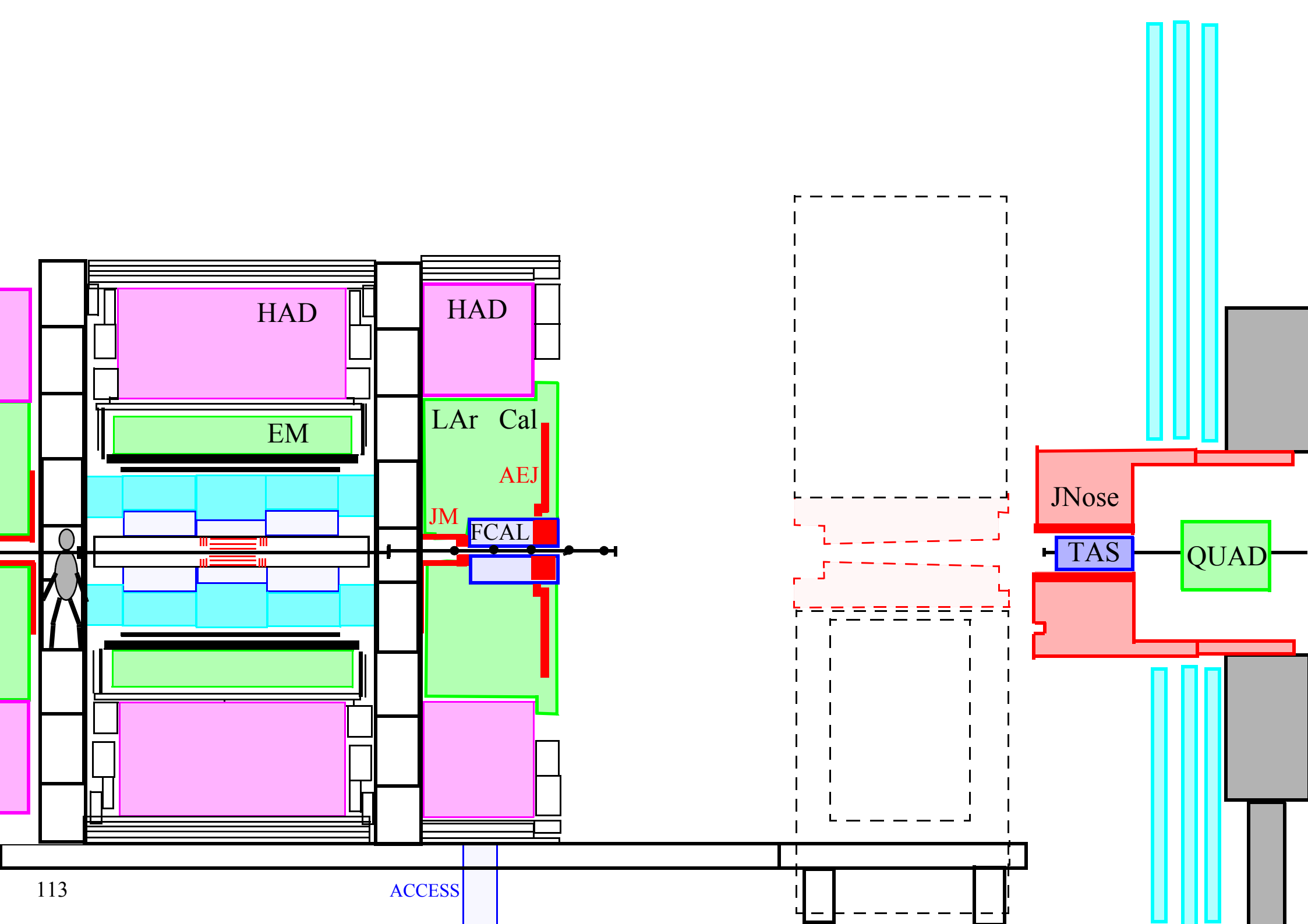
# Move ECT sideways out of the beamline



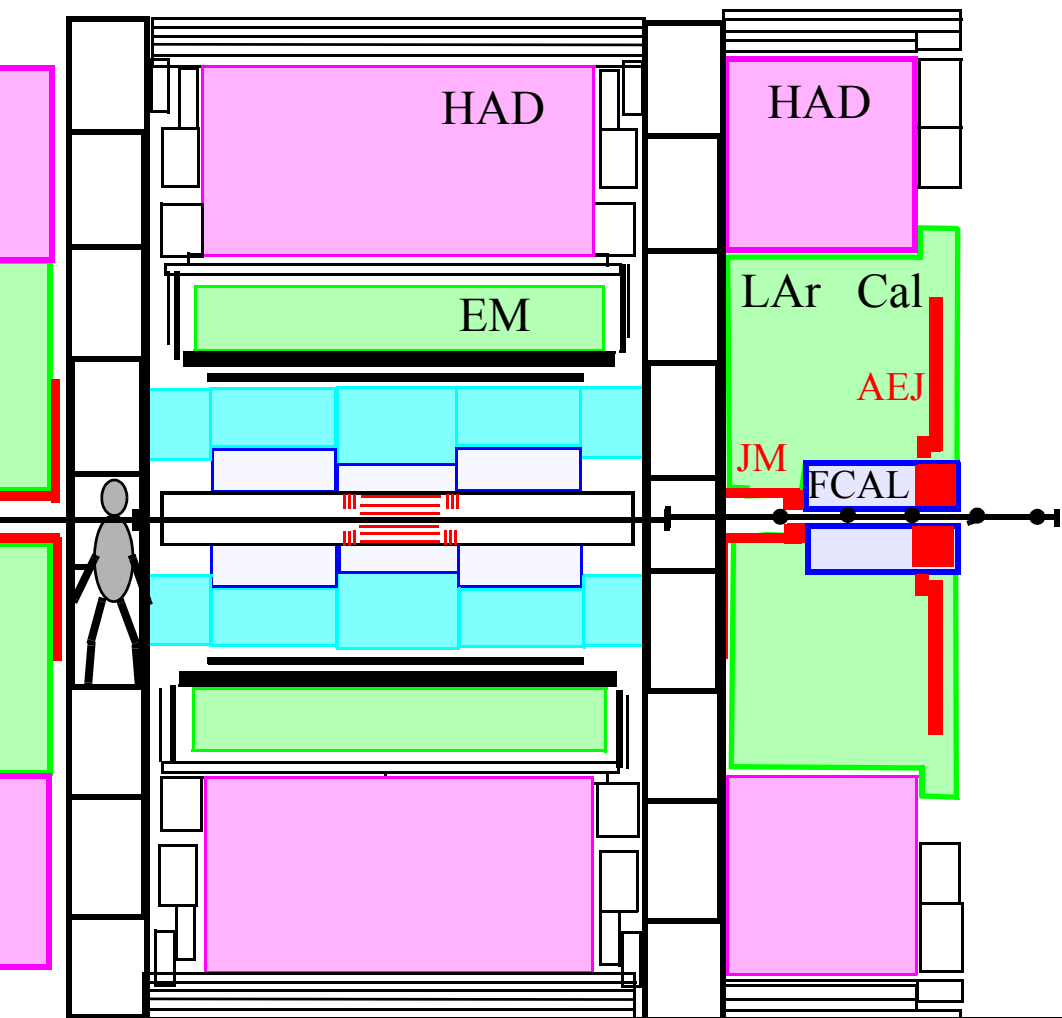
# Install the heavy HF truck





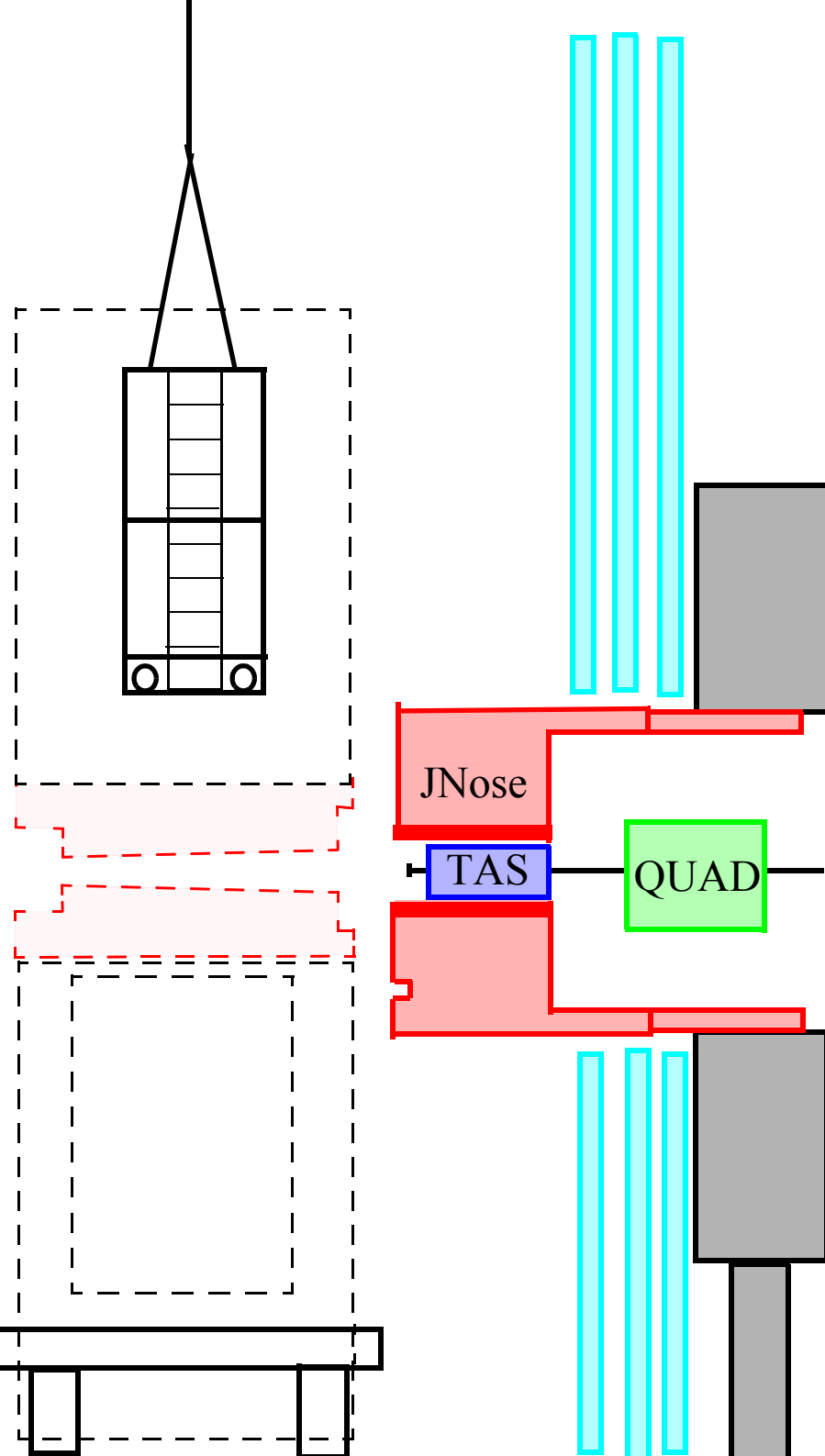


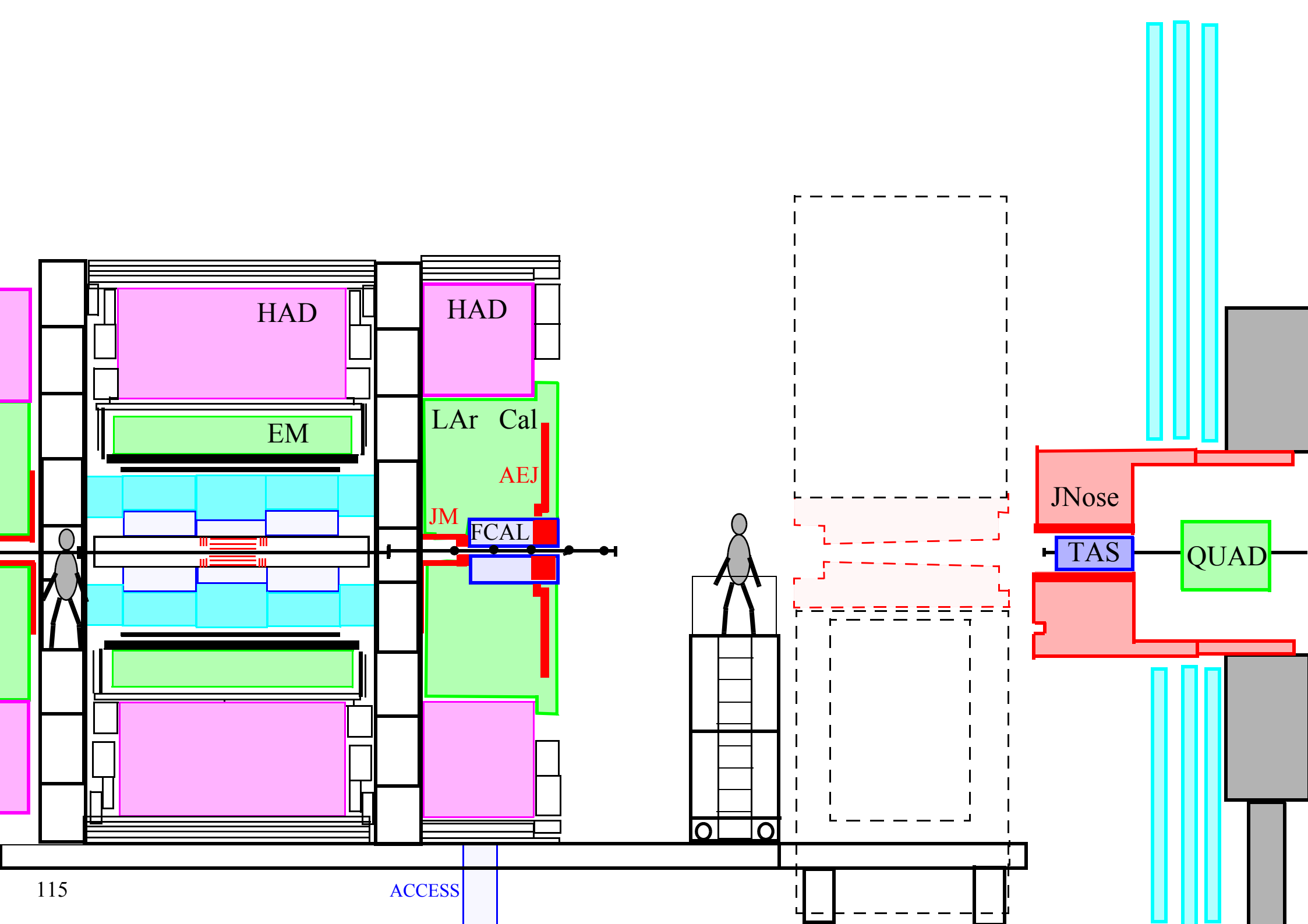
# Install minivans



114

ACCESS





HAD

HAD

EM

LAr Cal

AEJ

JM

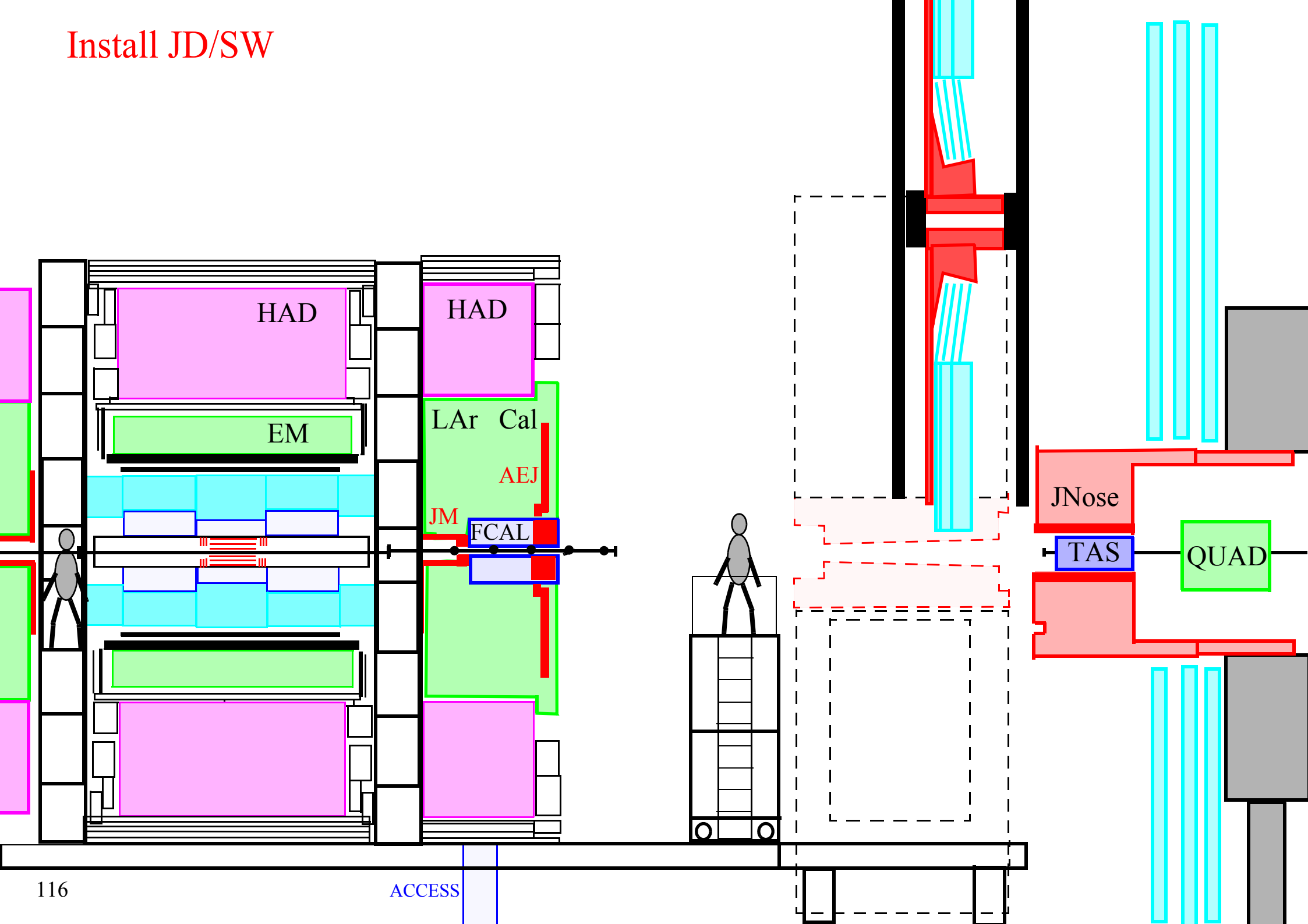
FCAL

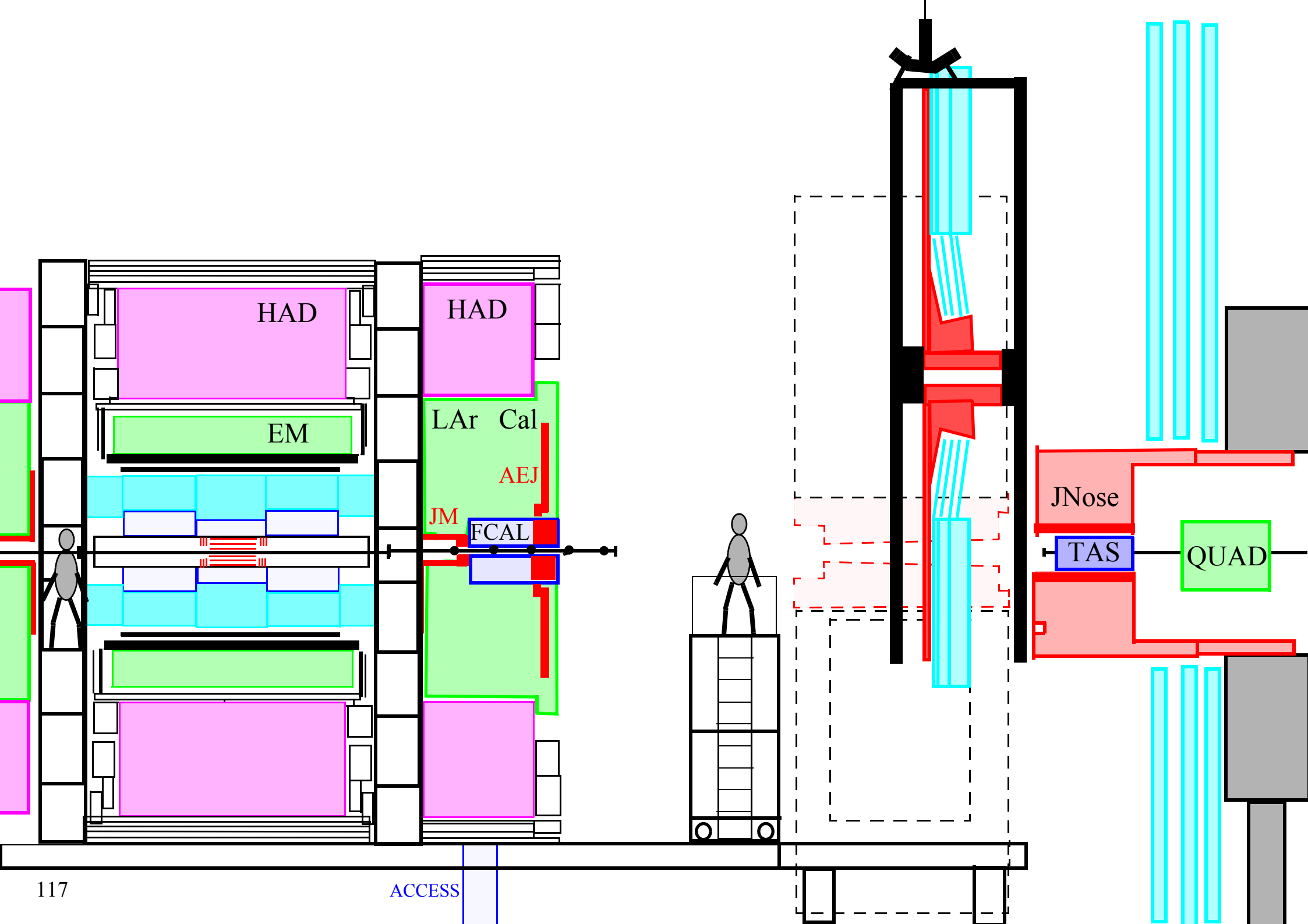
JNose

TAS

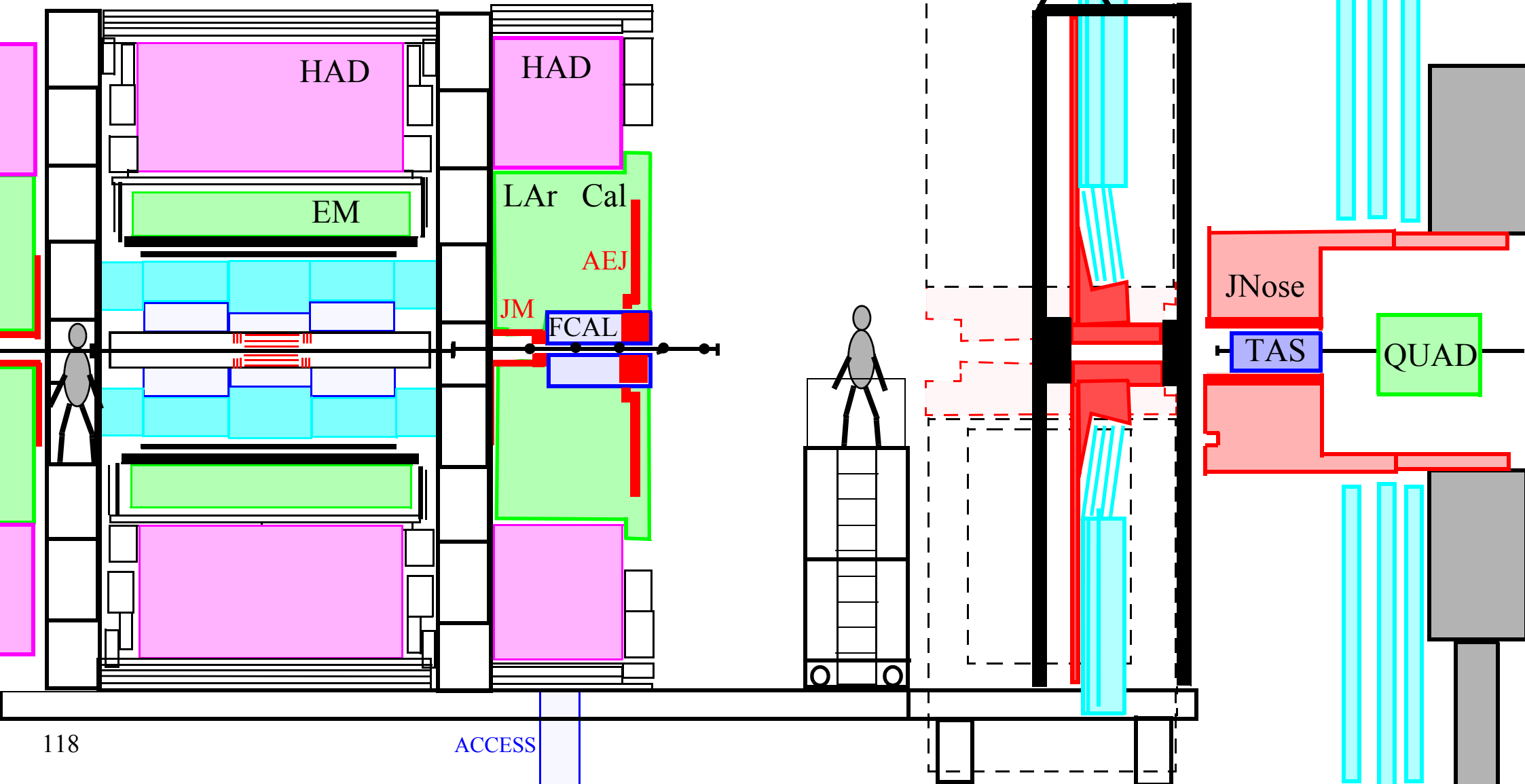
QUAD

# Install JD/SW





The JD/SW has to be moved in sideways to get under the ECT services.



20 T THEORETICAL ZONE

20 T SAFETY ZONE

20 F EXTENDED ZONE

**ECT**

Liftingpoints

**JD**

**JN**

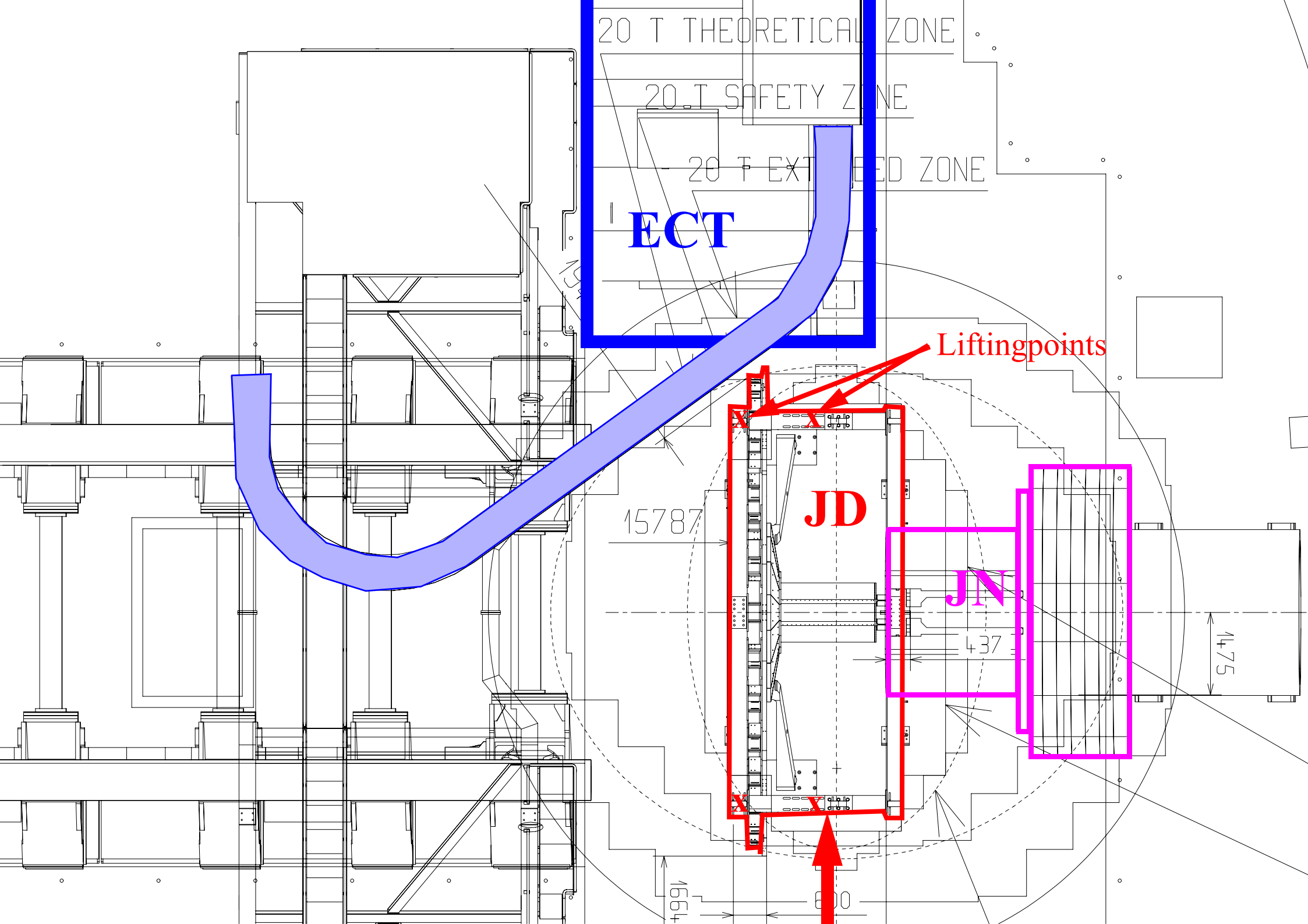
15787

437

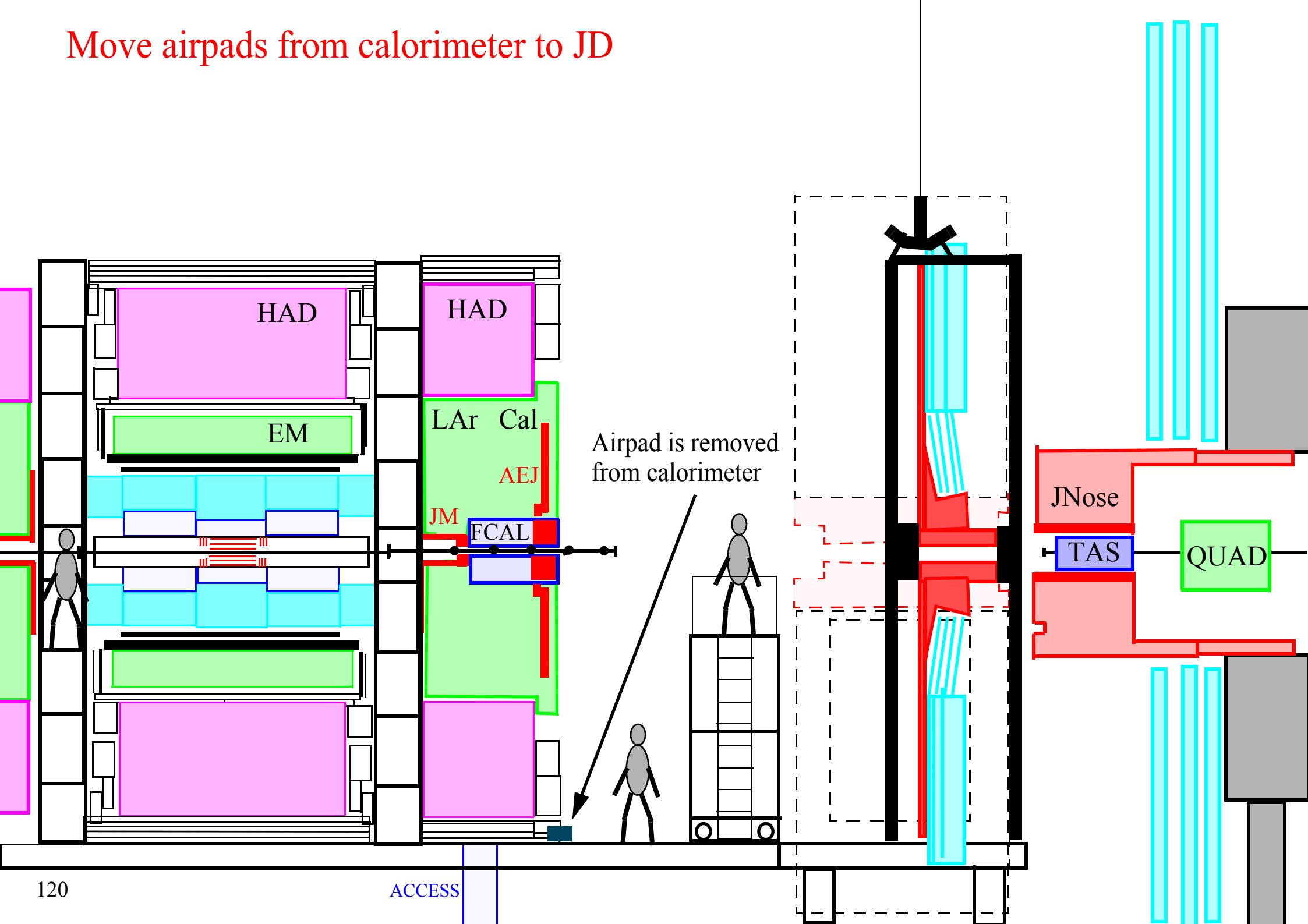
1475

1664

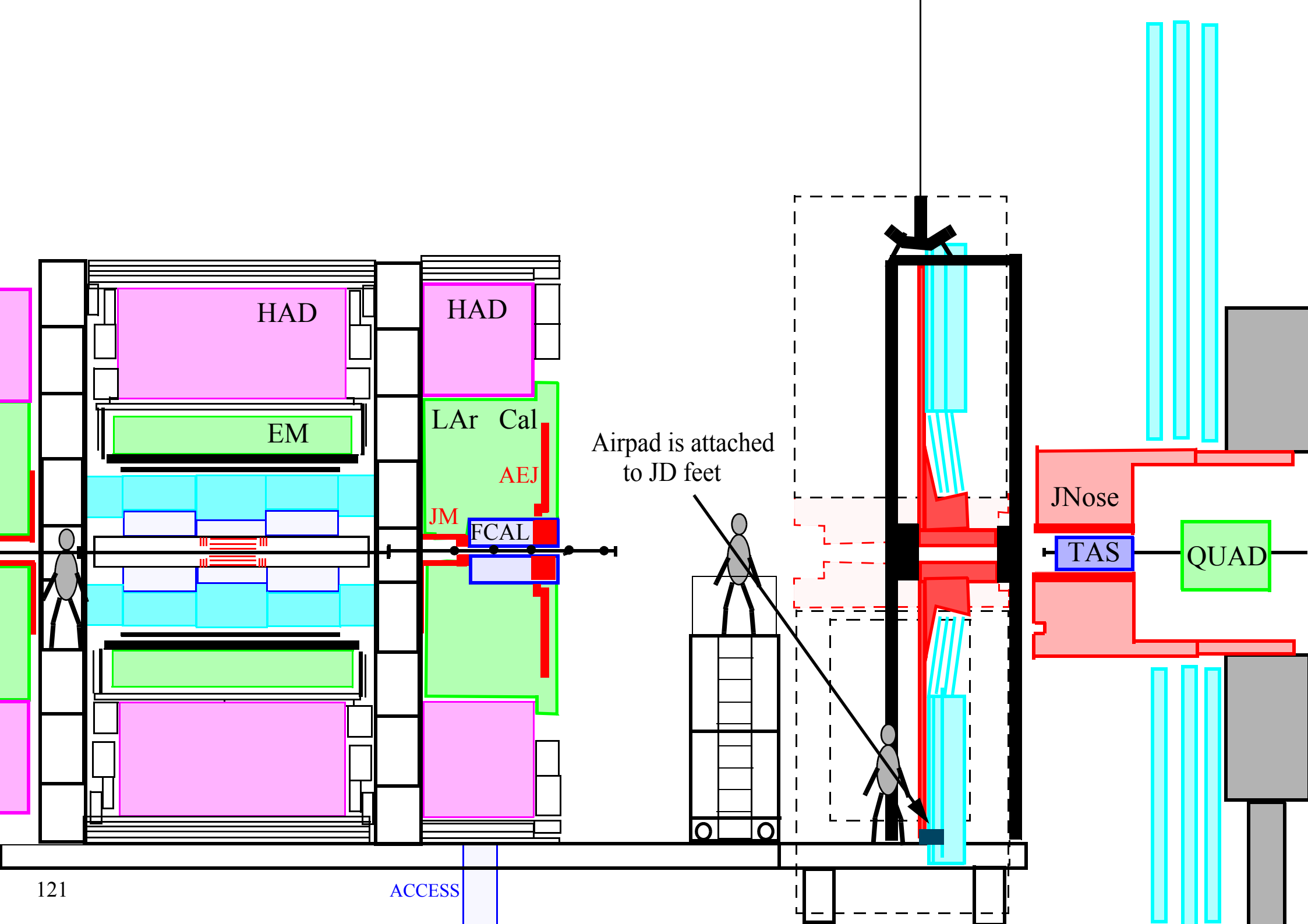
800



# Move airpads from calorimeter to JD







HAD

HAD

EM

LAr Cal

AEJ

JM

FCAL

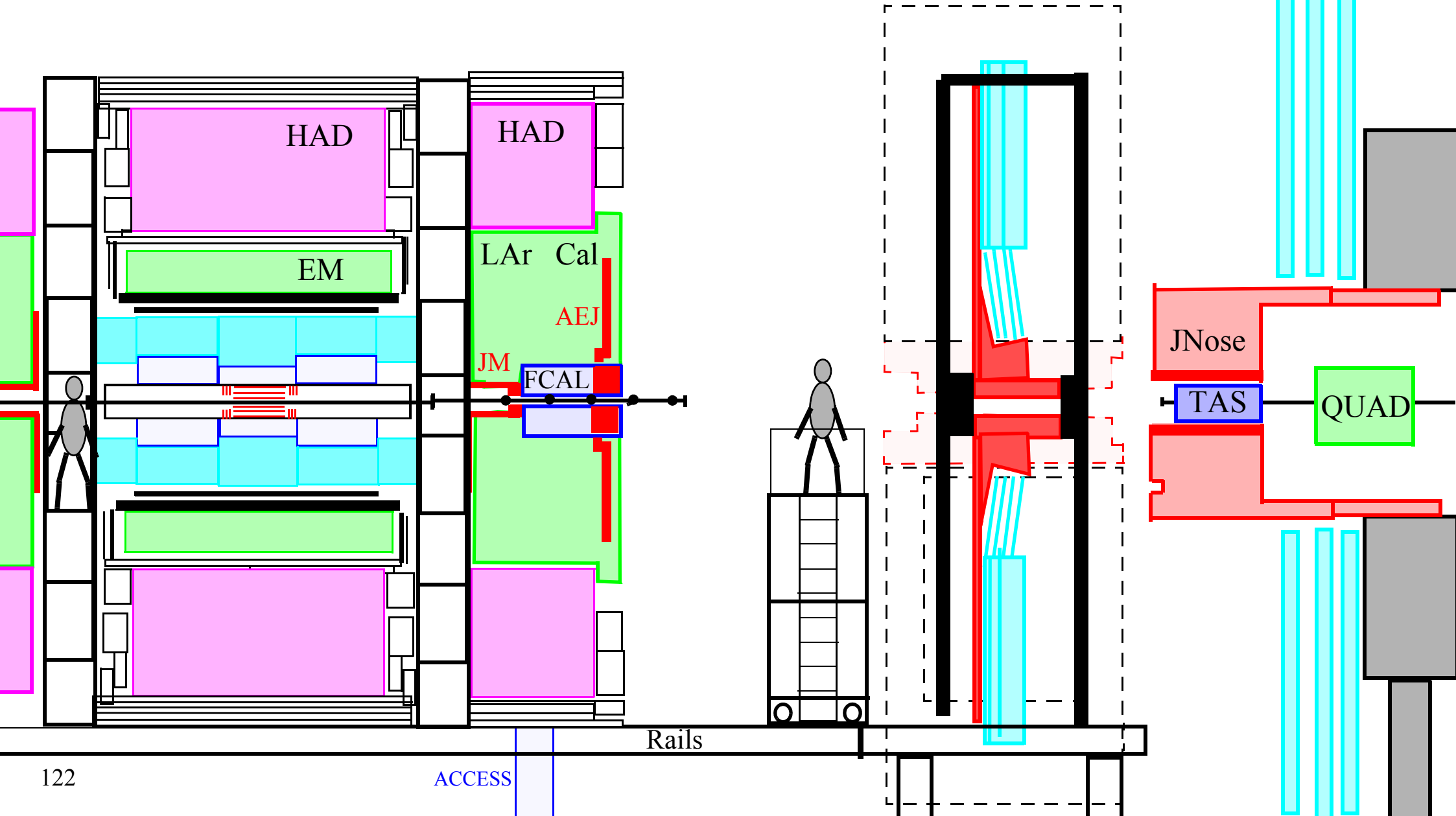
Airpad is attached  
to JD feet

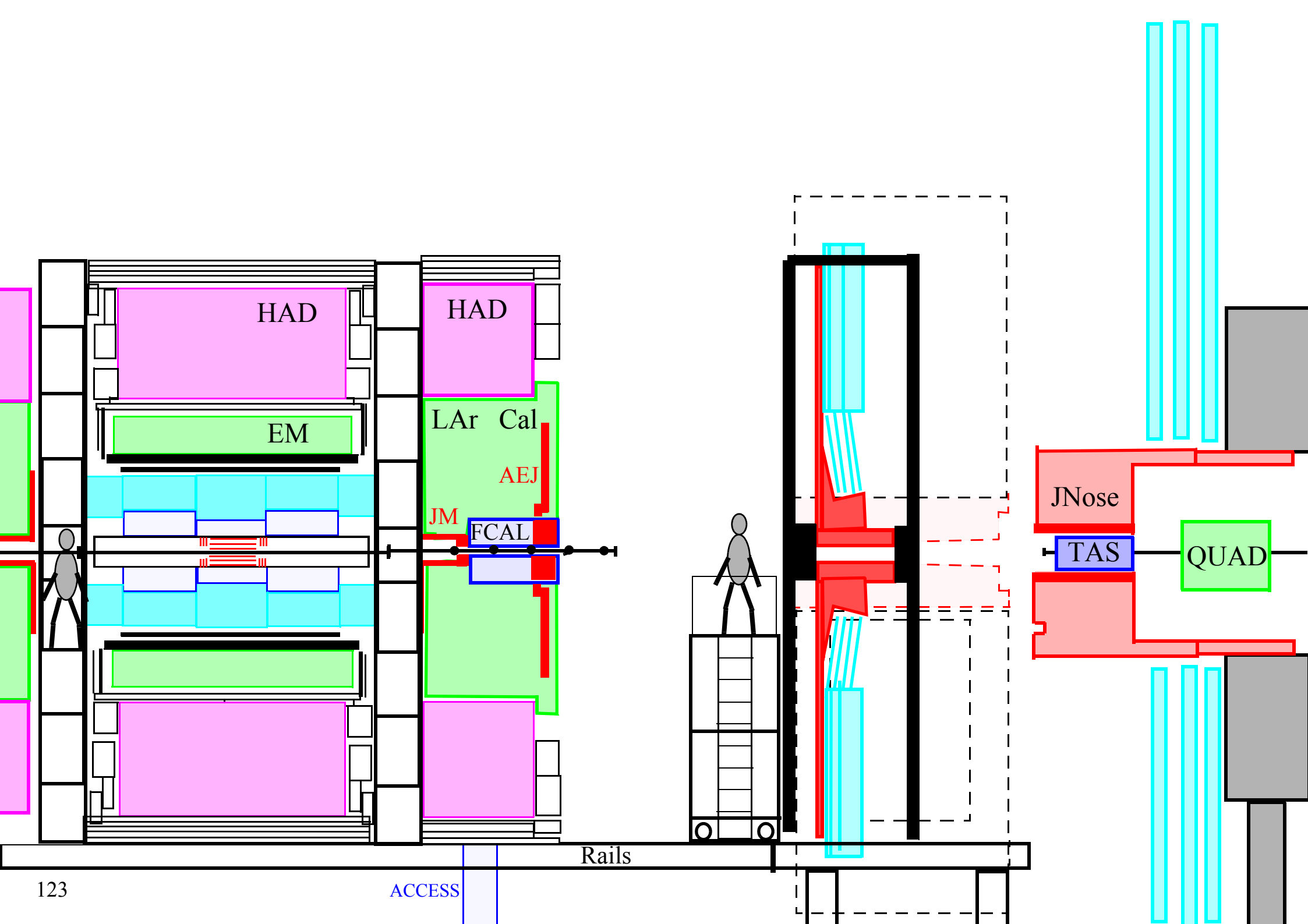
JNose

TAS

QUAD

The JD/SW has to be moved towards the IP on its airpads.





HAD

EM

HAD

LAr Cal

AEJ

JM

FCAL

JNose

TAS

QUAD

Rails

ACCESS

123

20 T THEORETICAL ZONE

20 T SAFETY ZONE

20 F EXTENDED ZONE

ECT

JD

15787

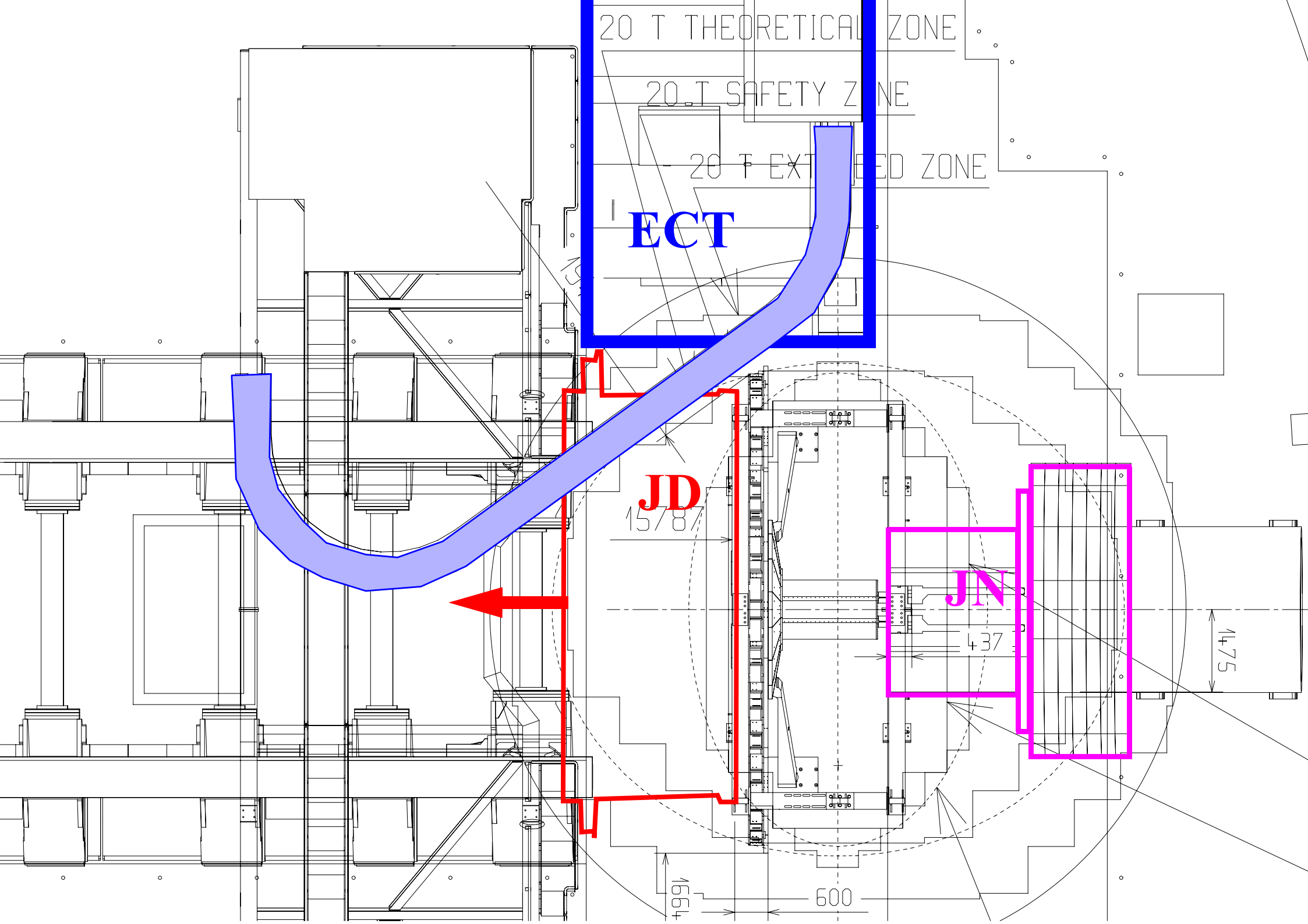
JN

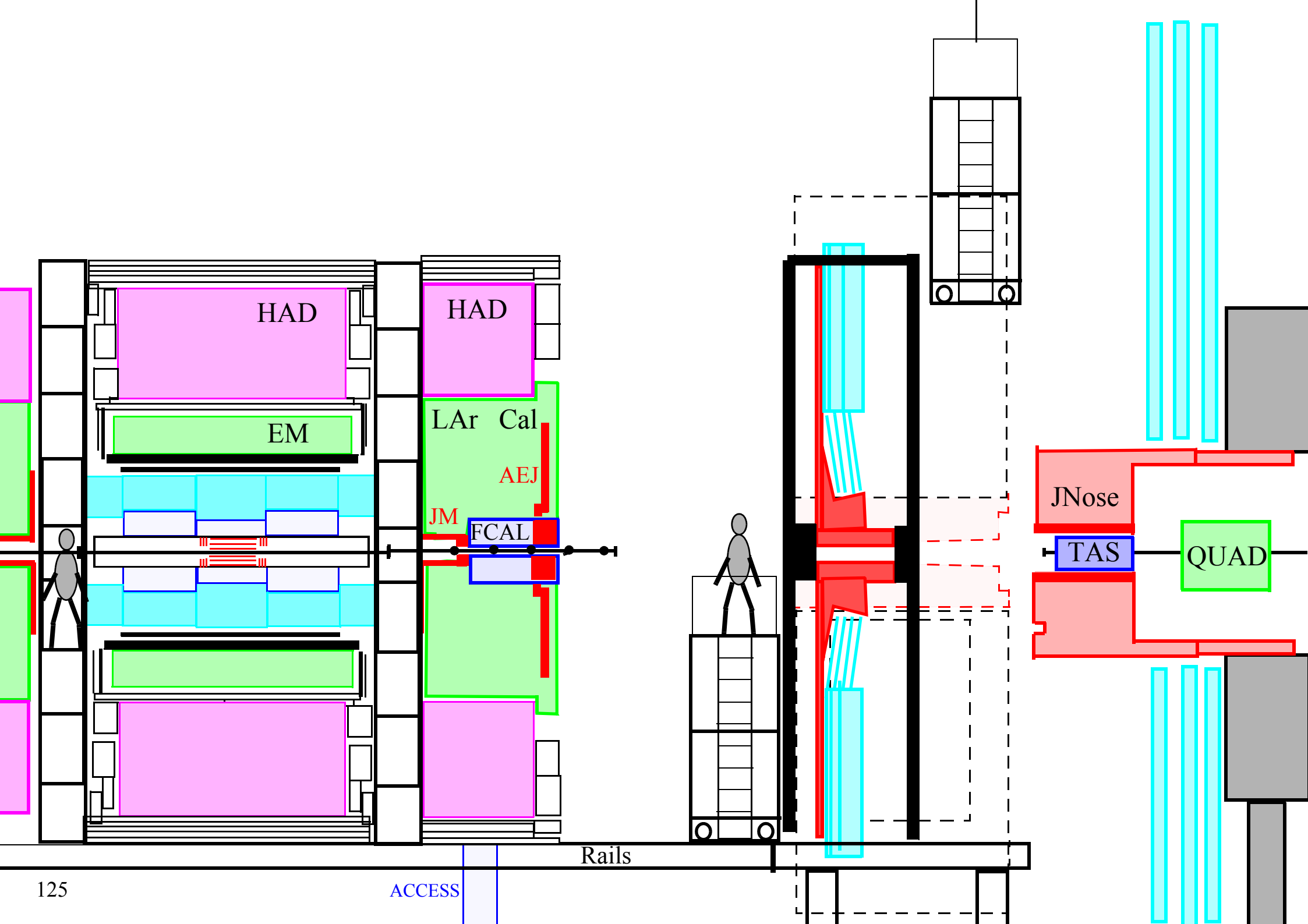
437

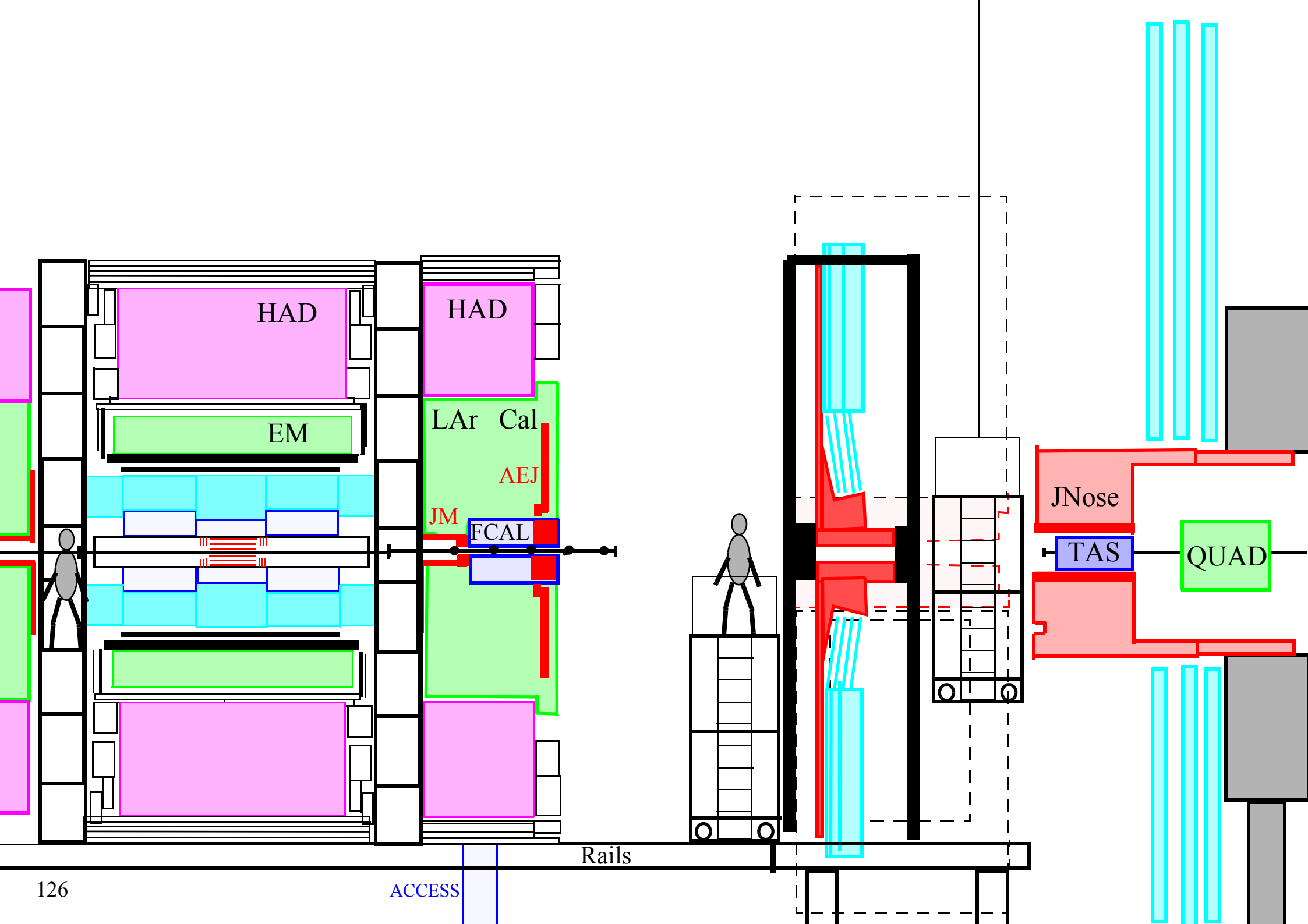
1475

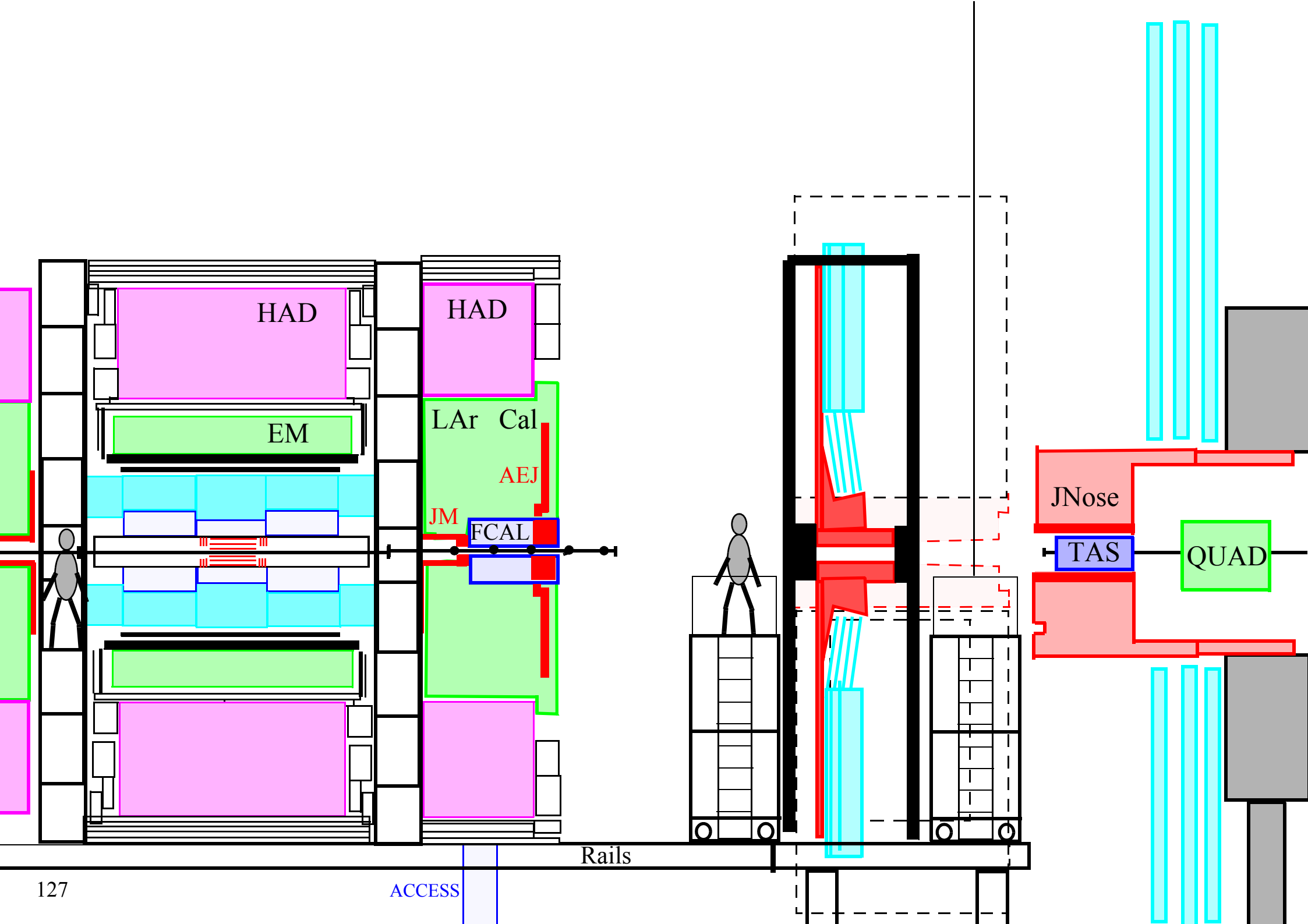
1564

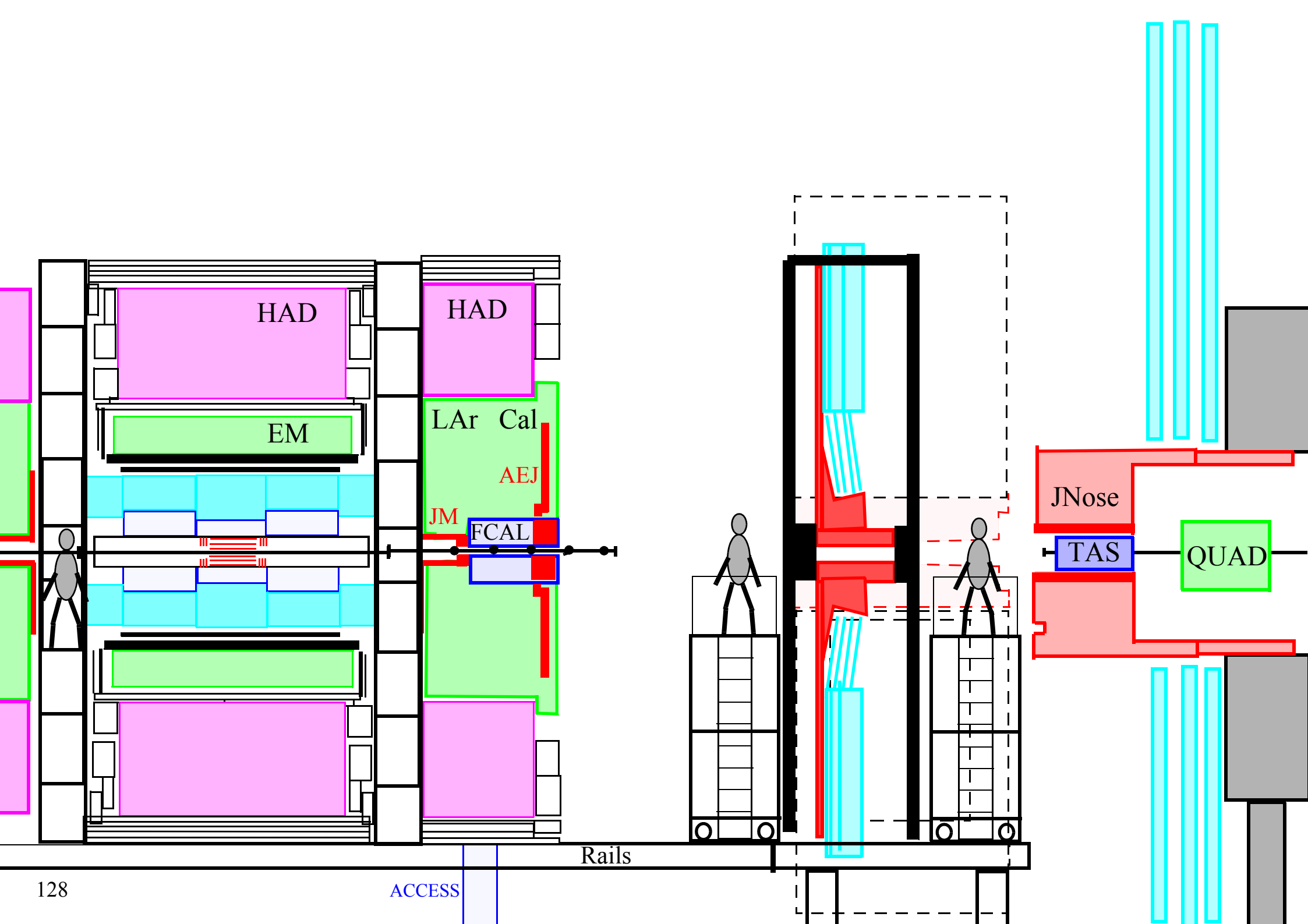
600



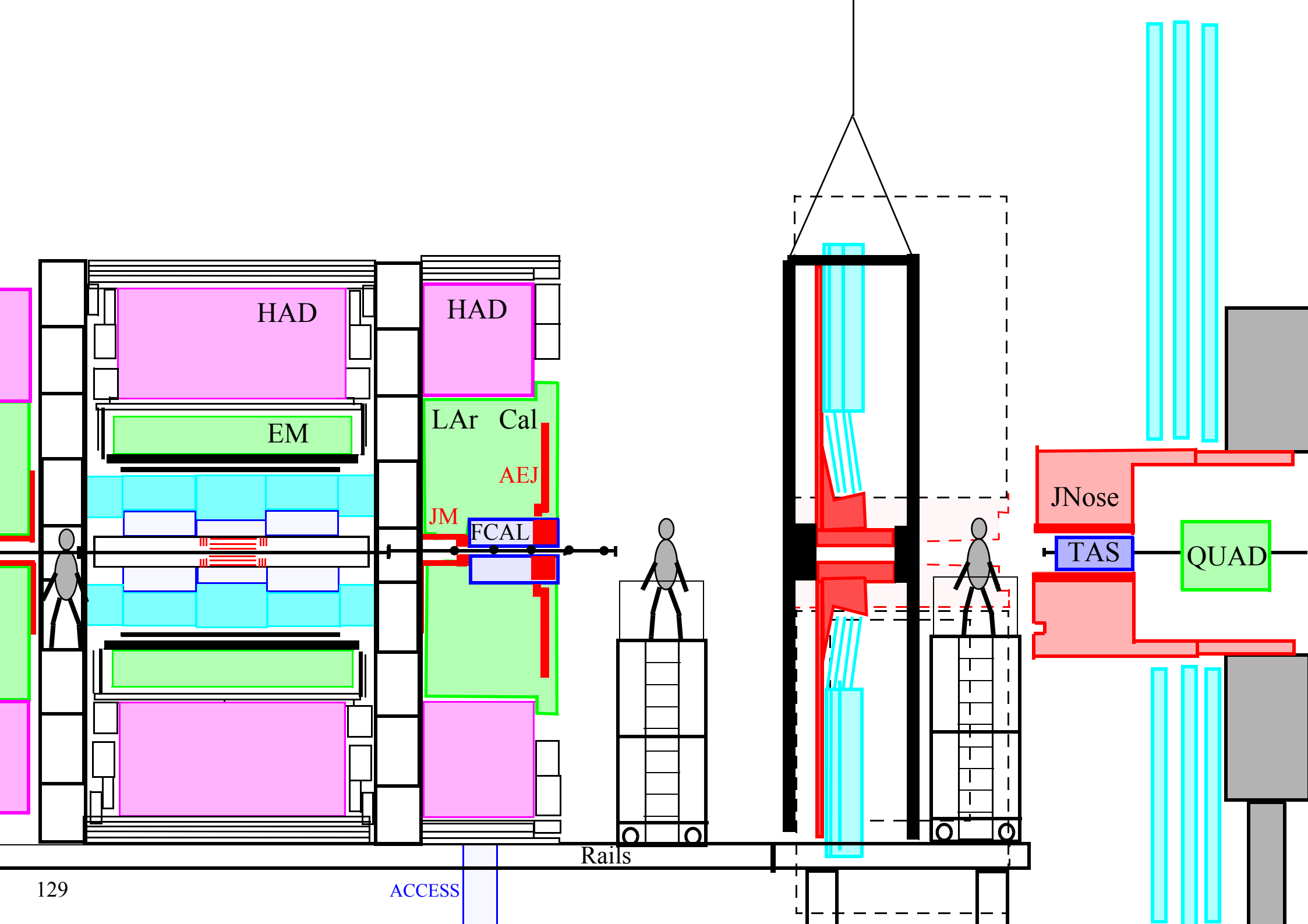












20 T THEORETICAL ZONE

20 T SAFETY ZONE

20 F EXTENDED ZONE

ECT

New  
Liftingpoints

JD

JN

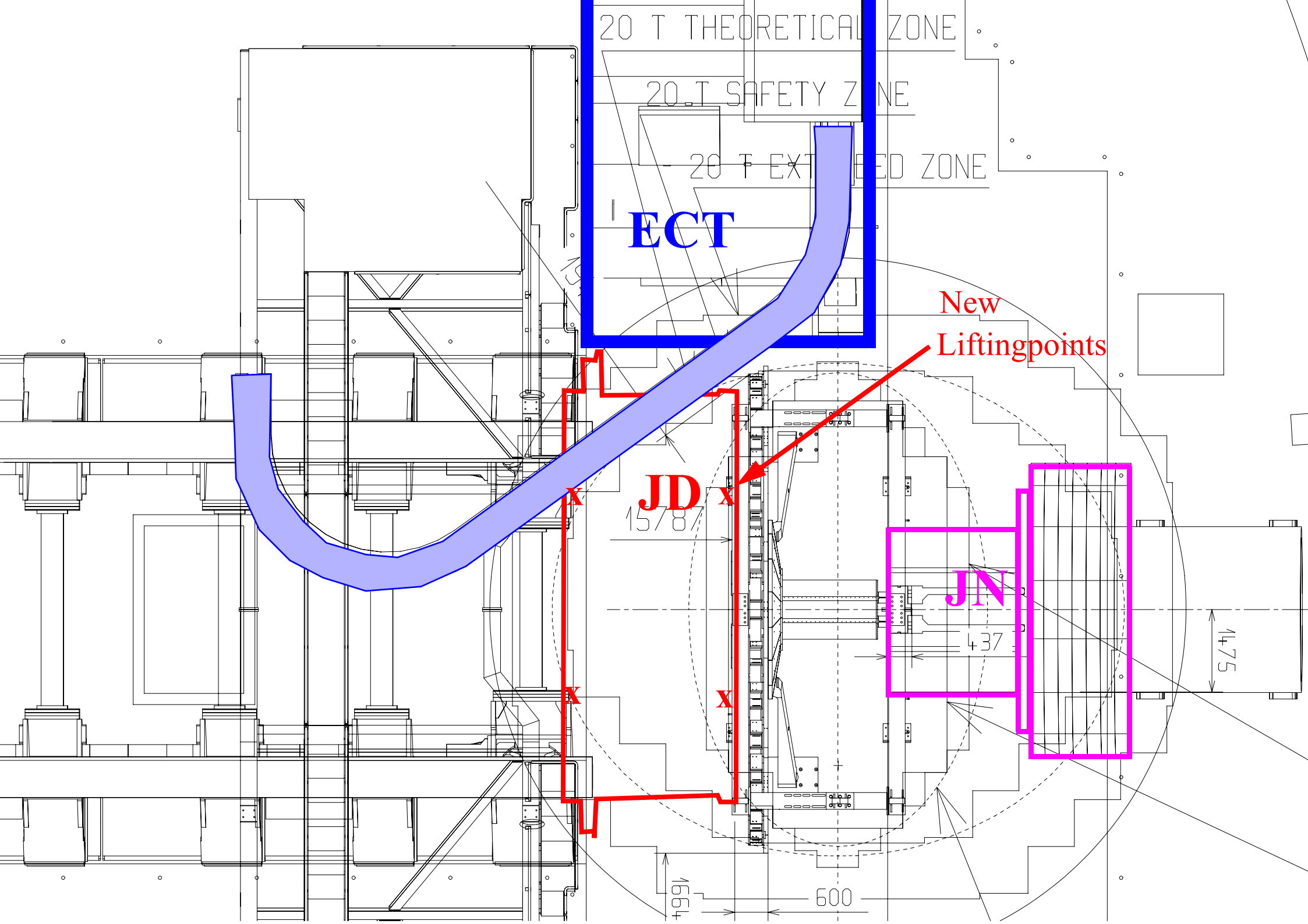
15787

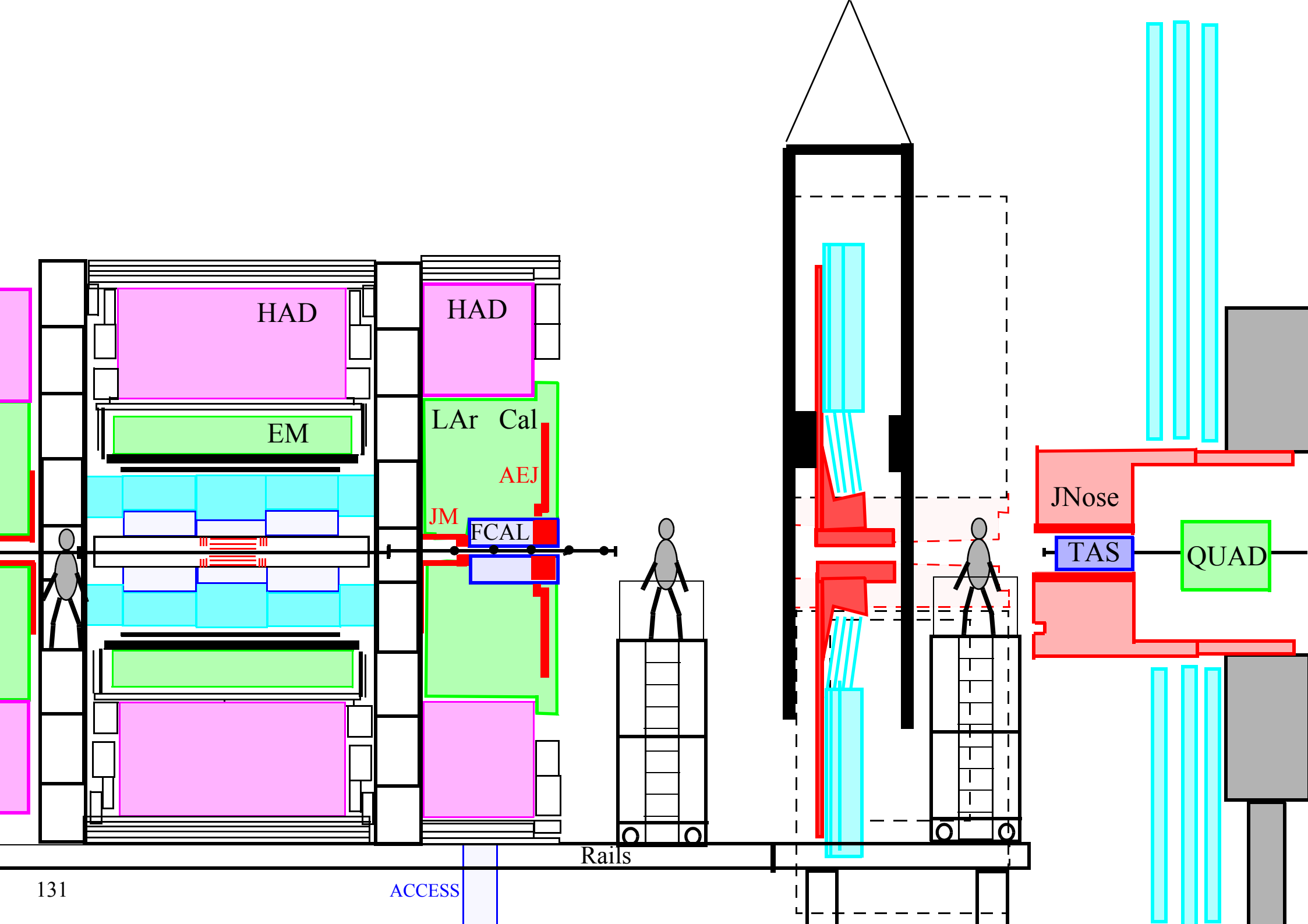
437

1475

1564

600





HAD

HAD

EM

LAr Cal

AEJ

JM

FCAL

JNose

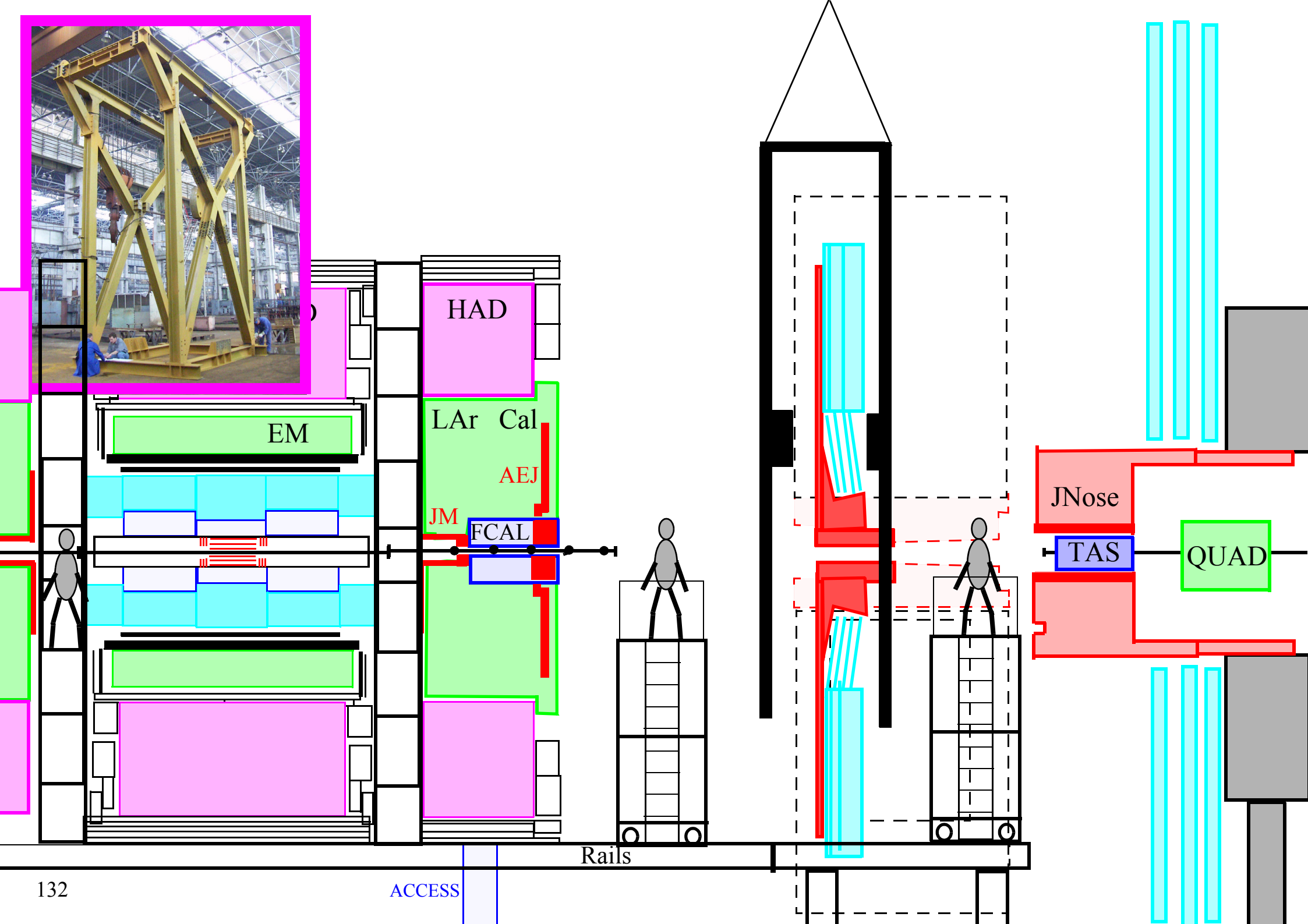
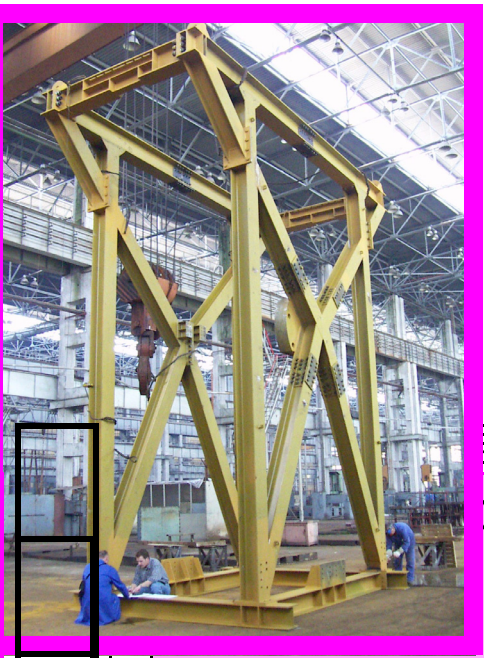
TAS

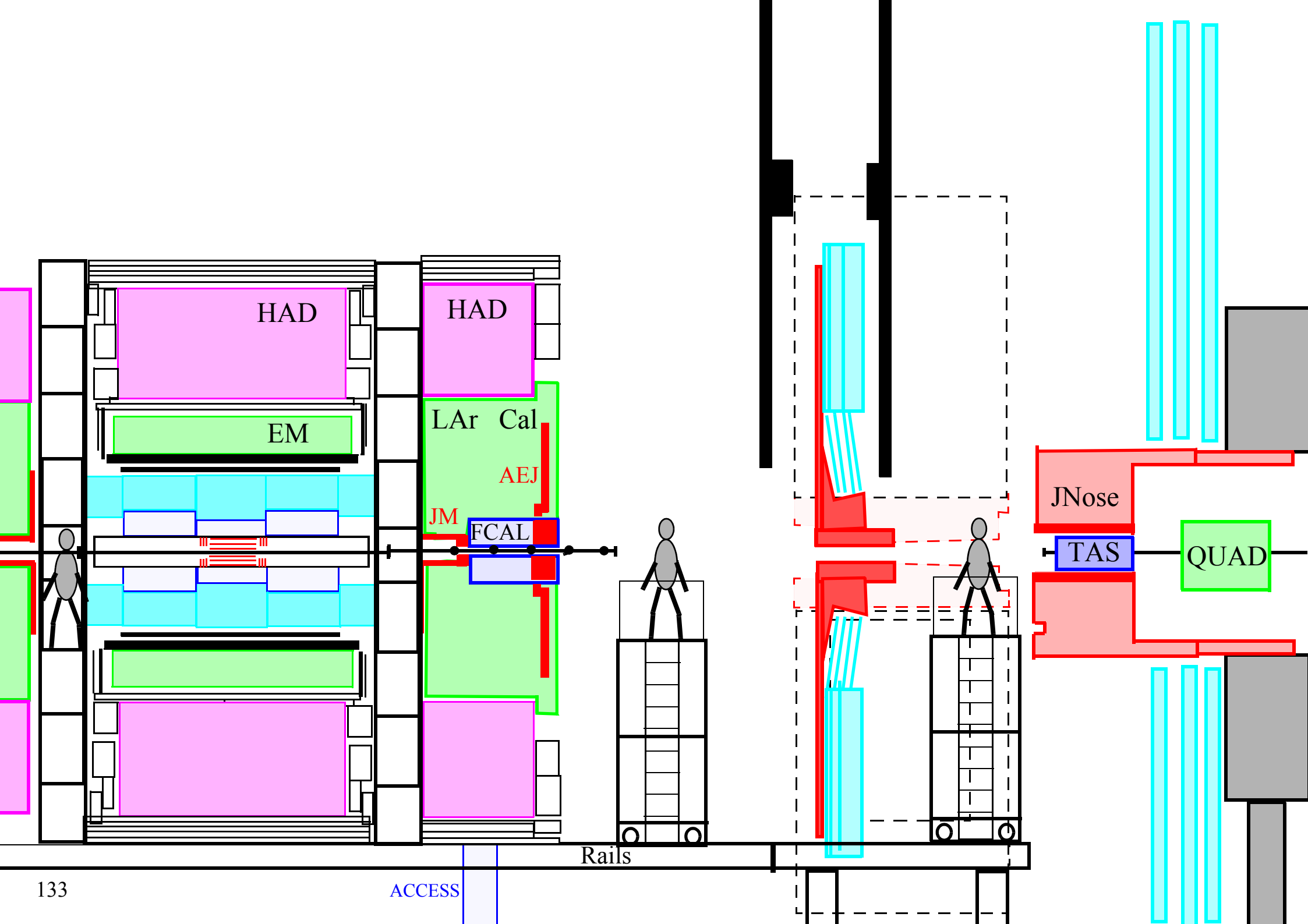
QUAD

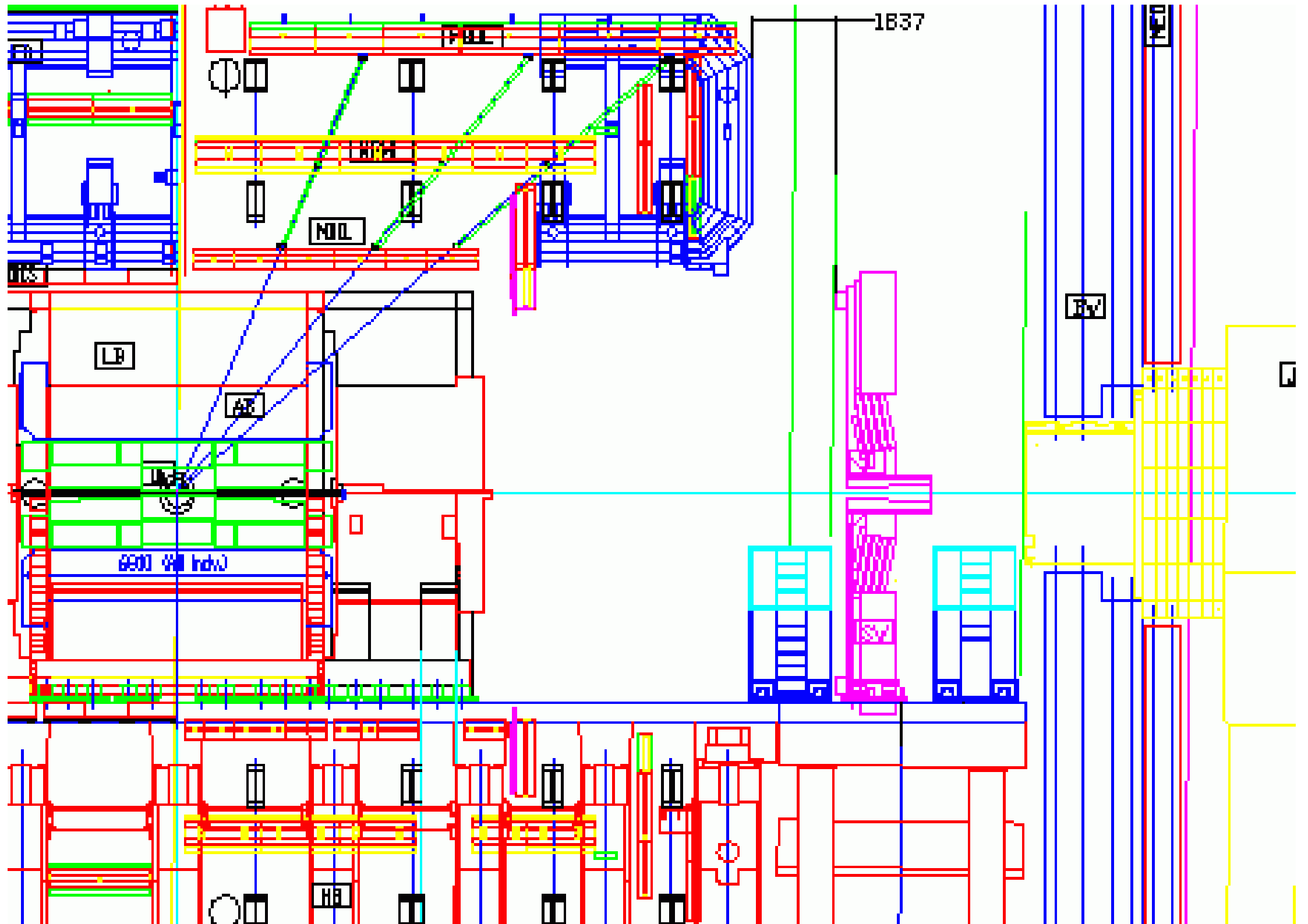
Rails

131

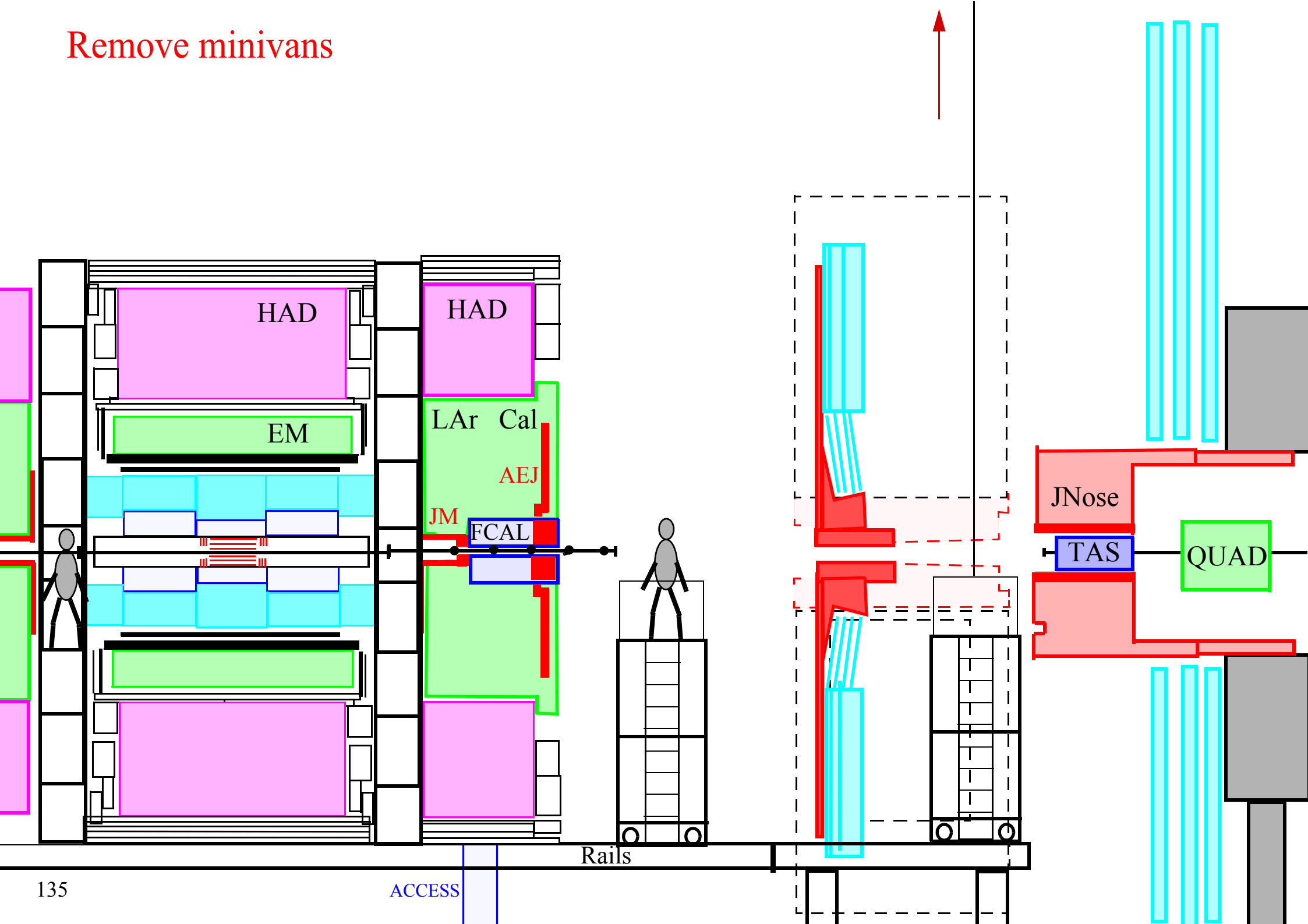
ACCESS







Remove minivans



JNose

TAS

QUAD

HAD

HAD

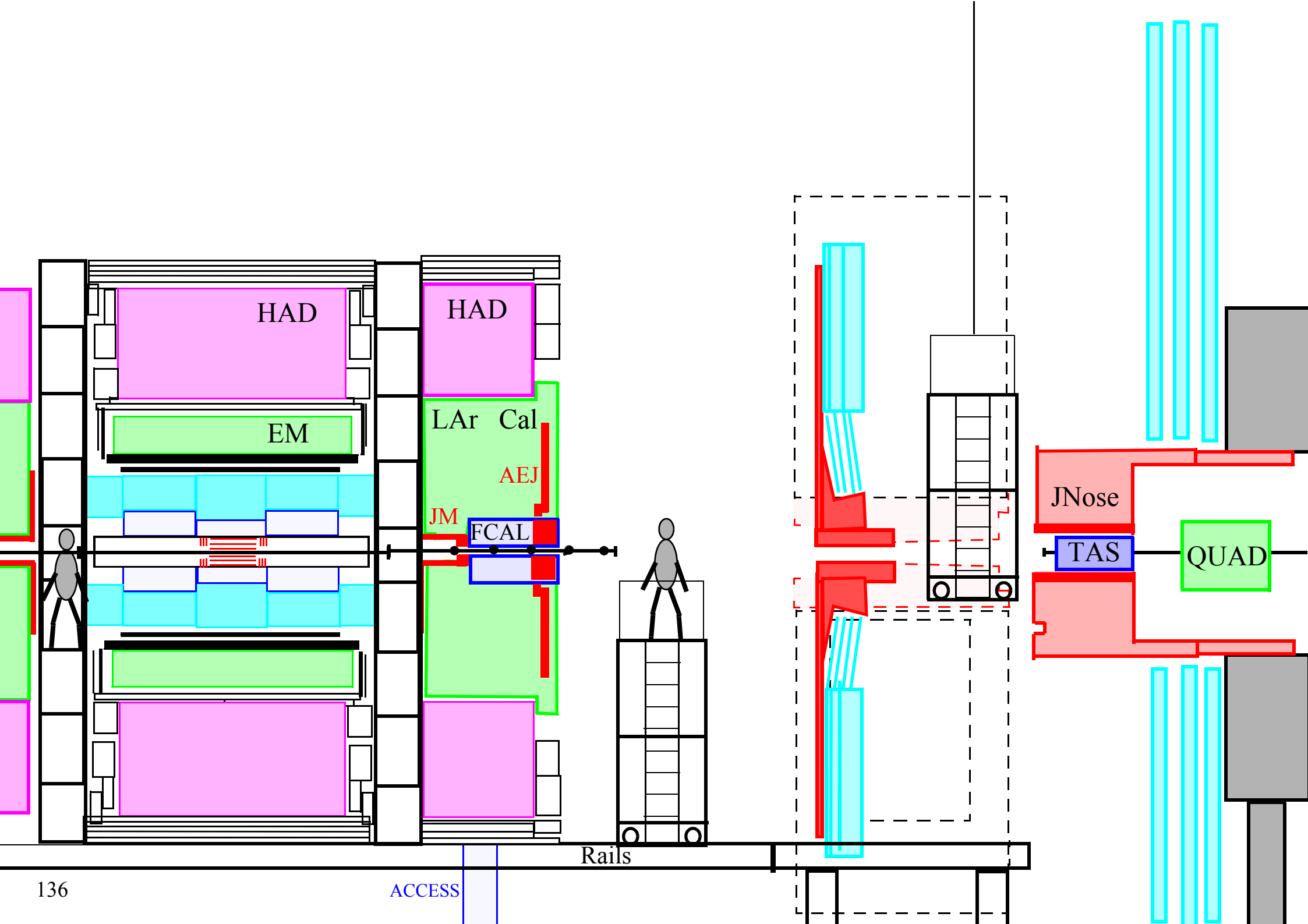
EM

LAr Cal

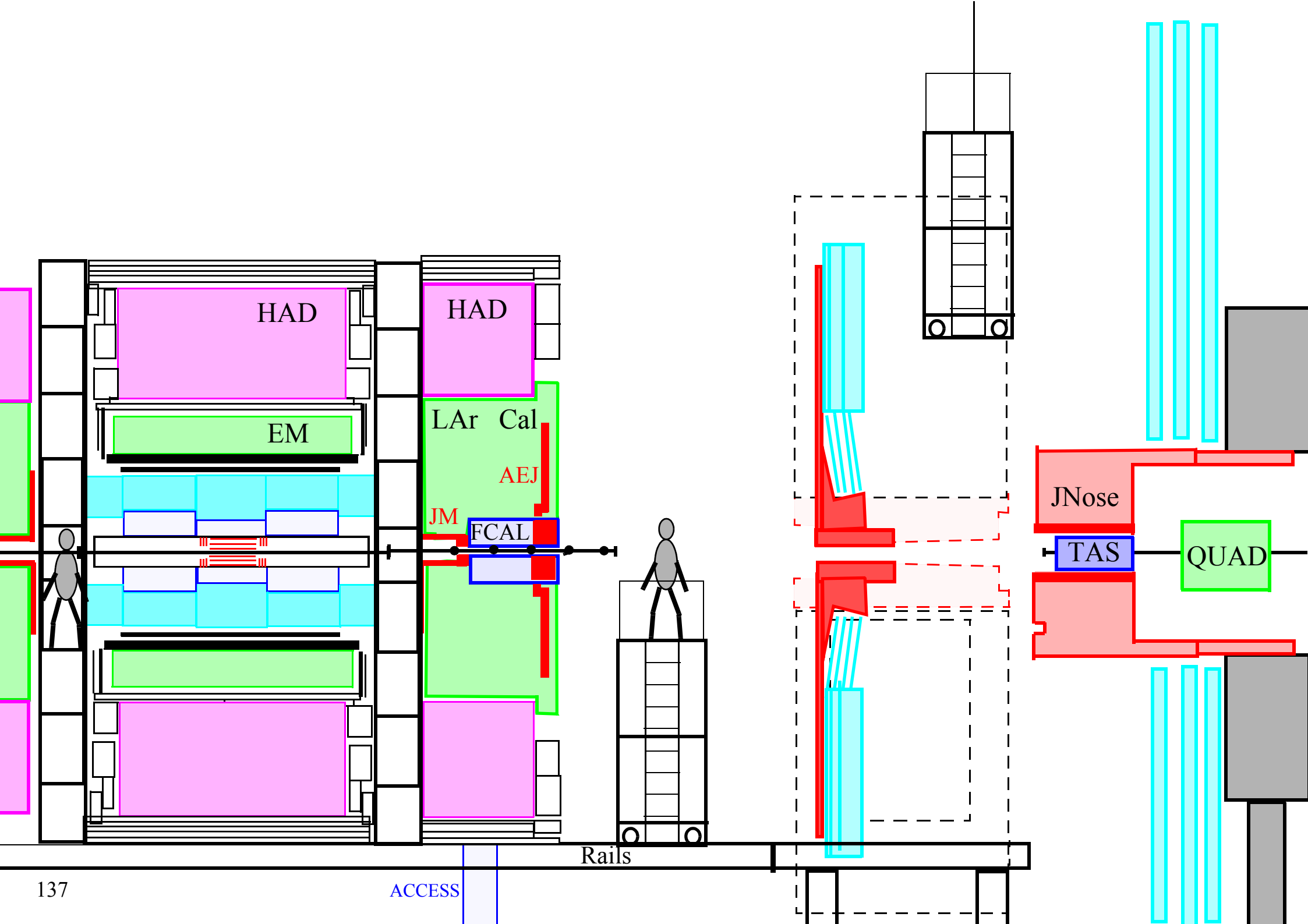
AEJ

JM

FCAL







HAD

HAD

EM

LAr Cal

AEJ

JM

FCAL

JNose

TAS

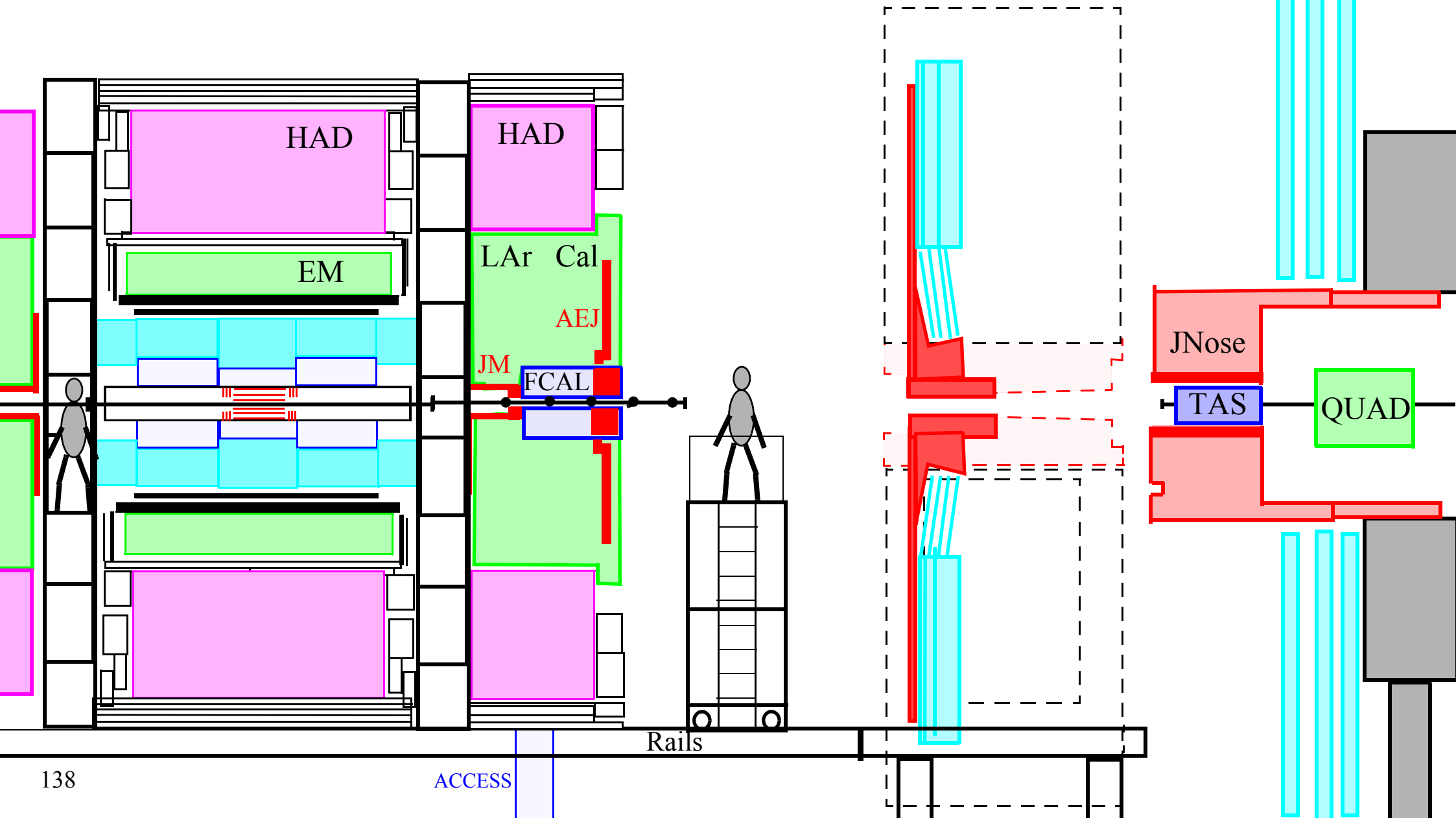
QUAD

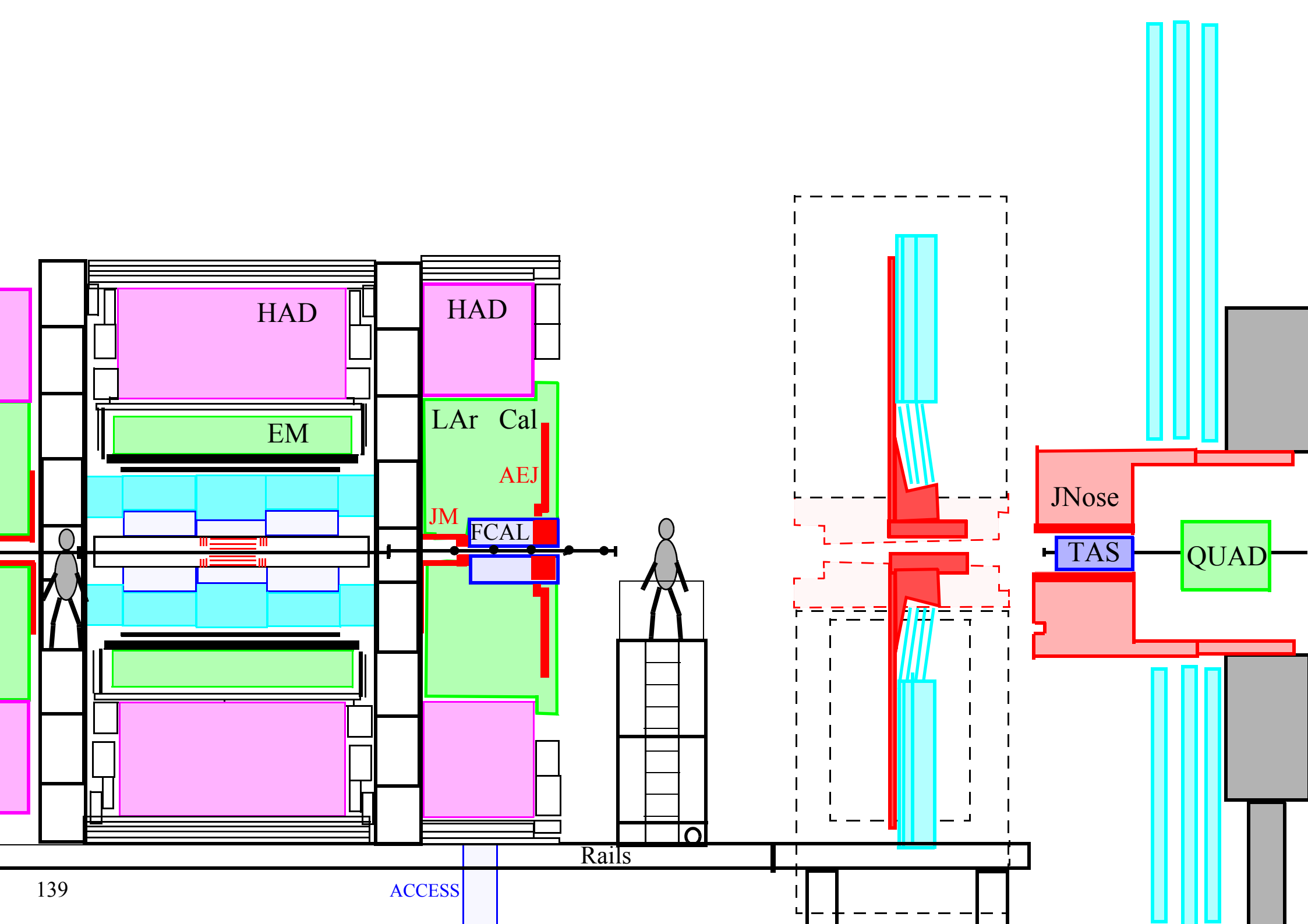
Rails

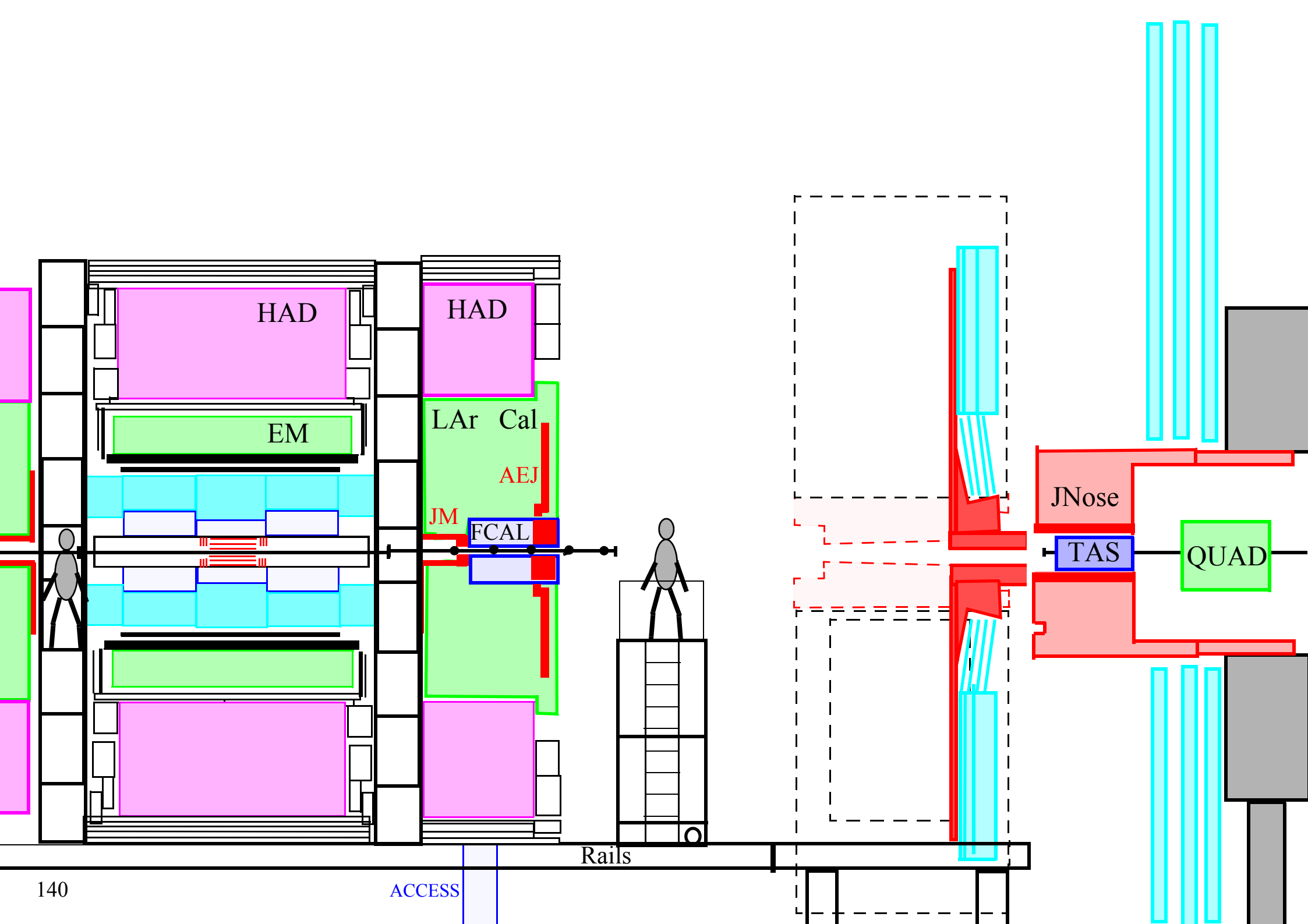
137

ACCESS

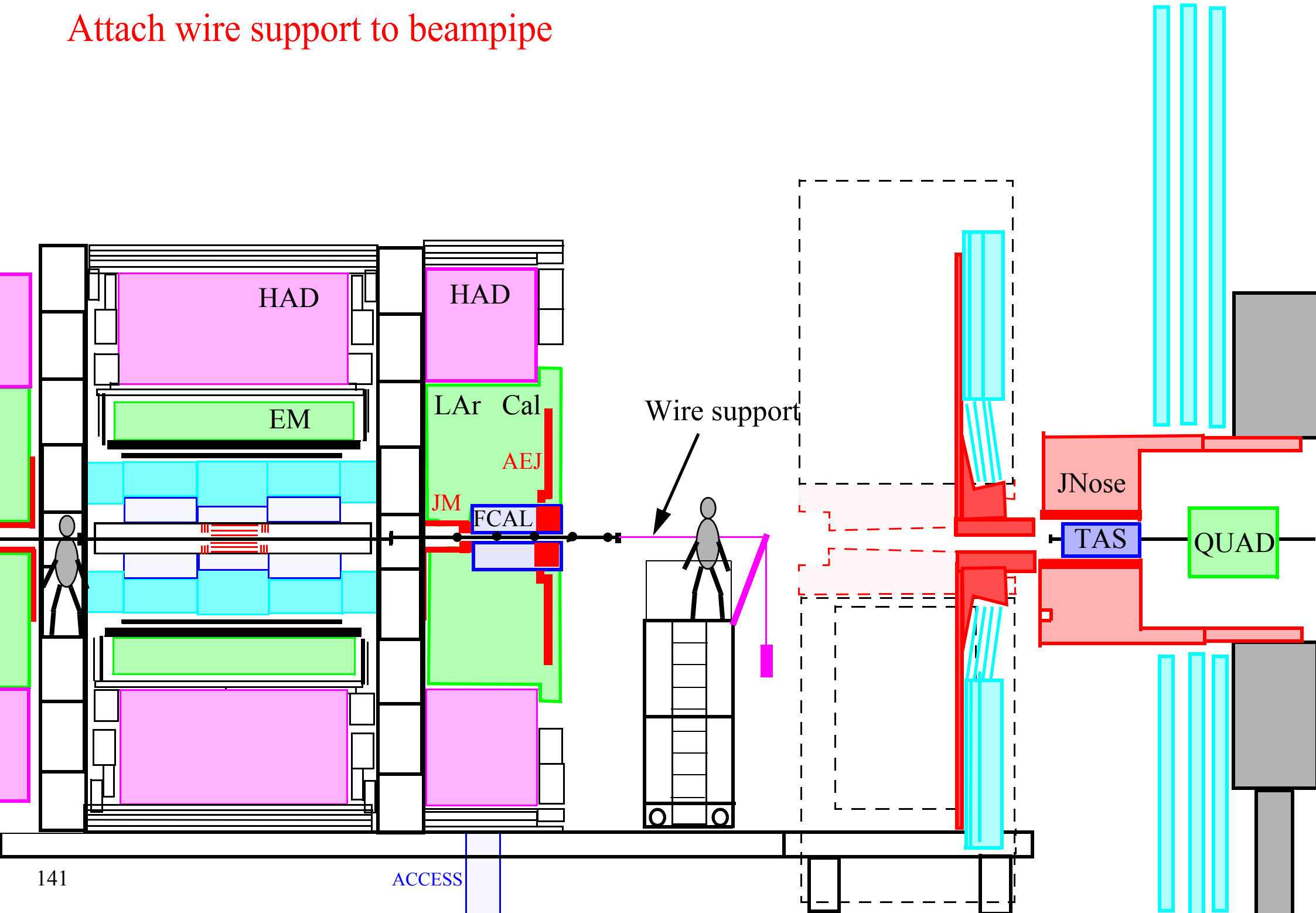
# Move JD/SW



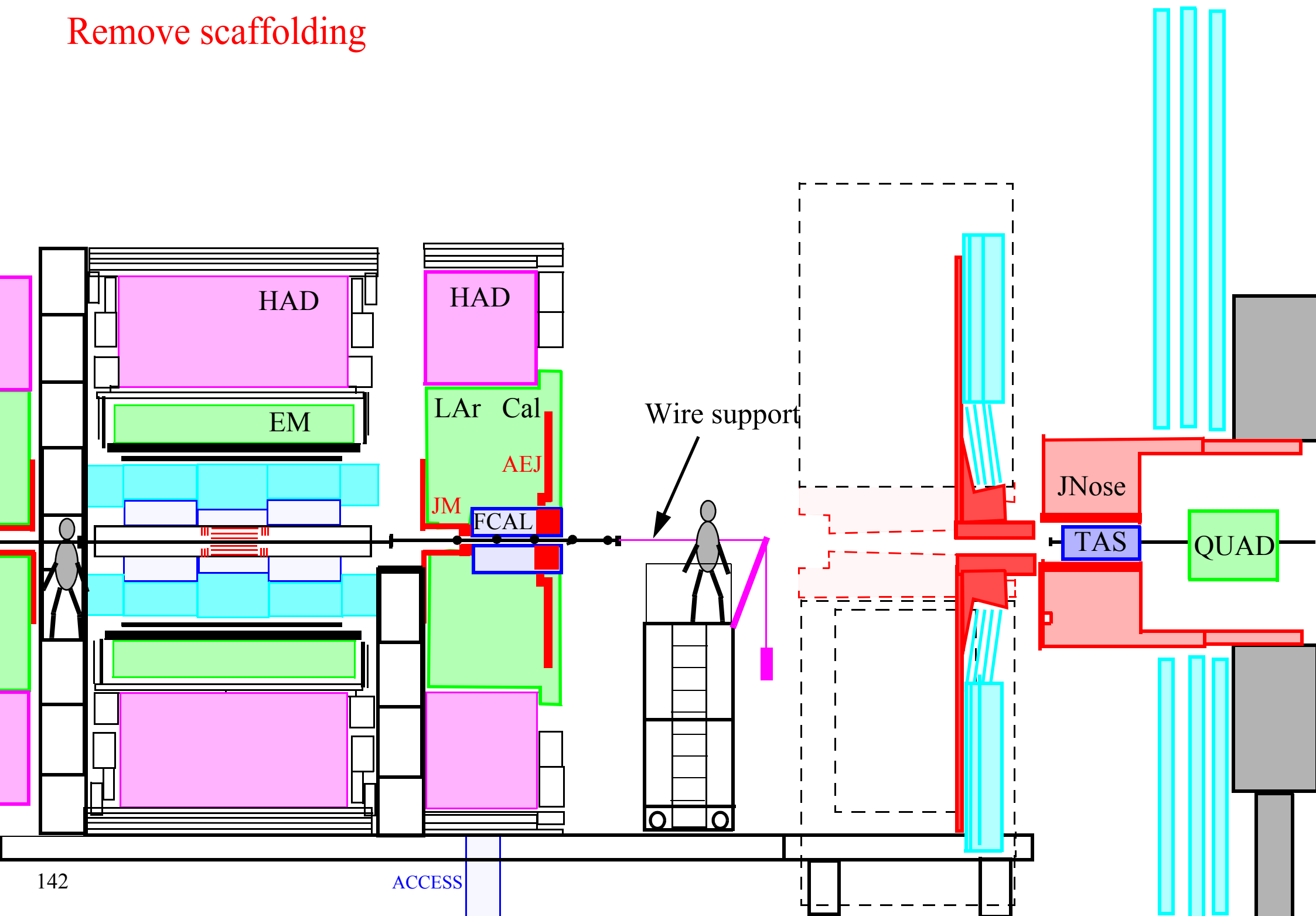




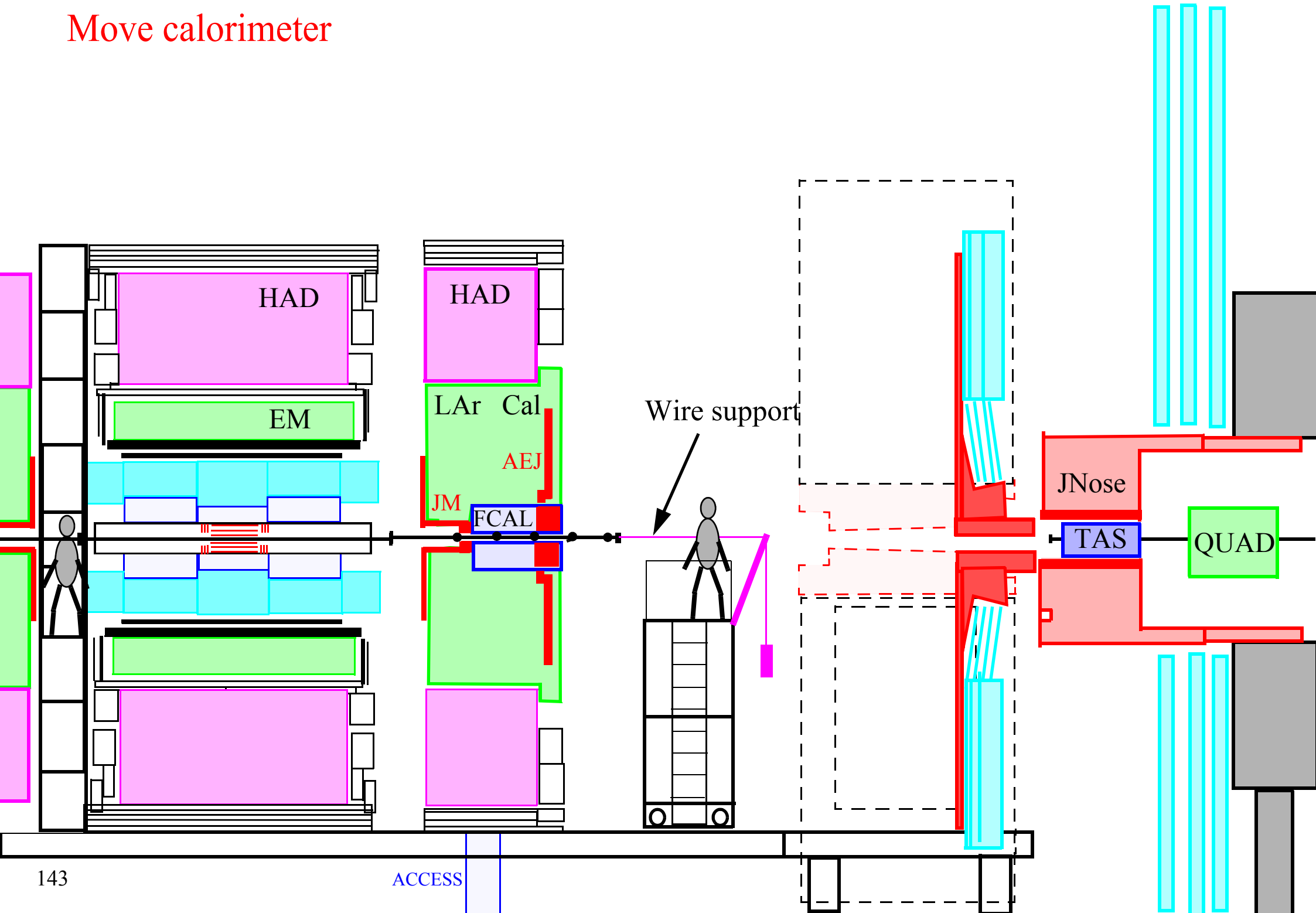
# Attach wire support to beampipe

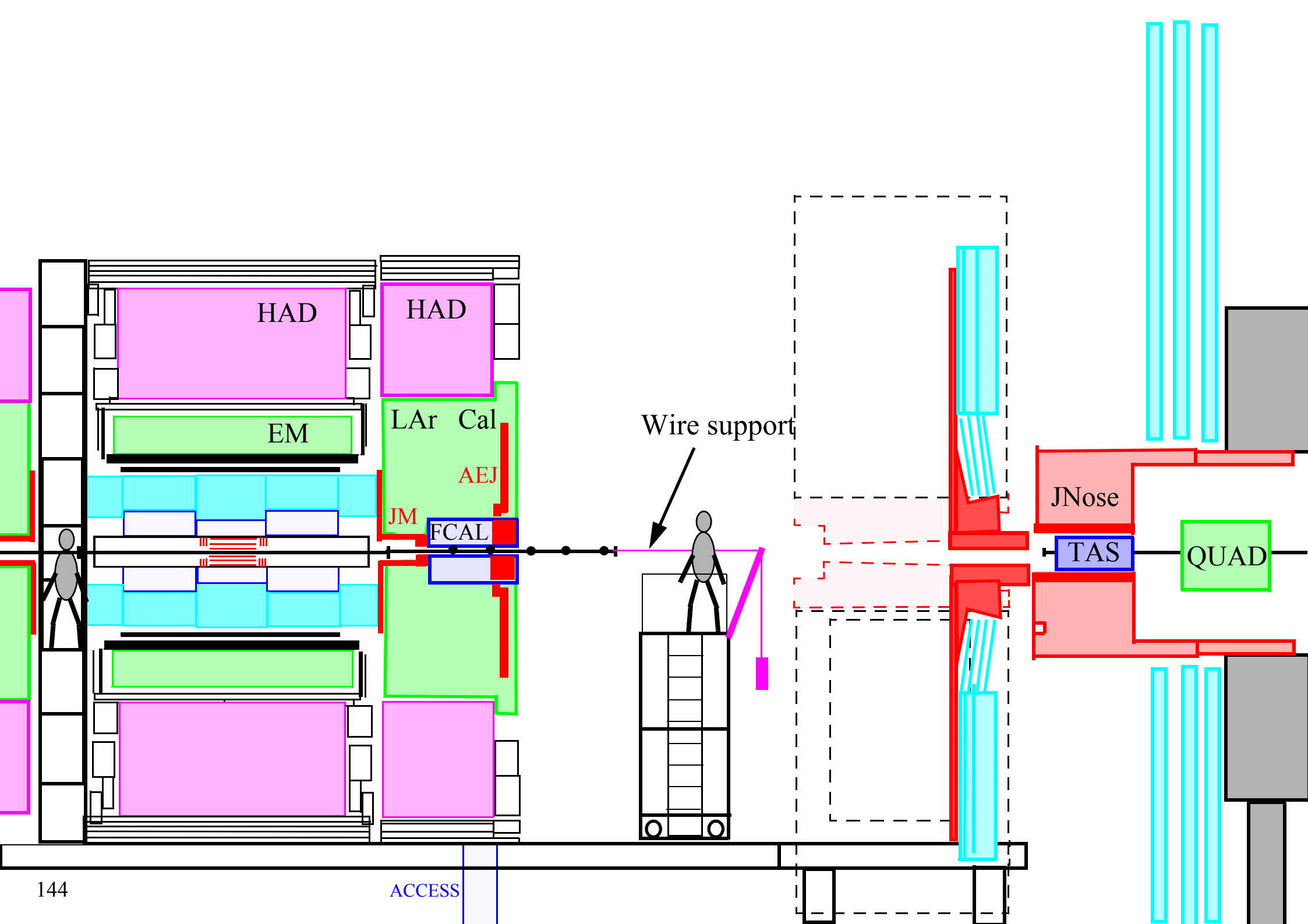


# Remove scaffolding



# Move calorimeter





HAD

HAD

EM

LAr Cal

AEJ

JM

FCAL

Wire support

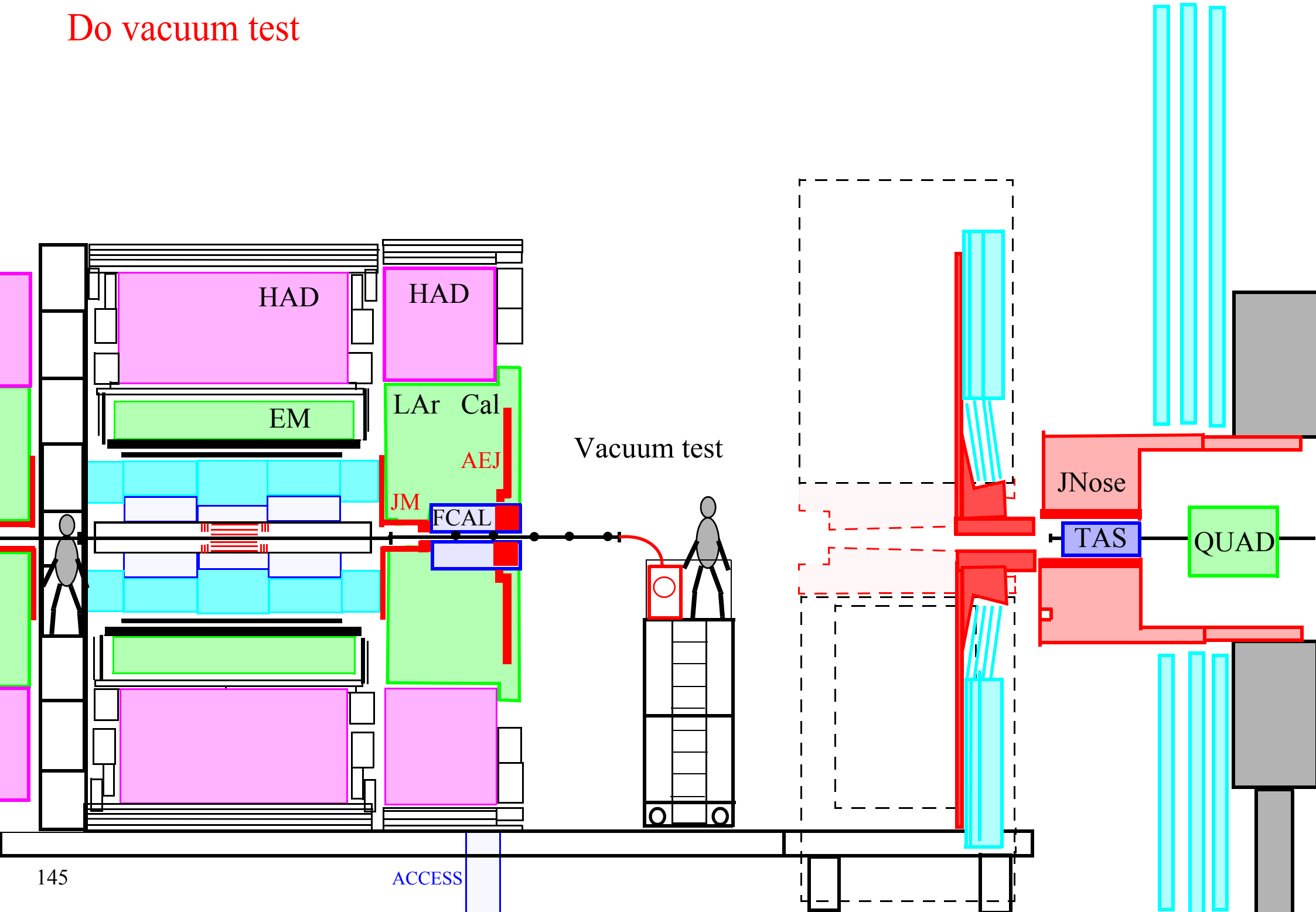
JNose

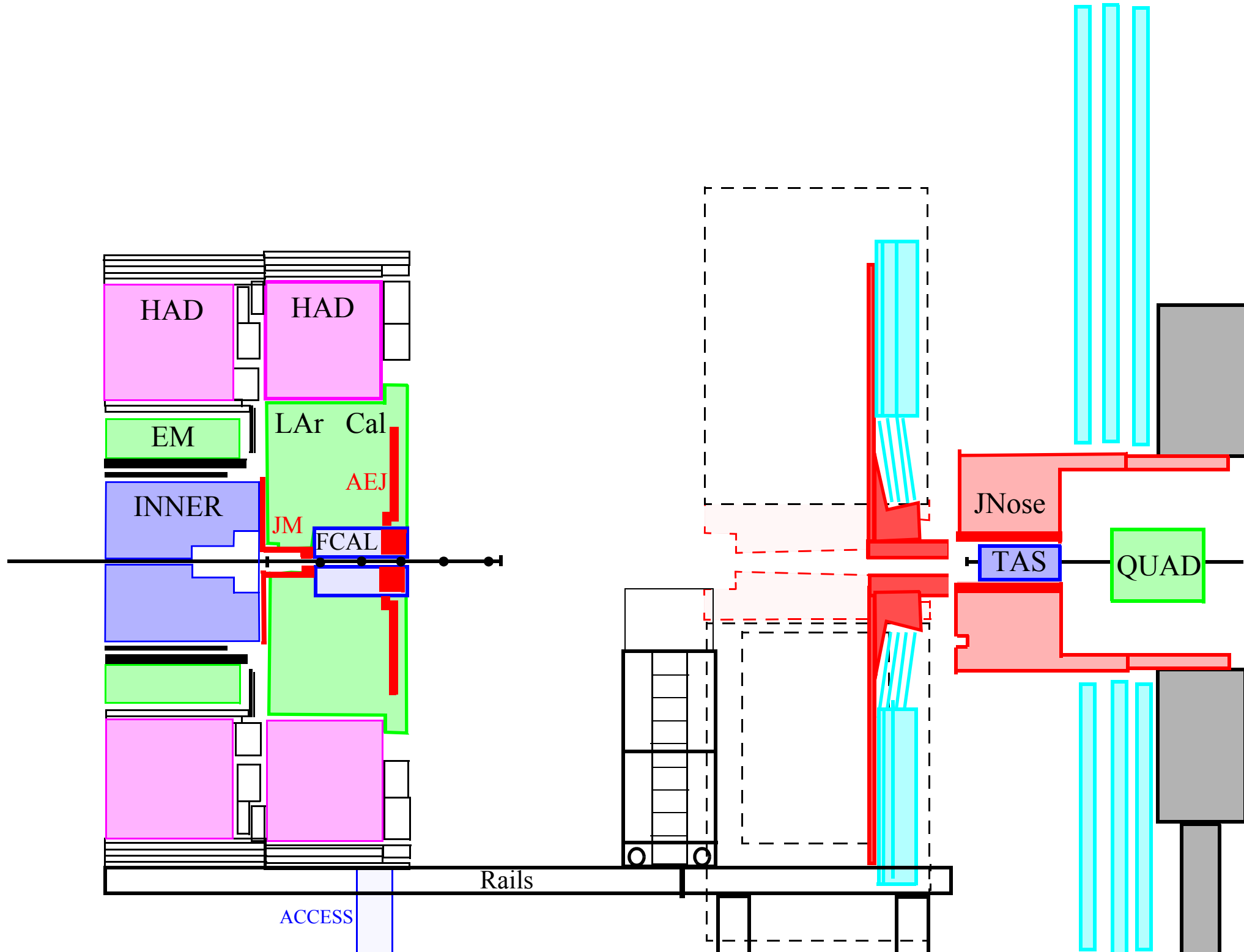
TAS

QUAD

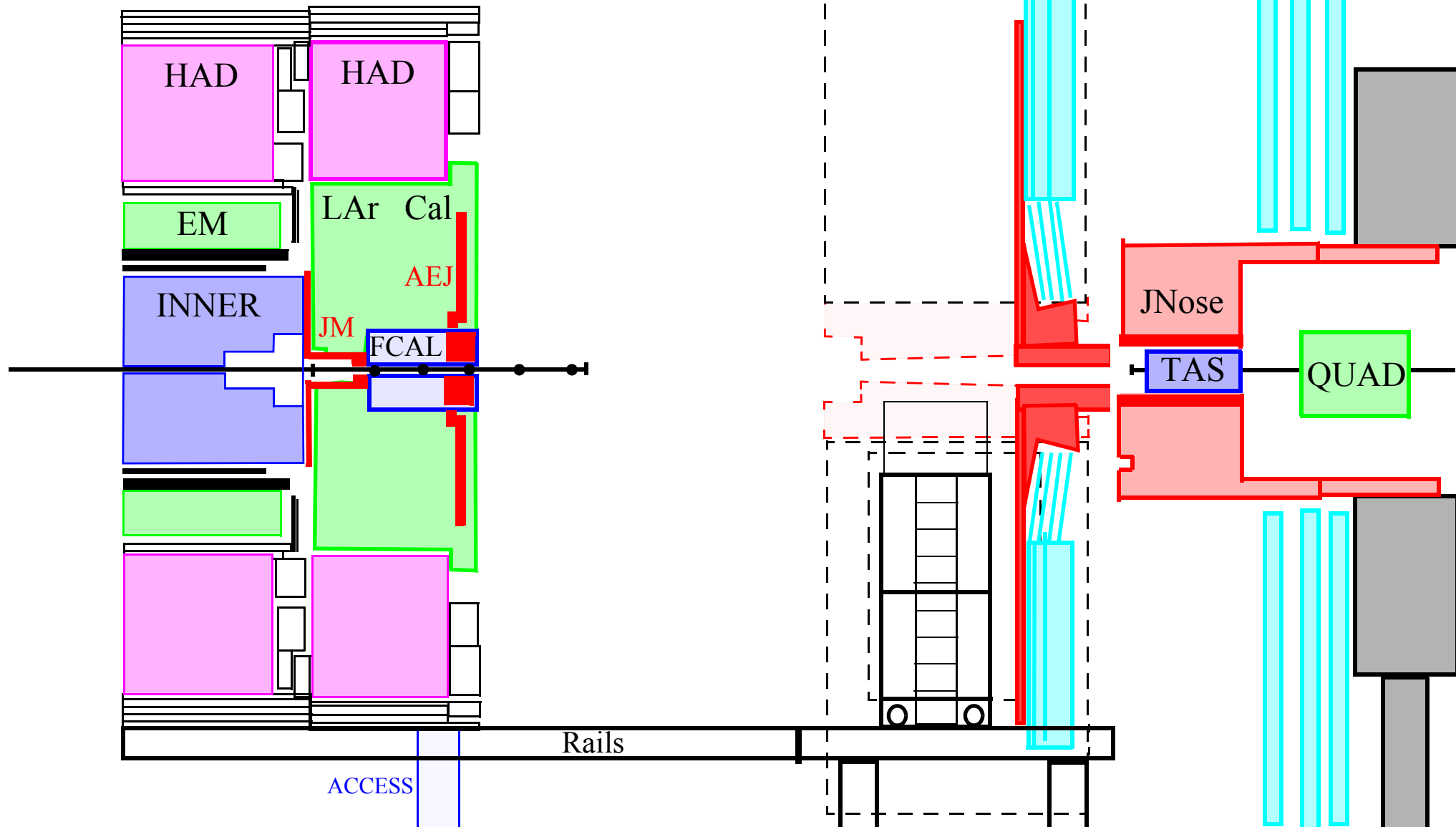


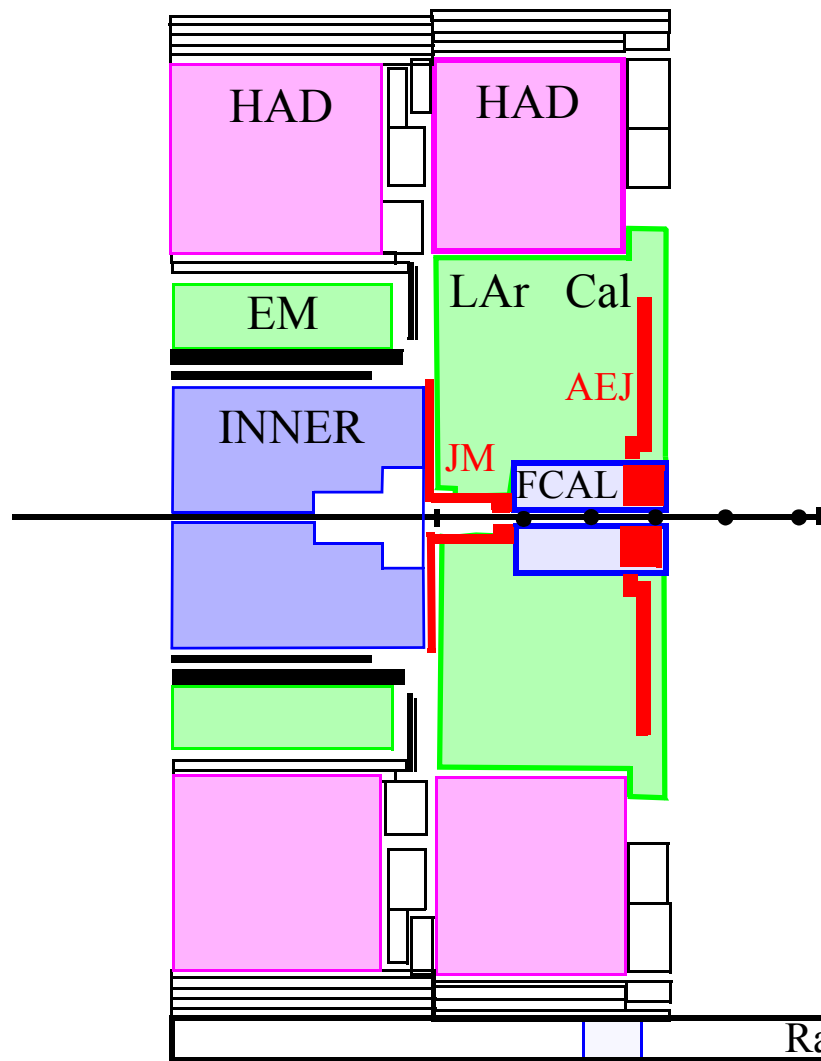
# Do vacuum test



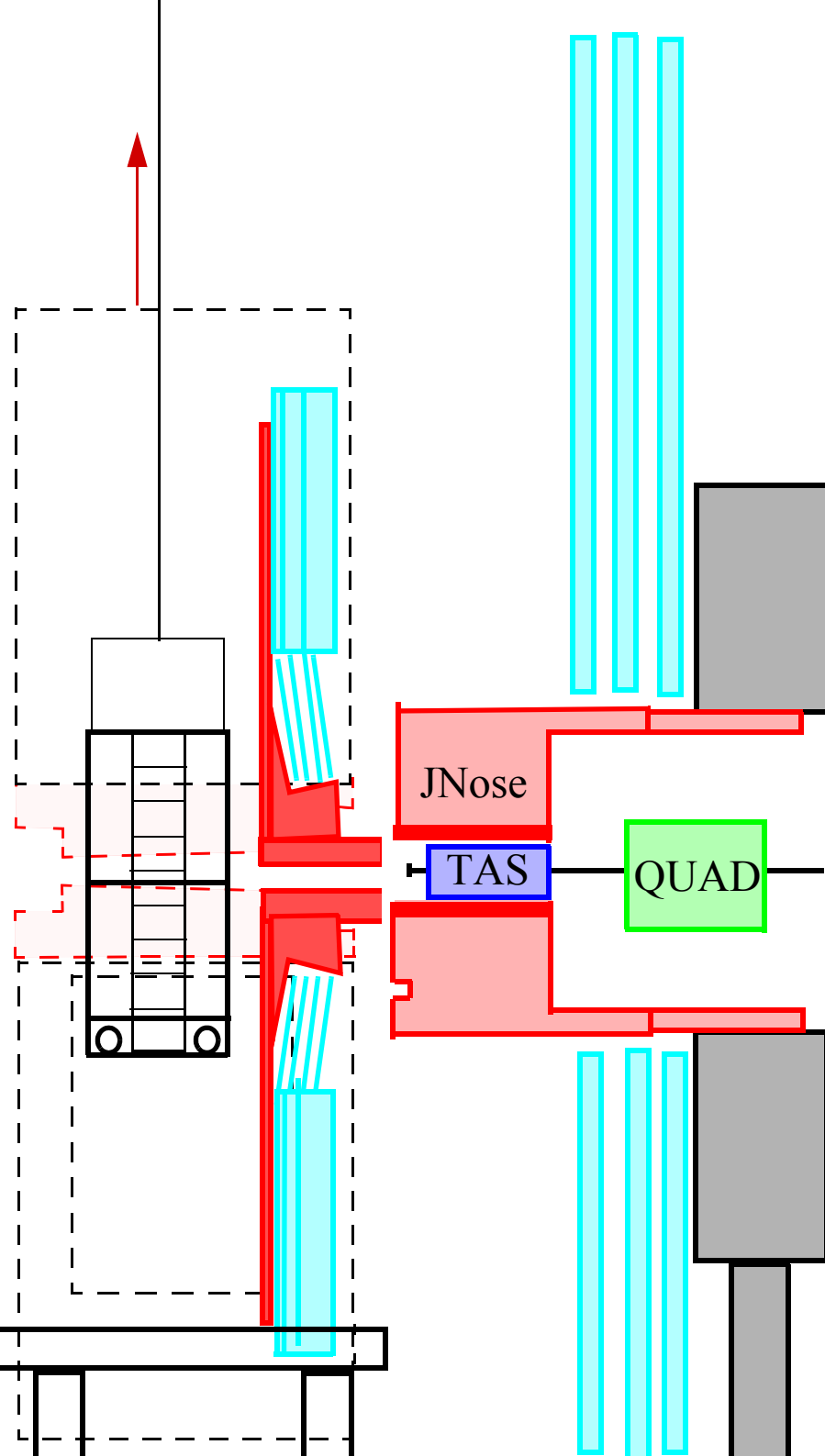


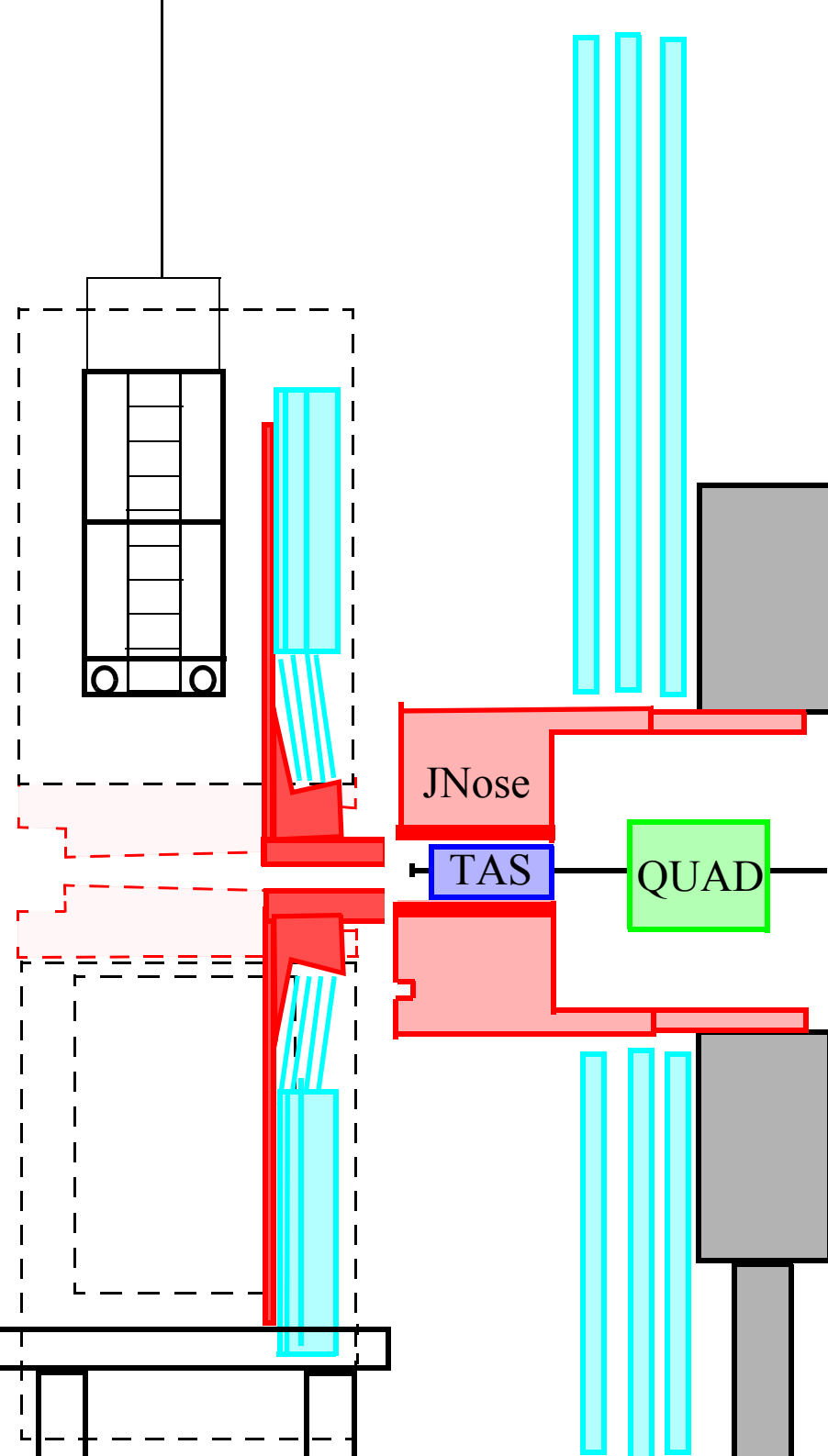
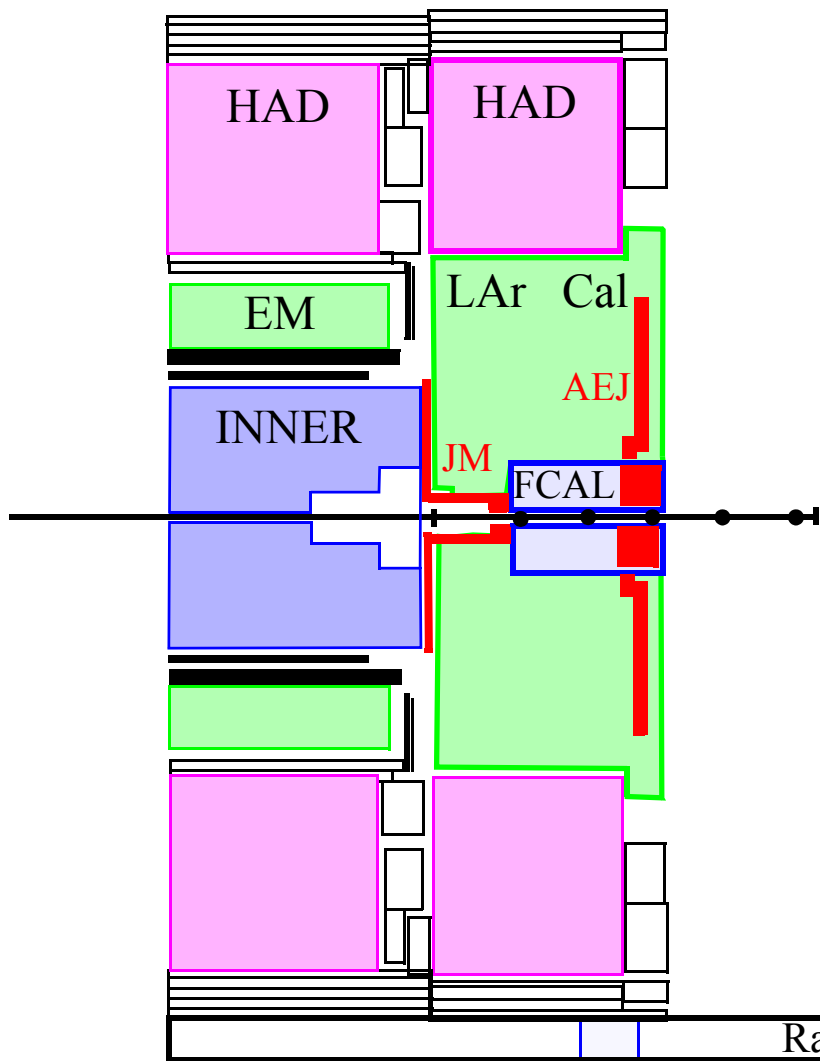
# Remove minivans

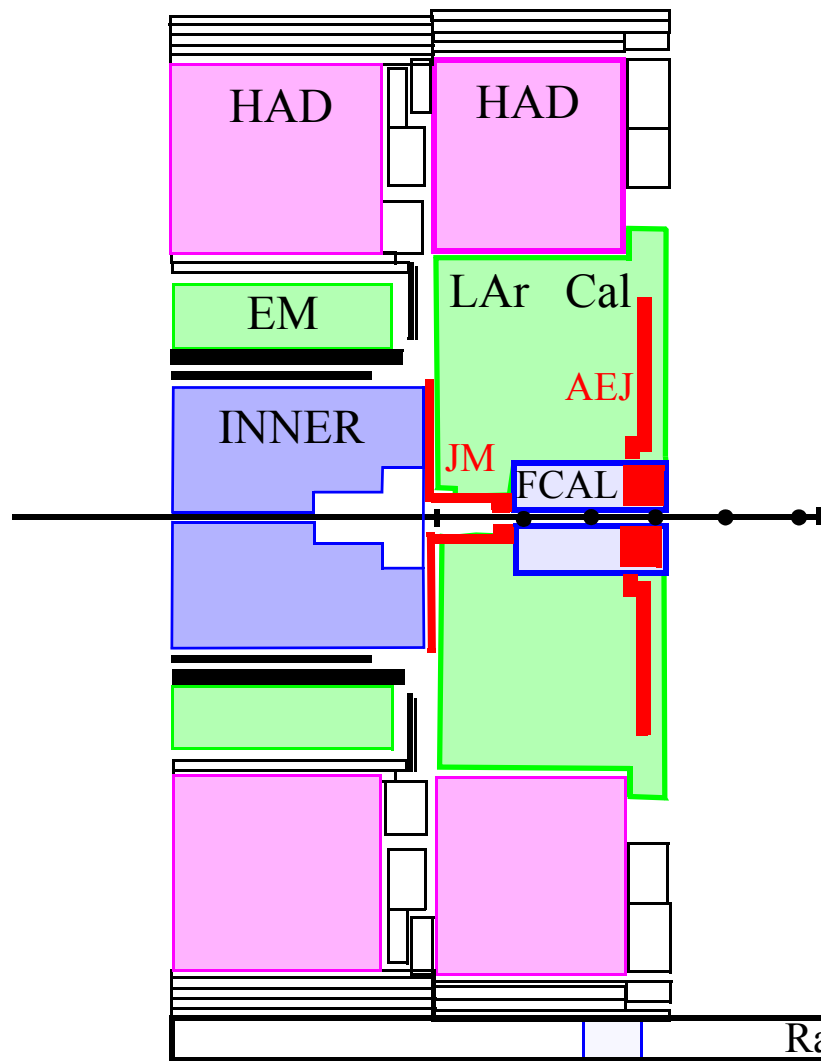




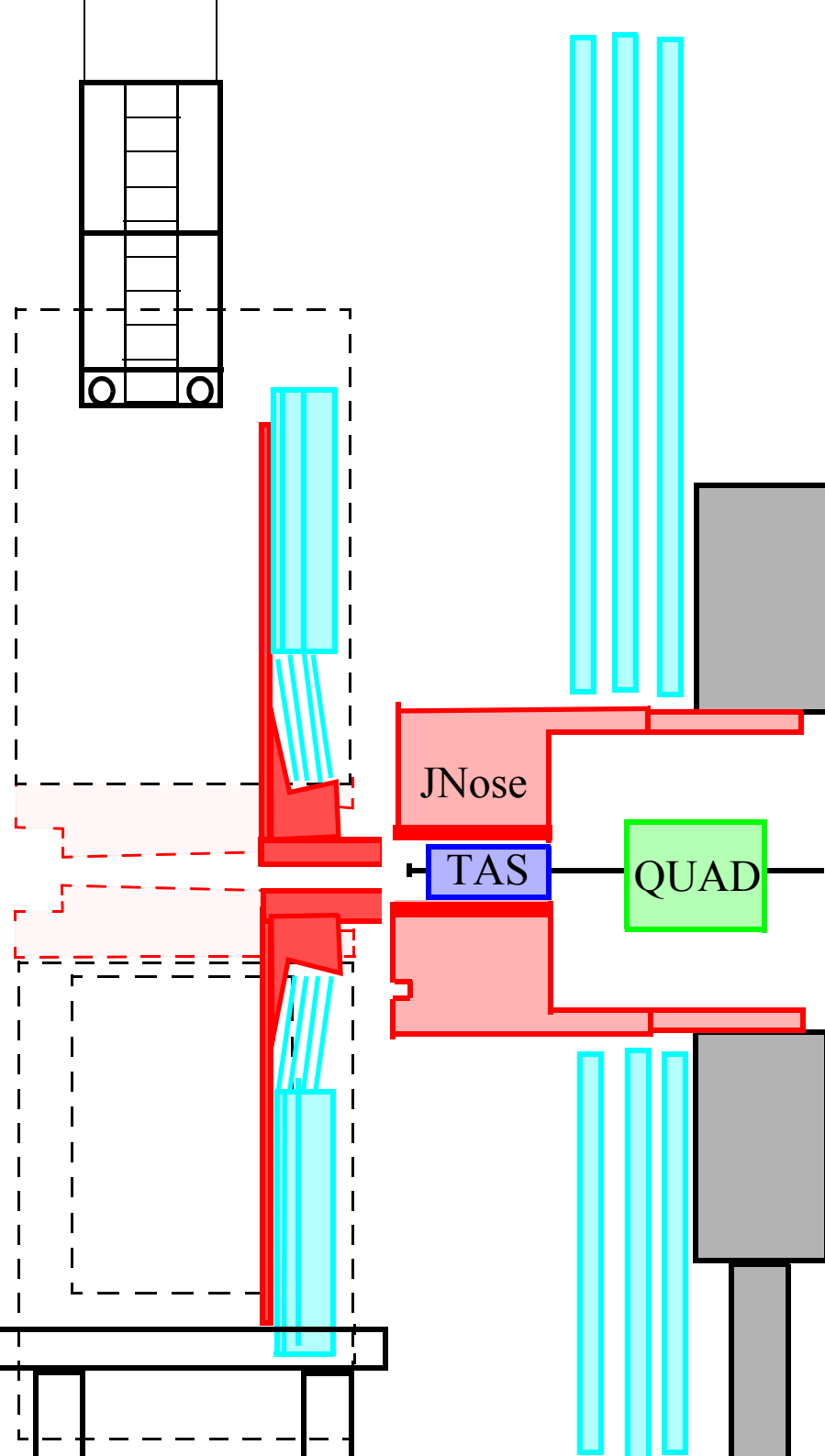
ACCESS



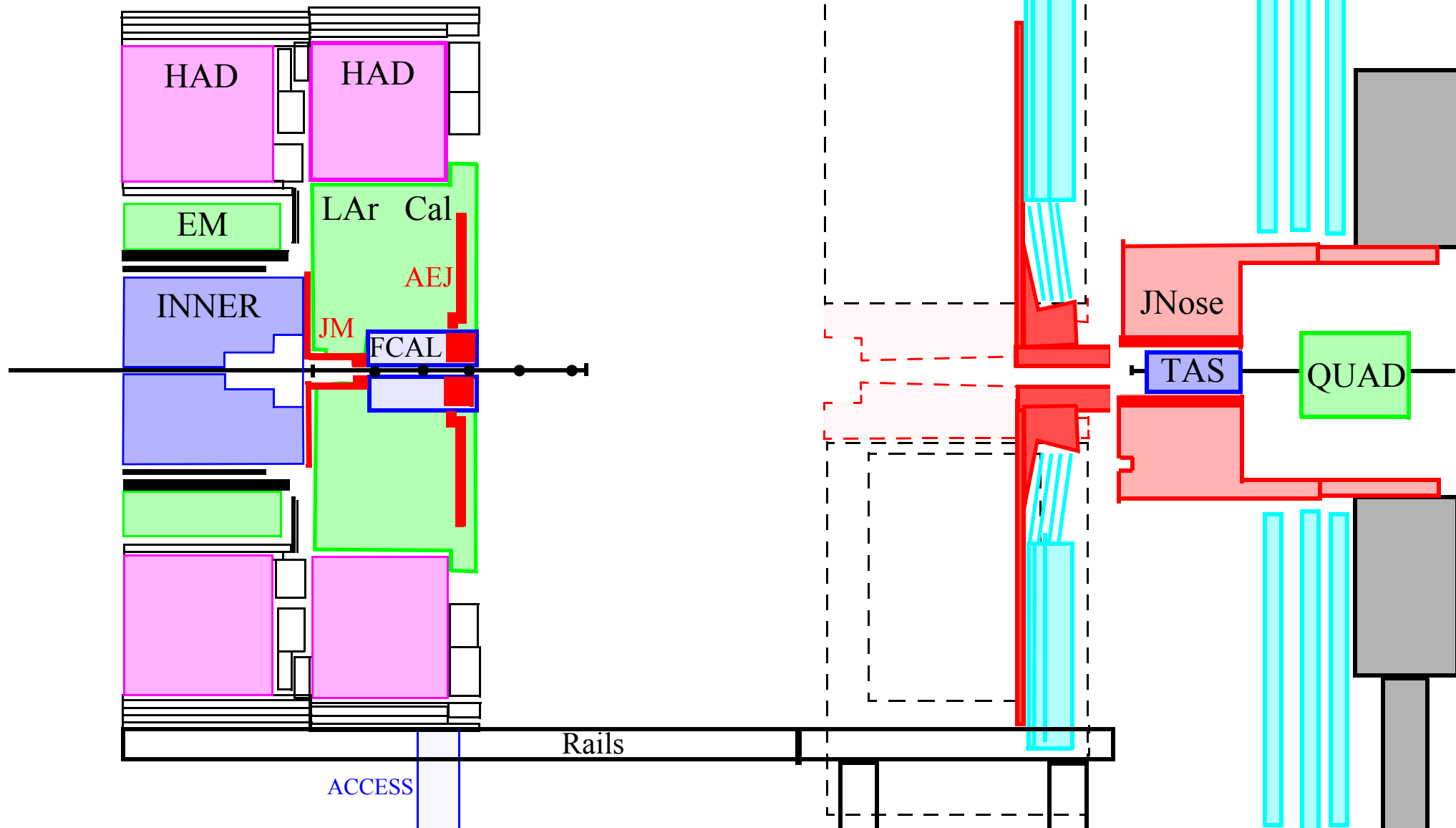


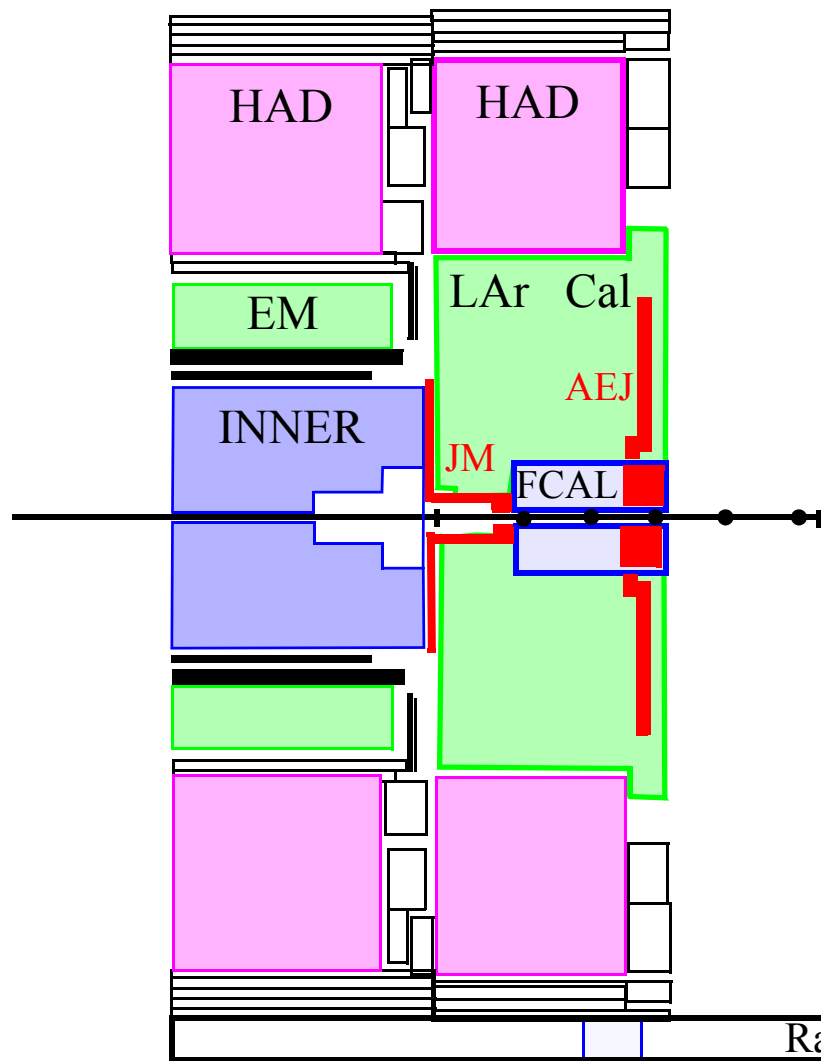


ACCESS

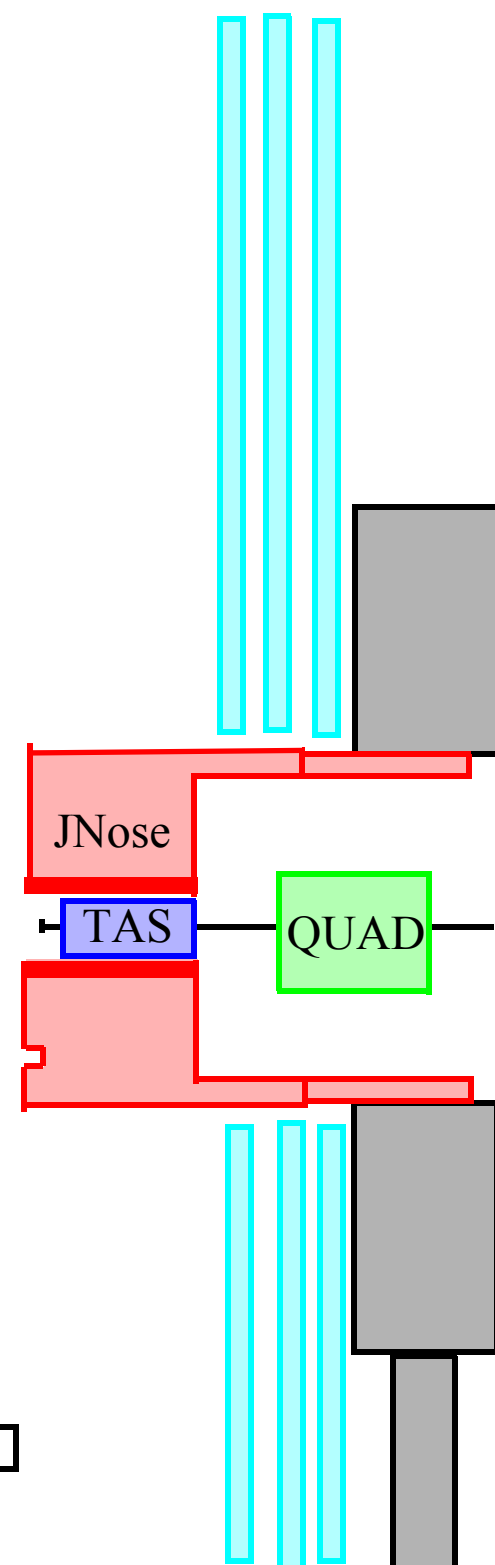
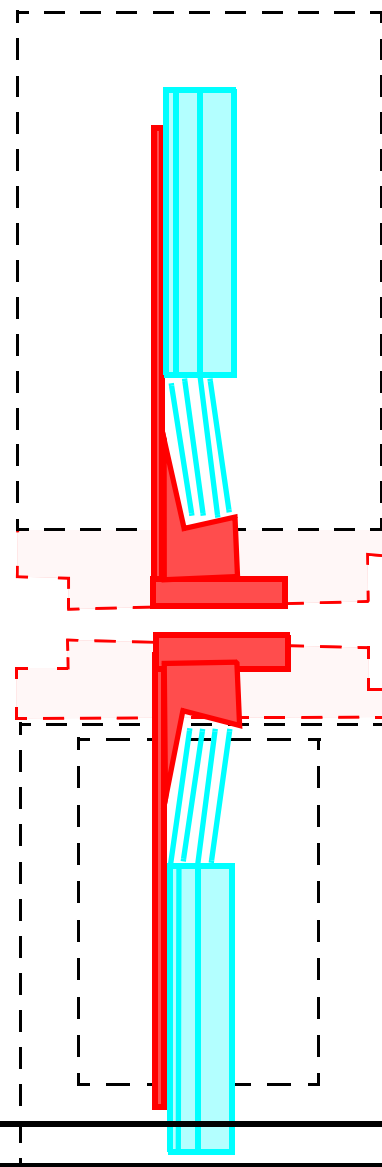


# Move JD/SW

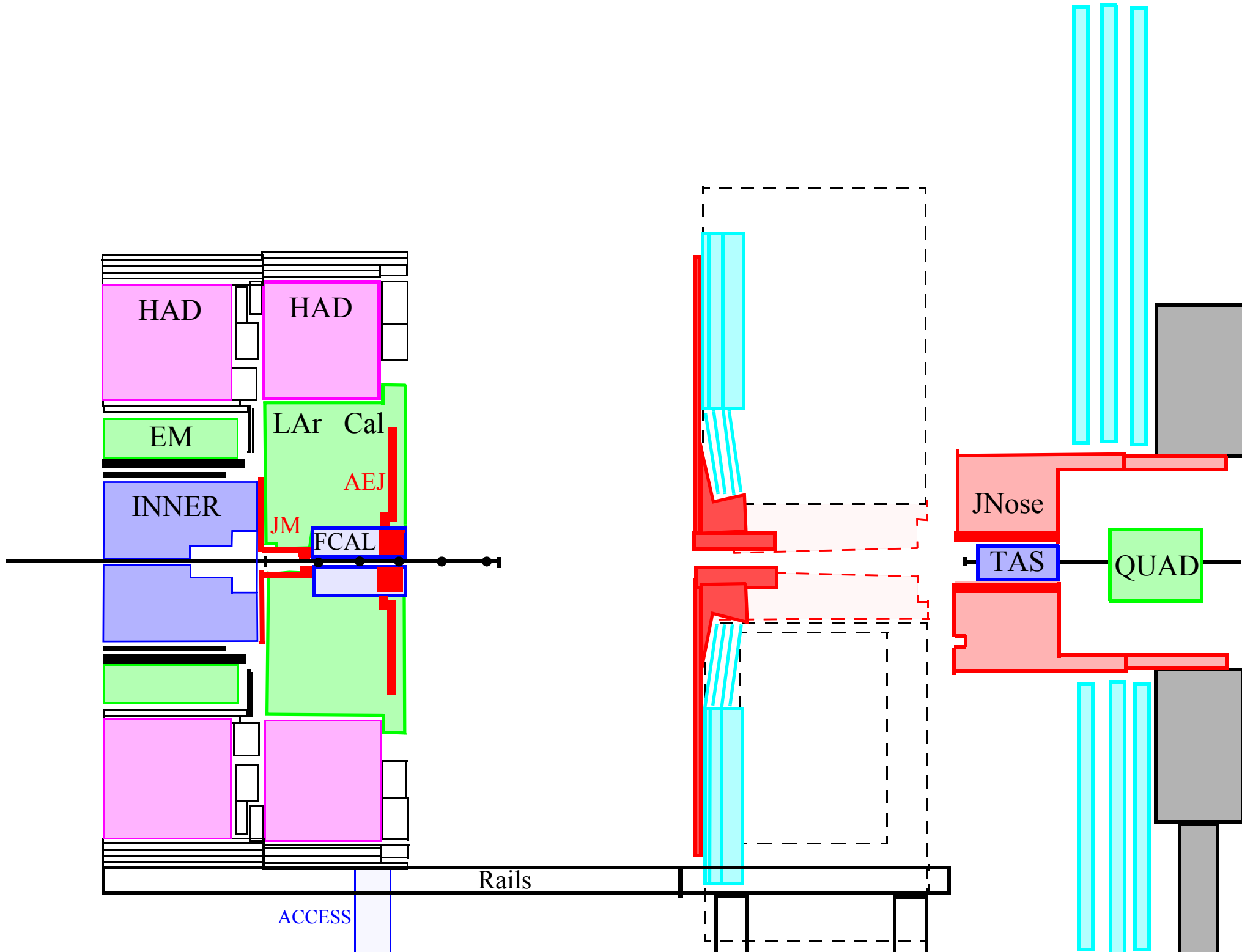


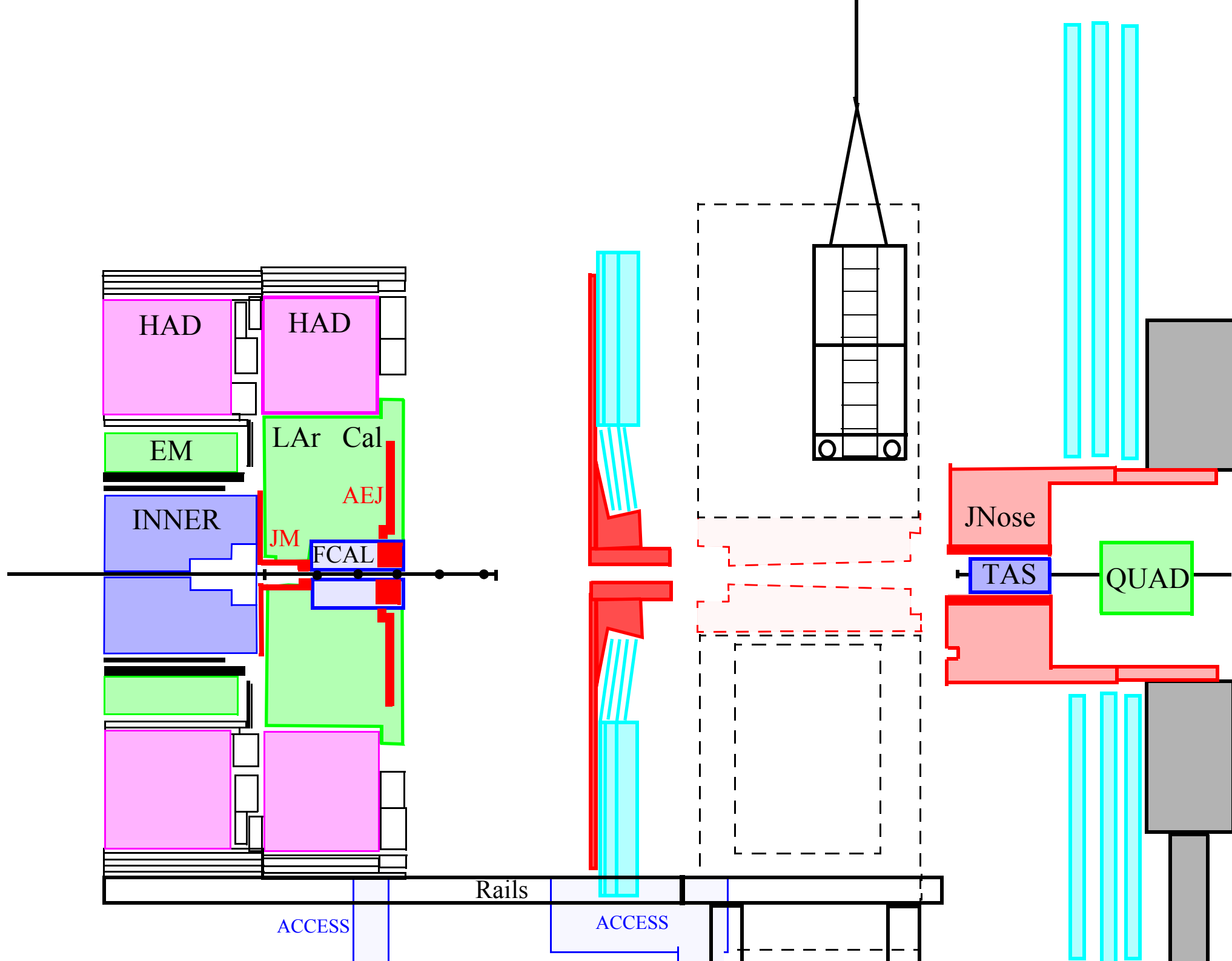


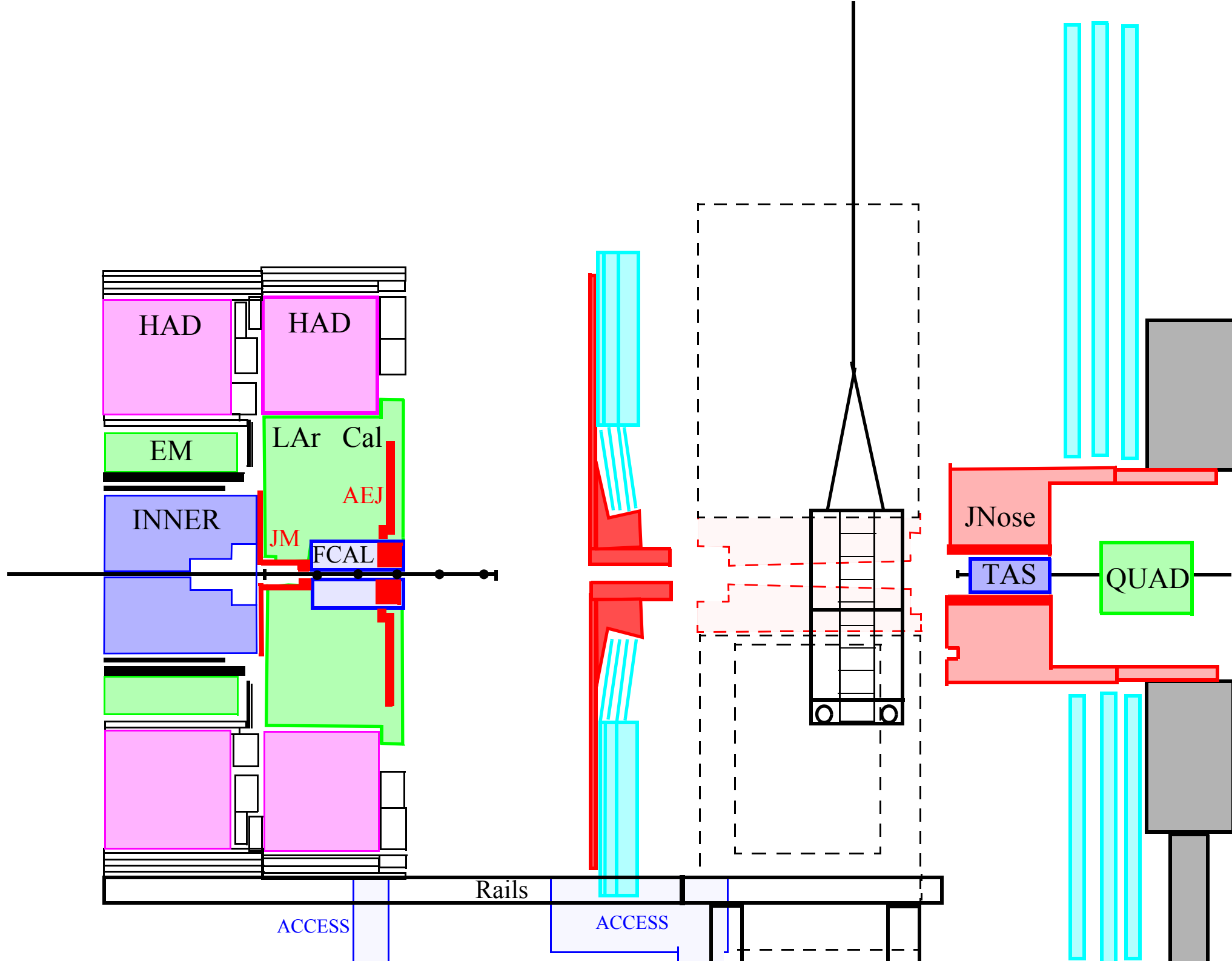
ACCESS

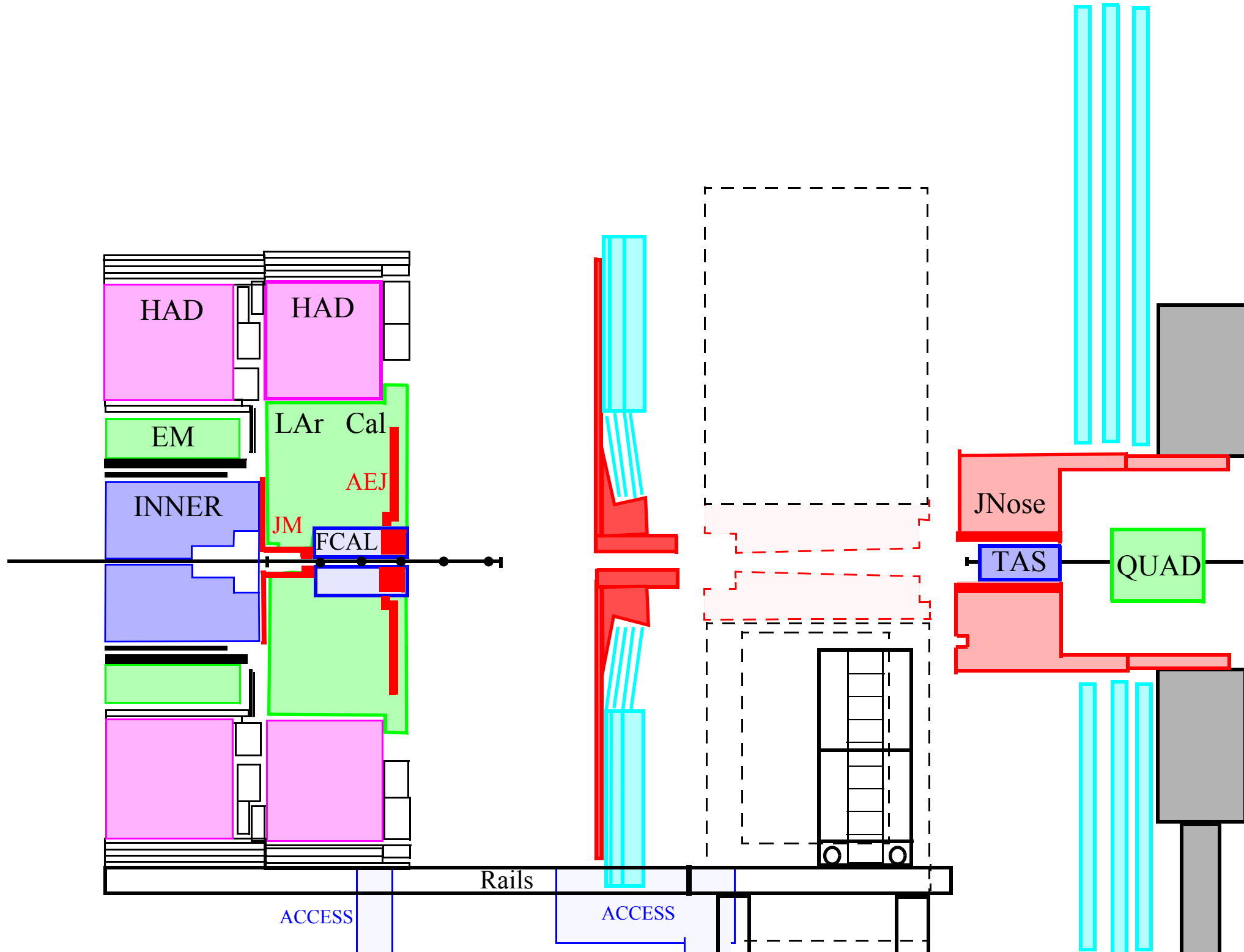


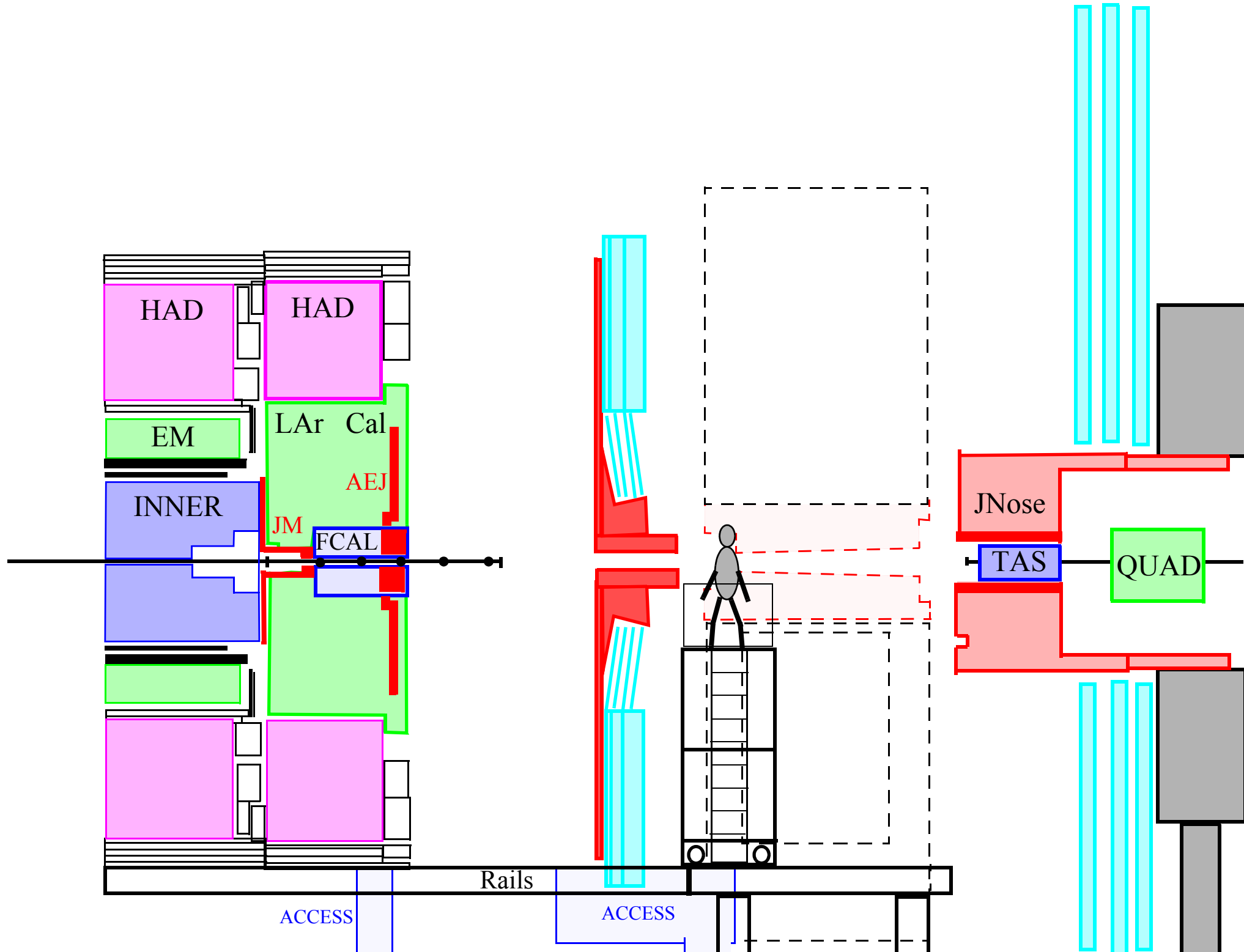




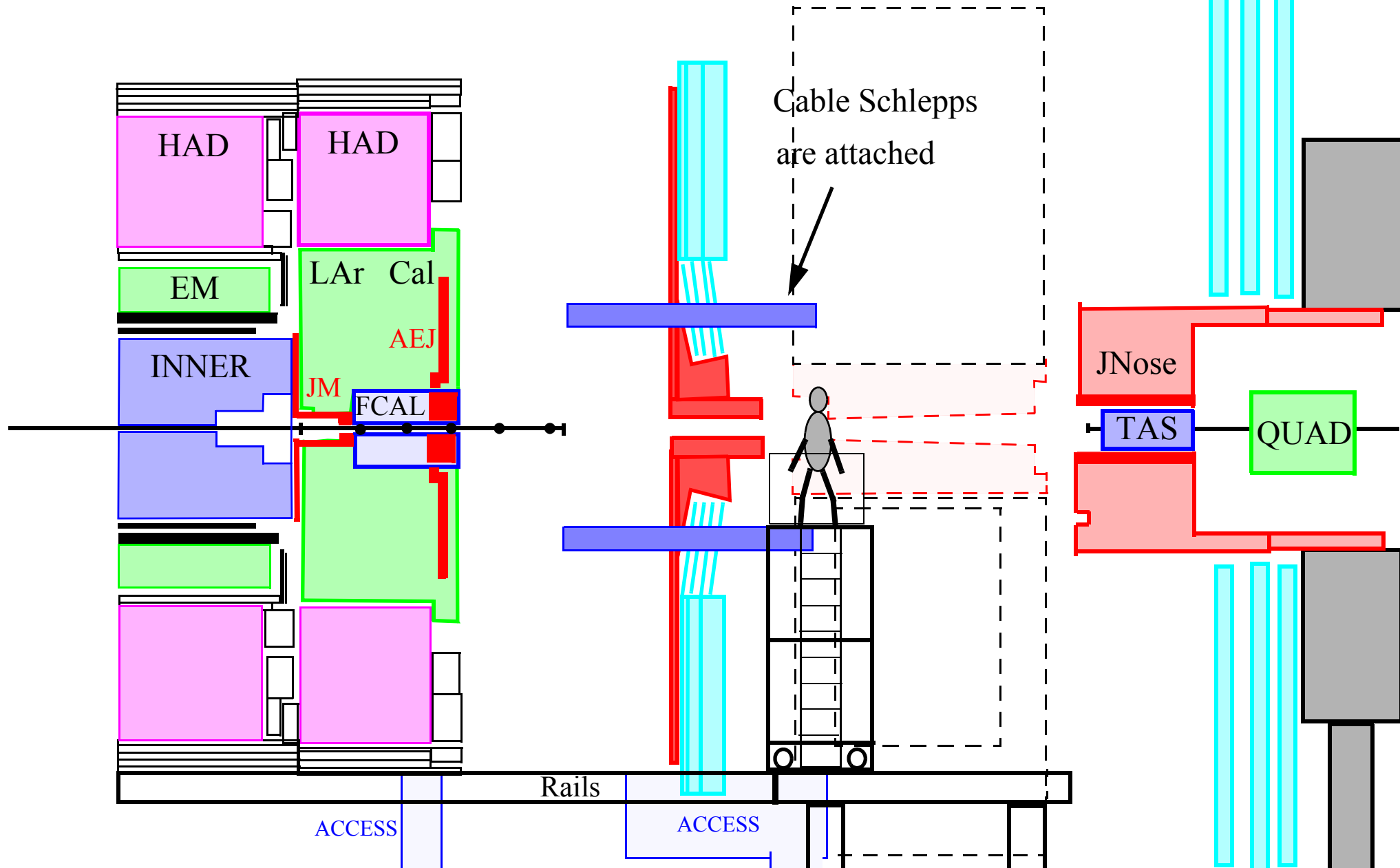








# Attach cable schlepps

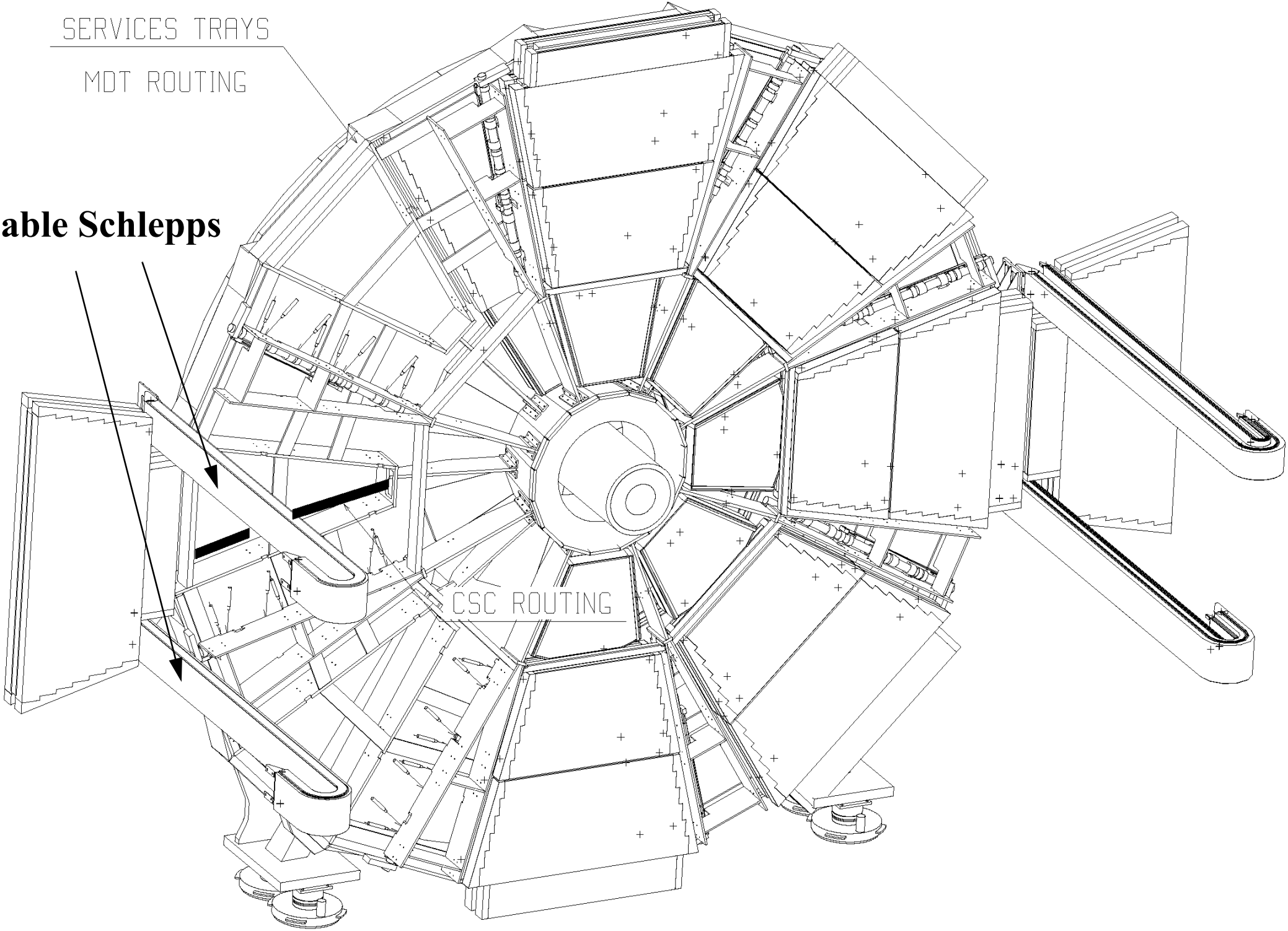


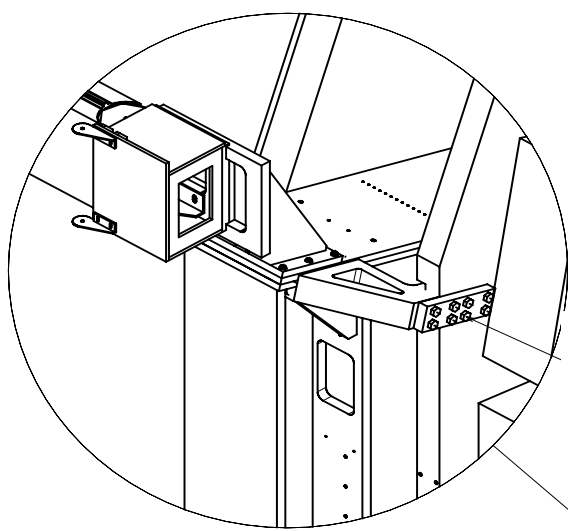
SERVICES TRAYS

MDT ROUTING

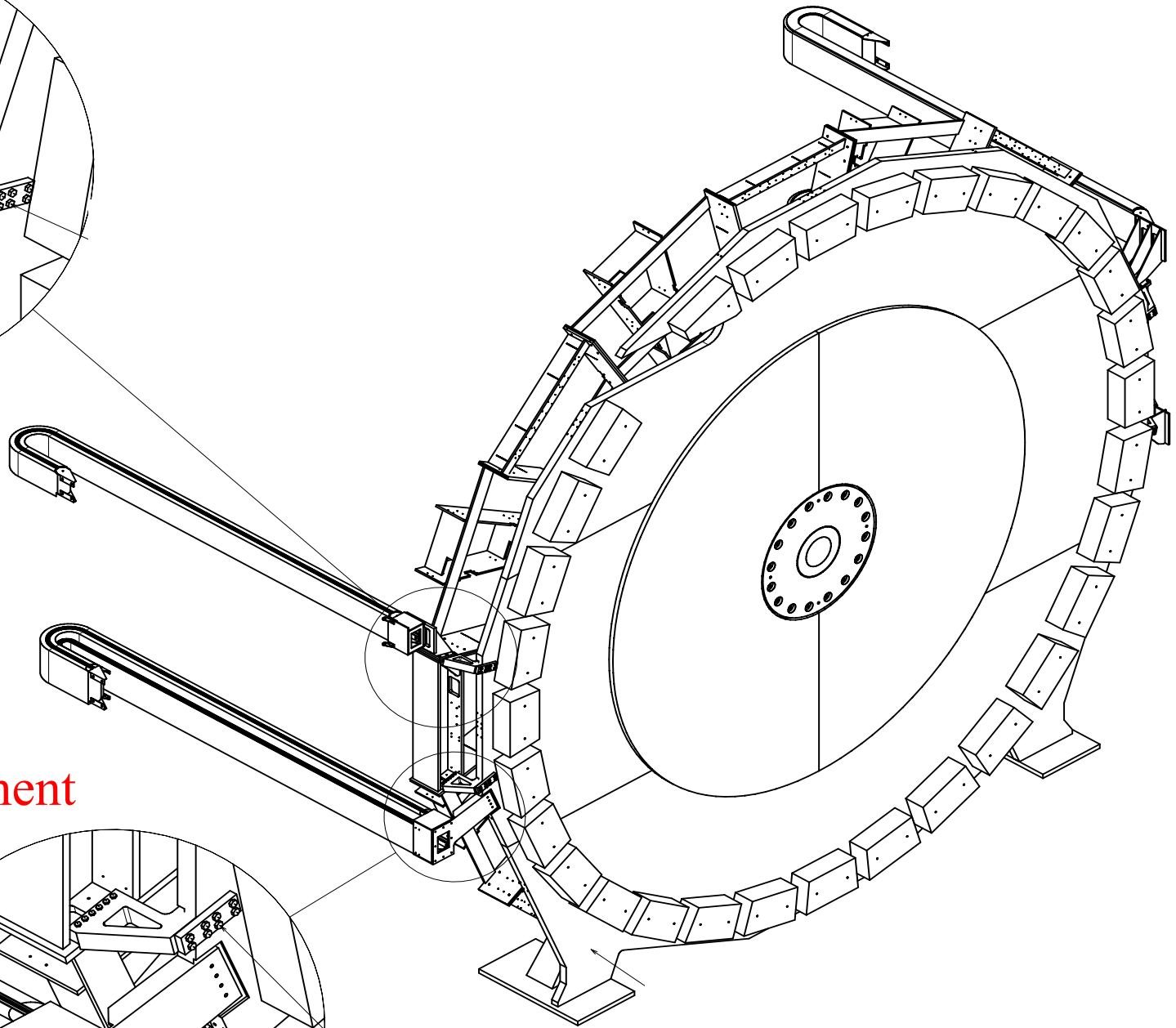
**Cable Schlepps**

CSC ROUTING

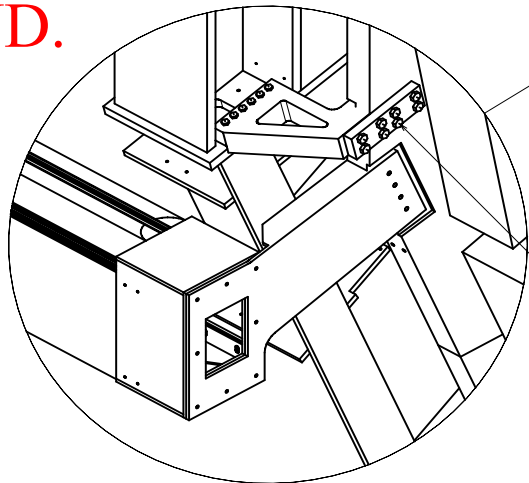




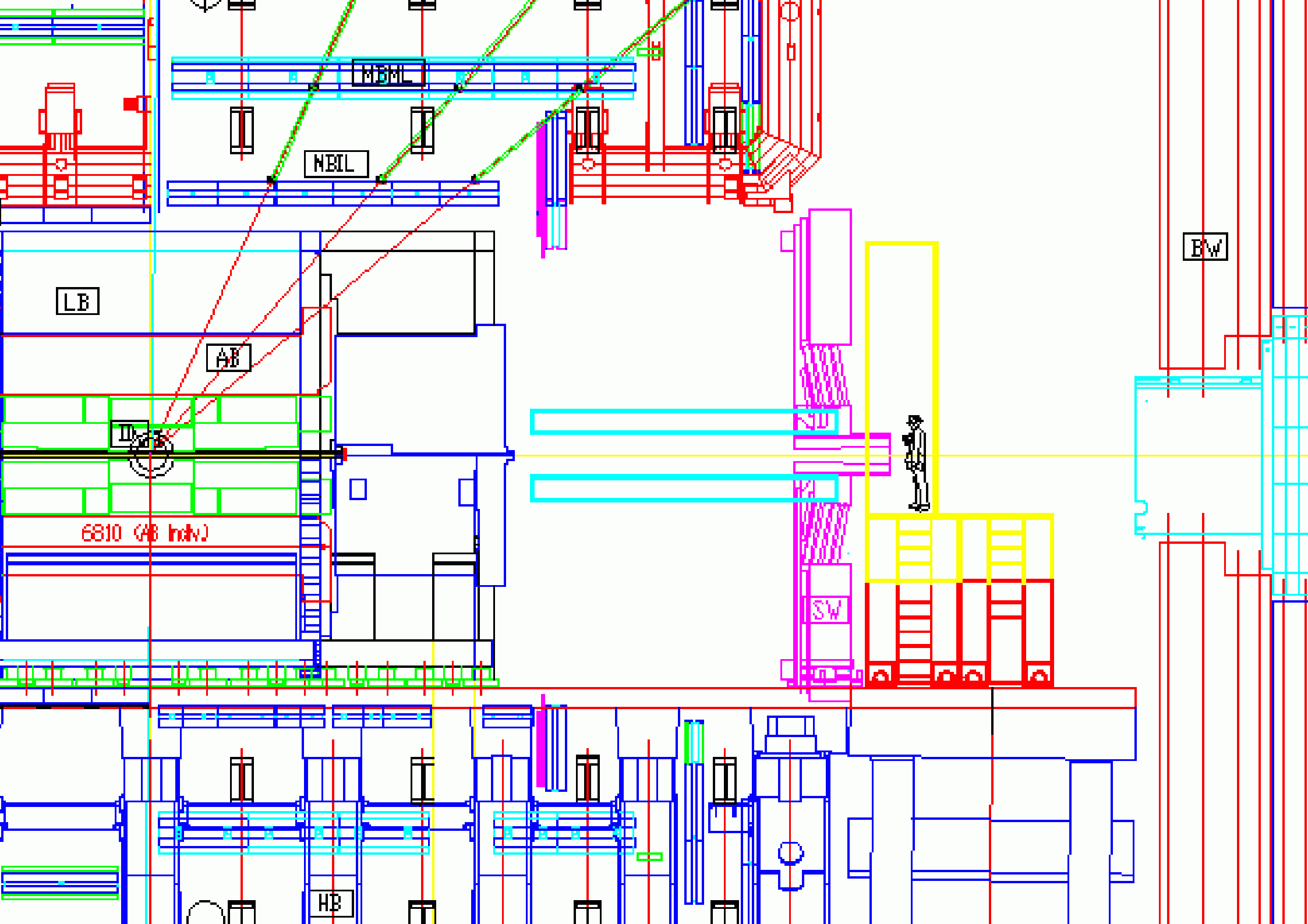
3 attachments  
to the SW

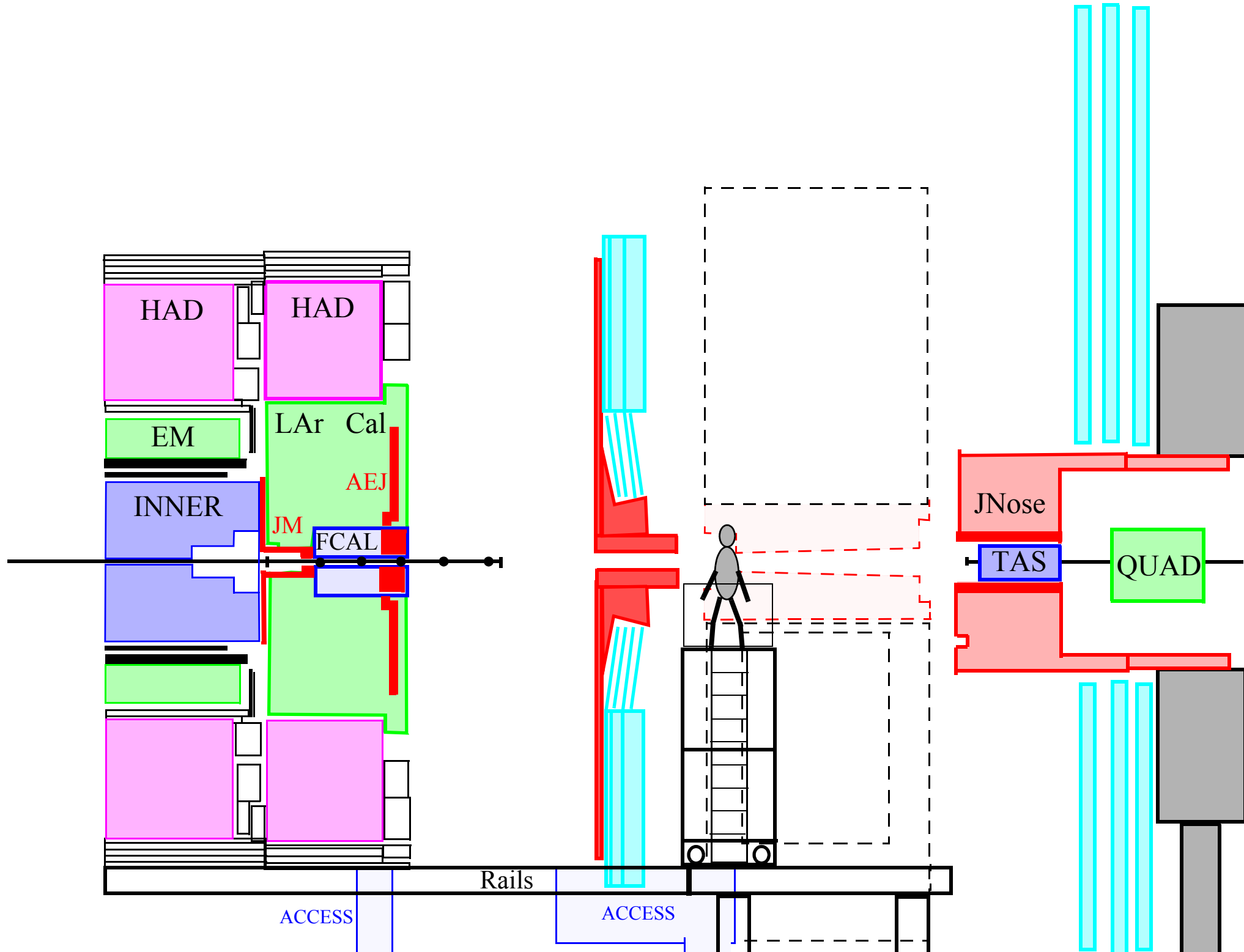


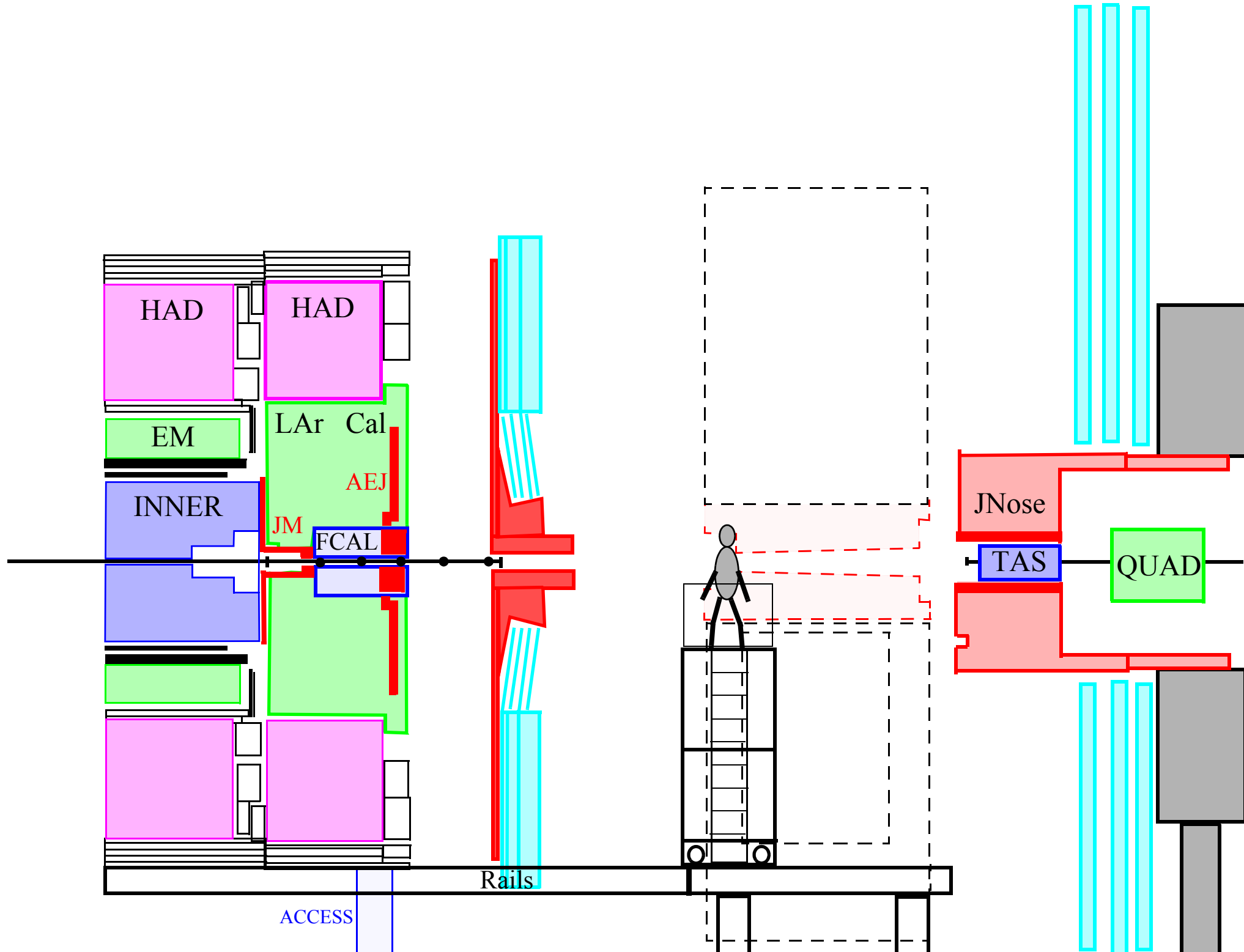
One attachment  
to the JD.

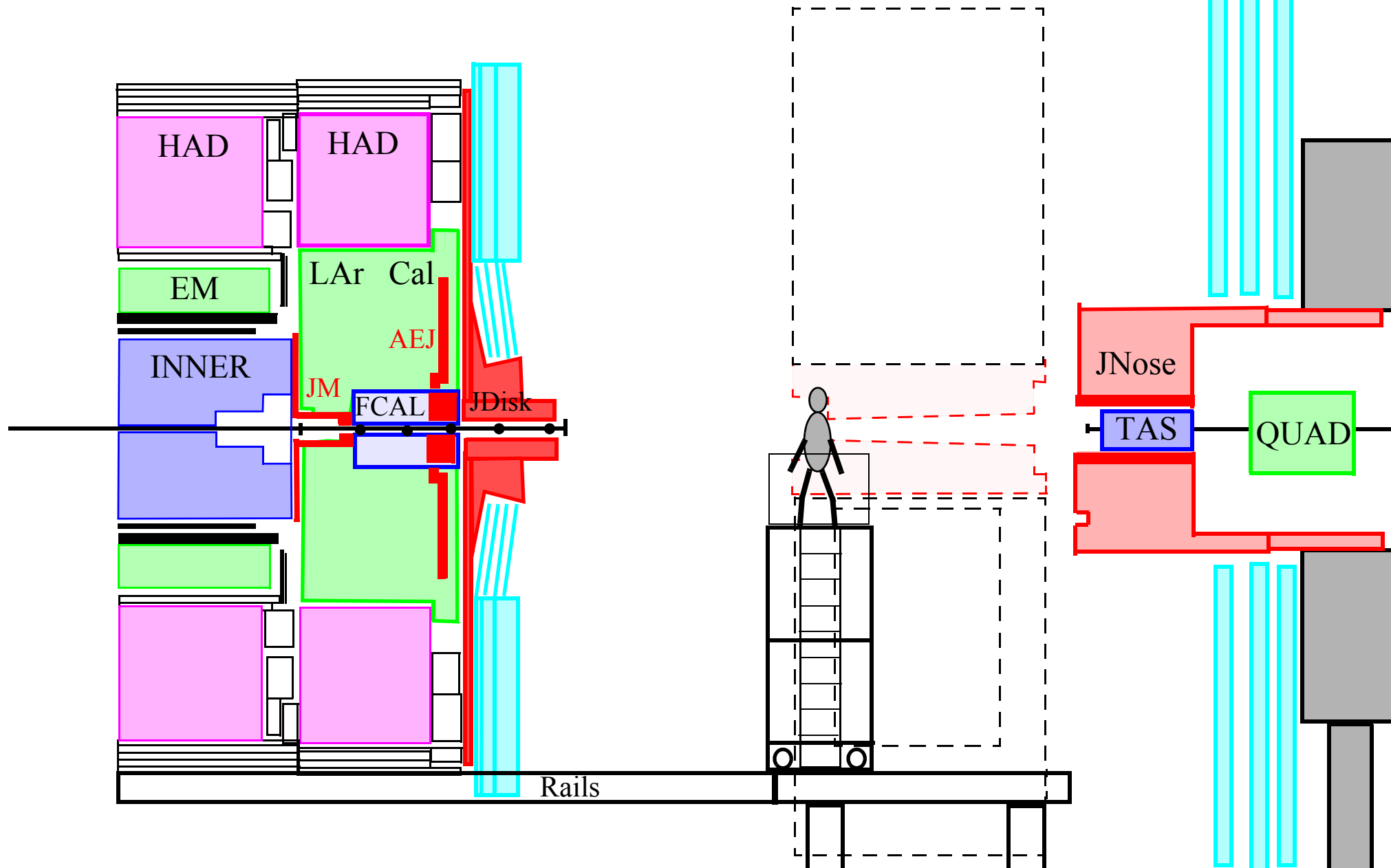


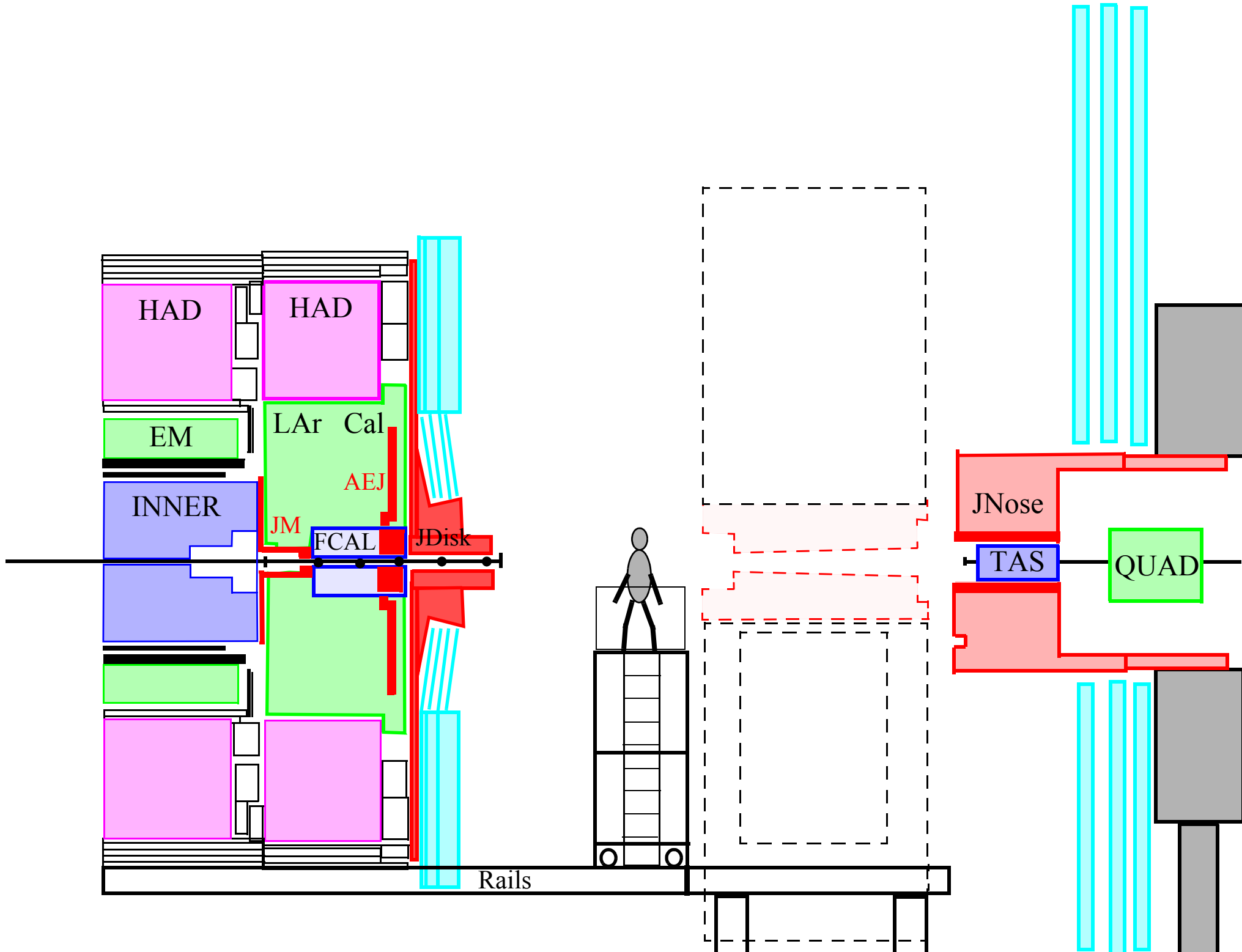


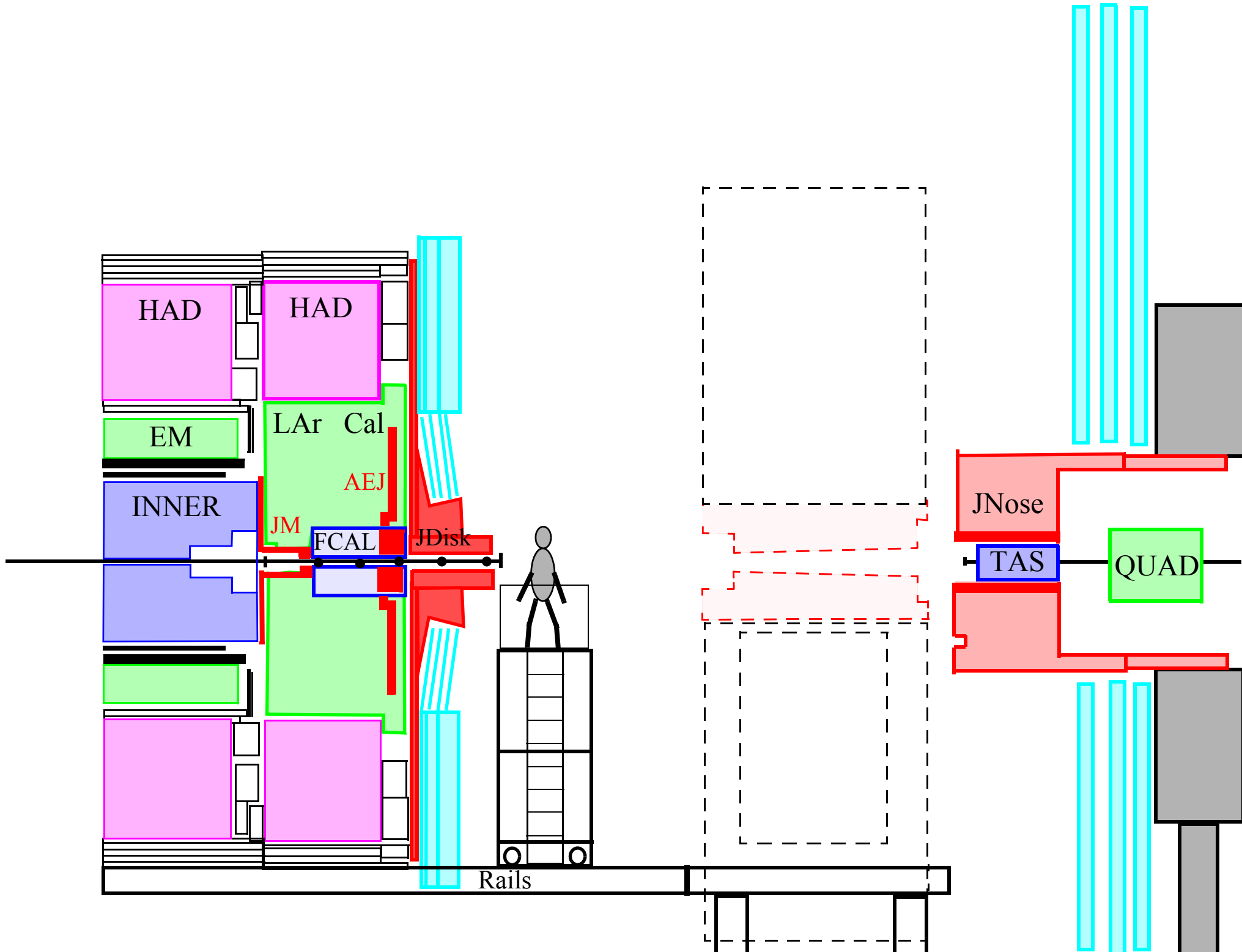






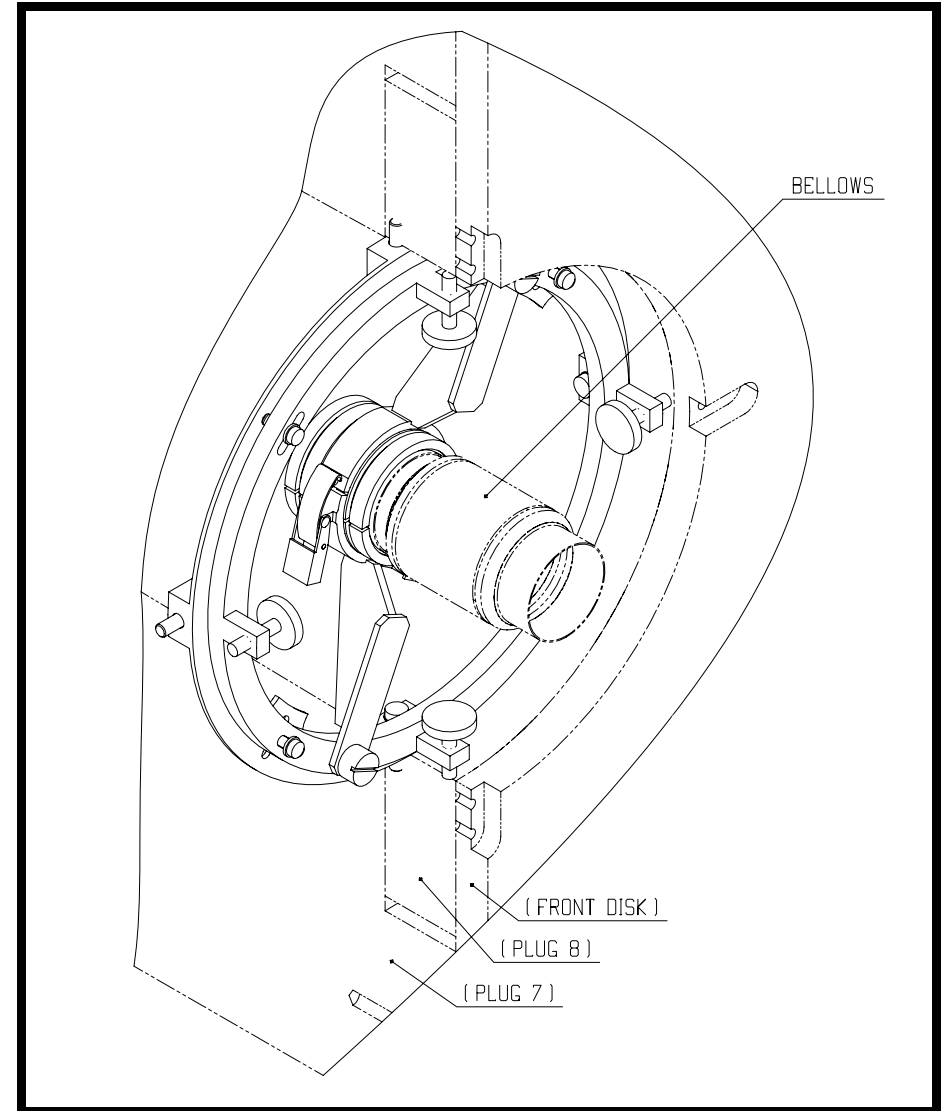
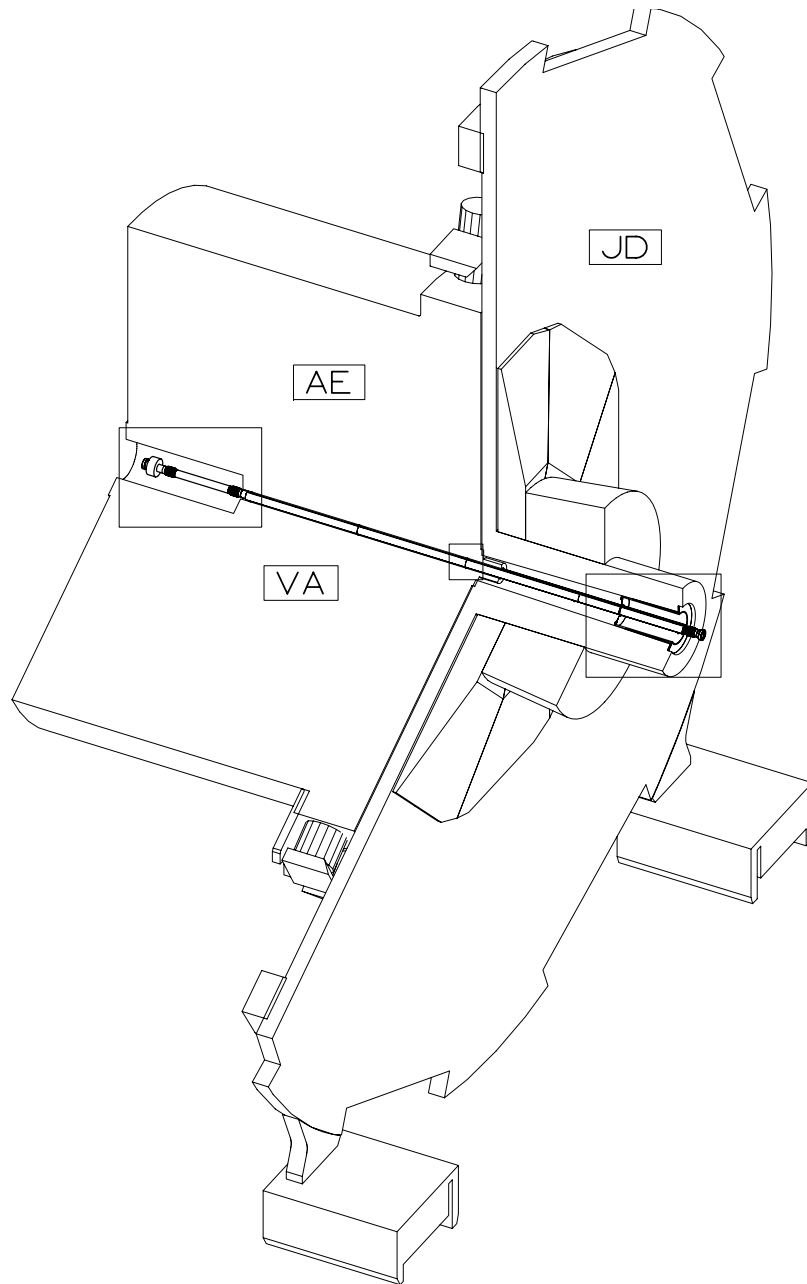




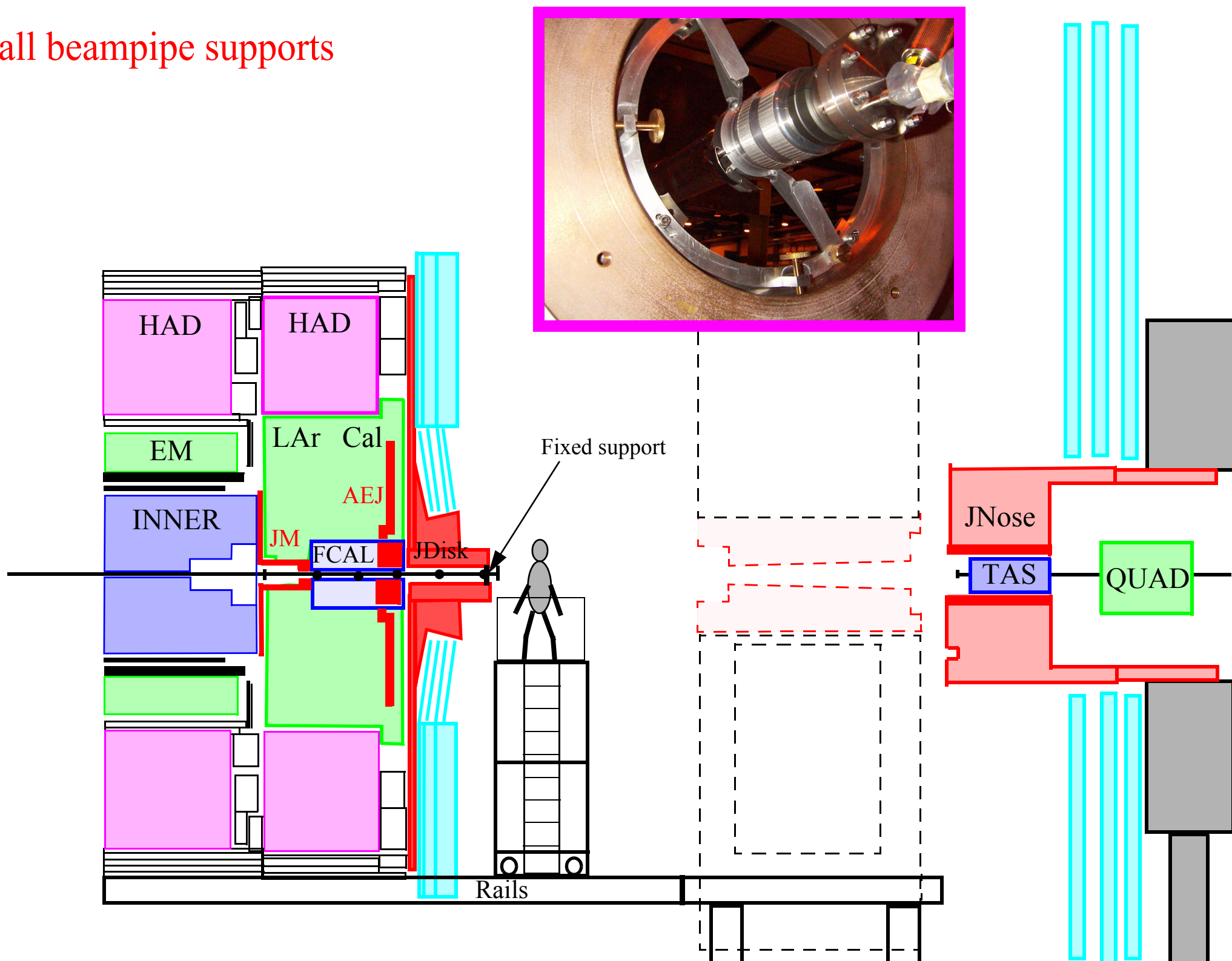


# Beampipe supports

This support has to be attached.

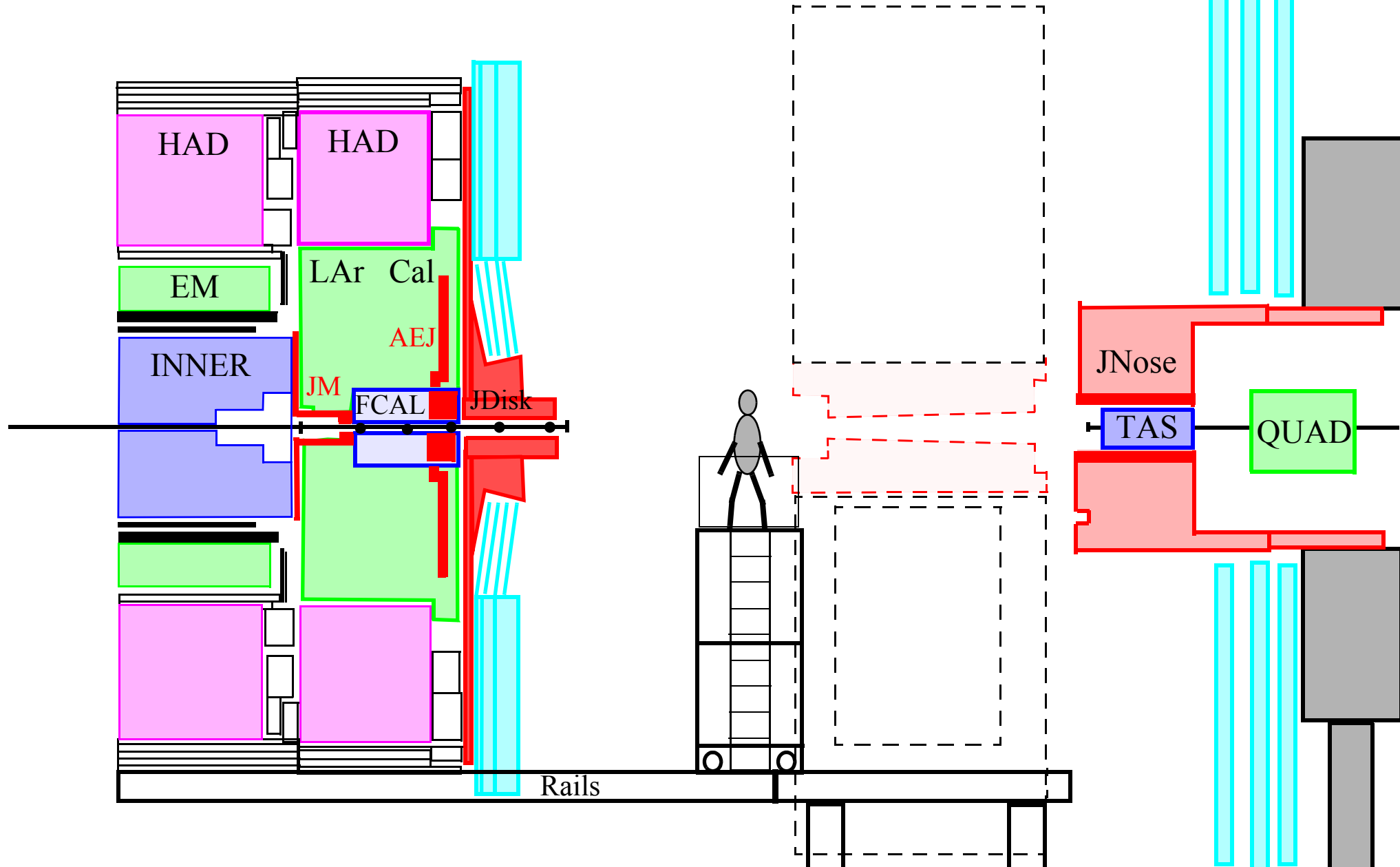


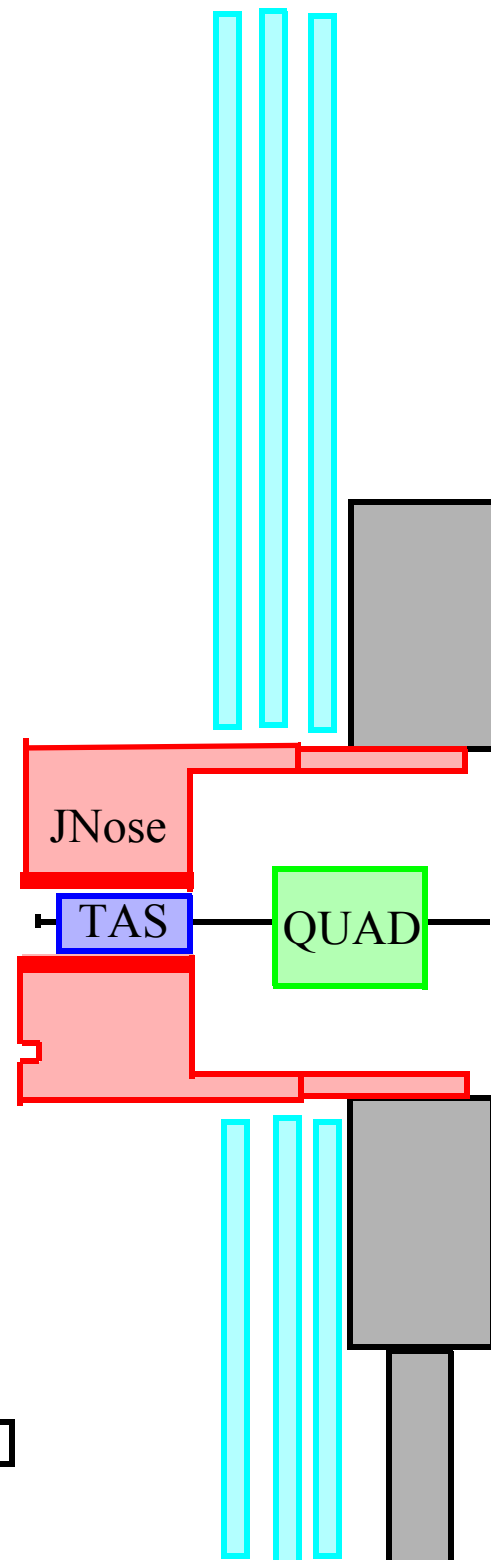
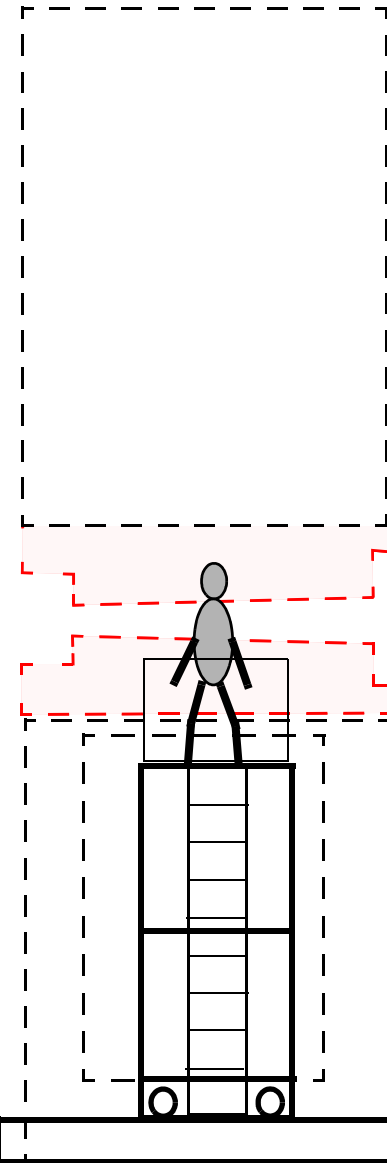
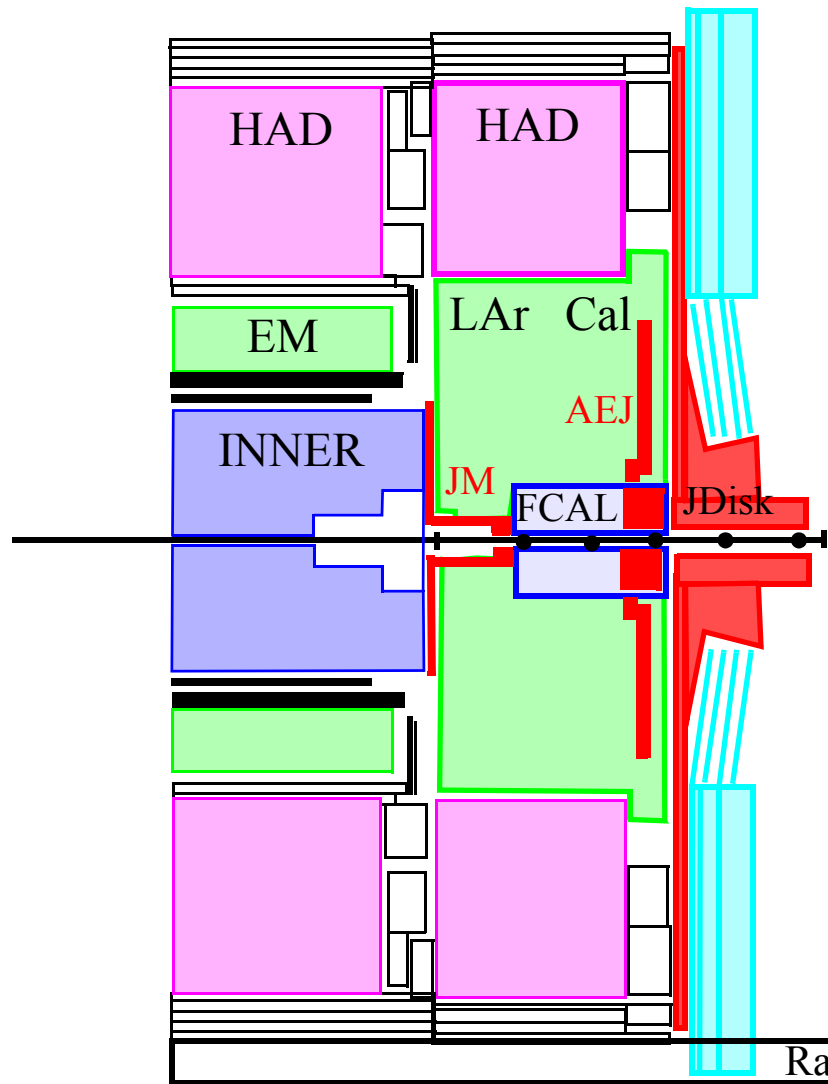
# Install beampipe supports

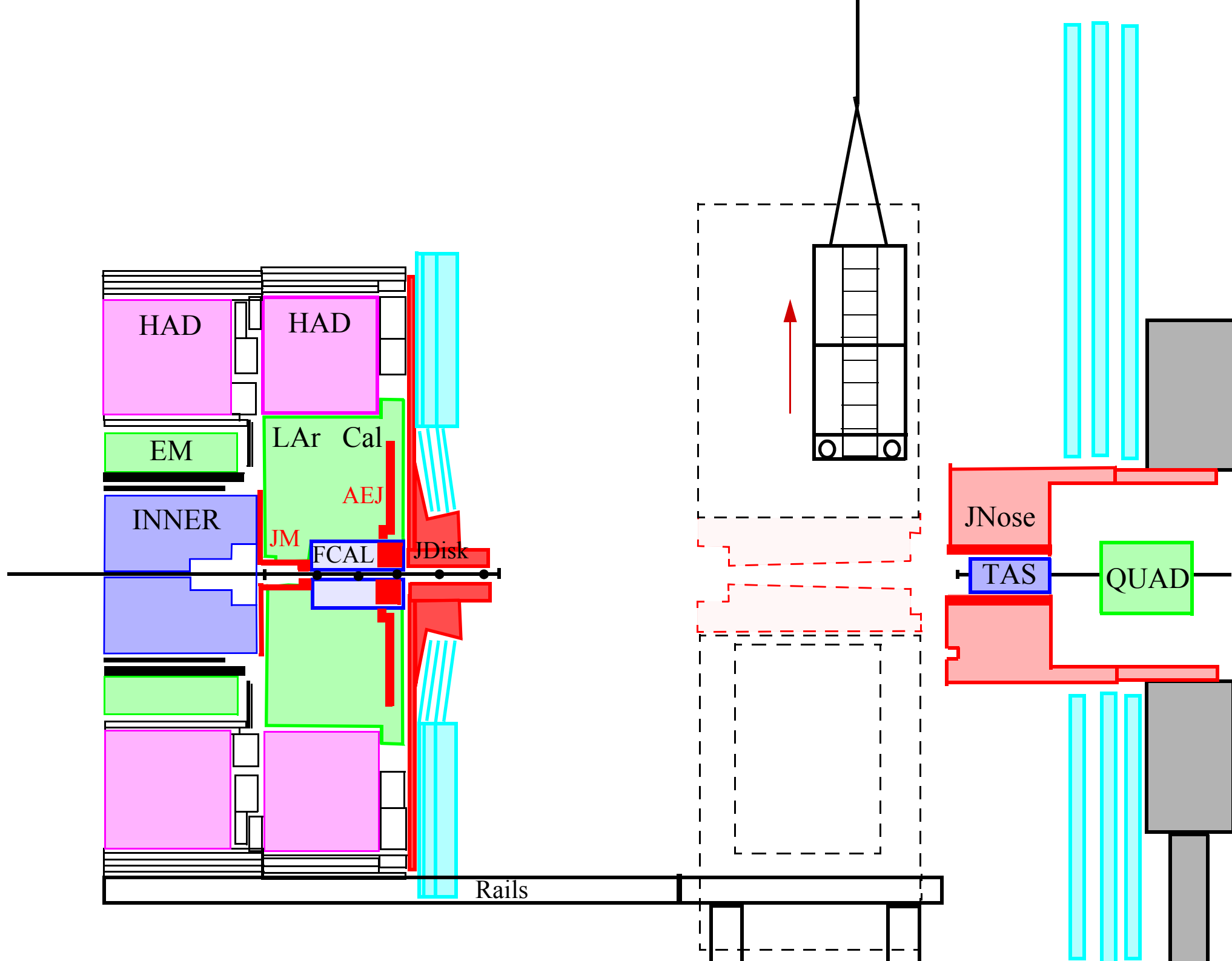


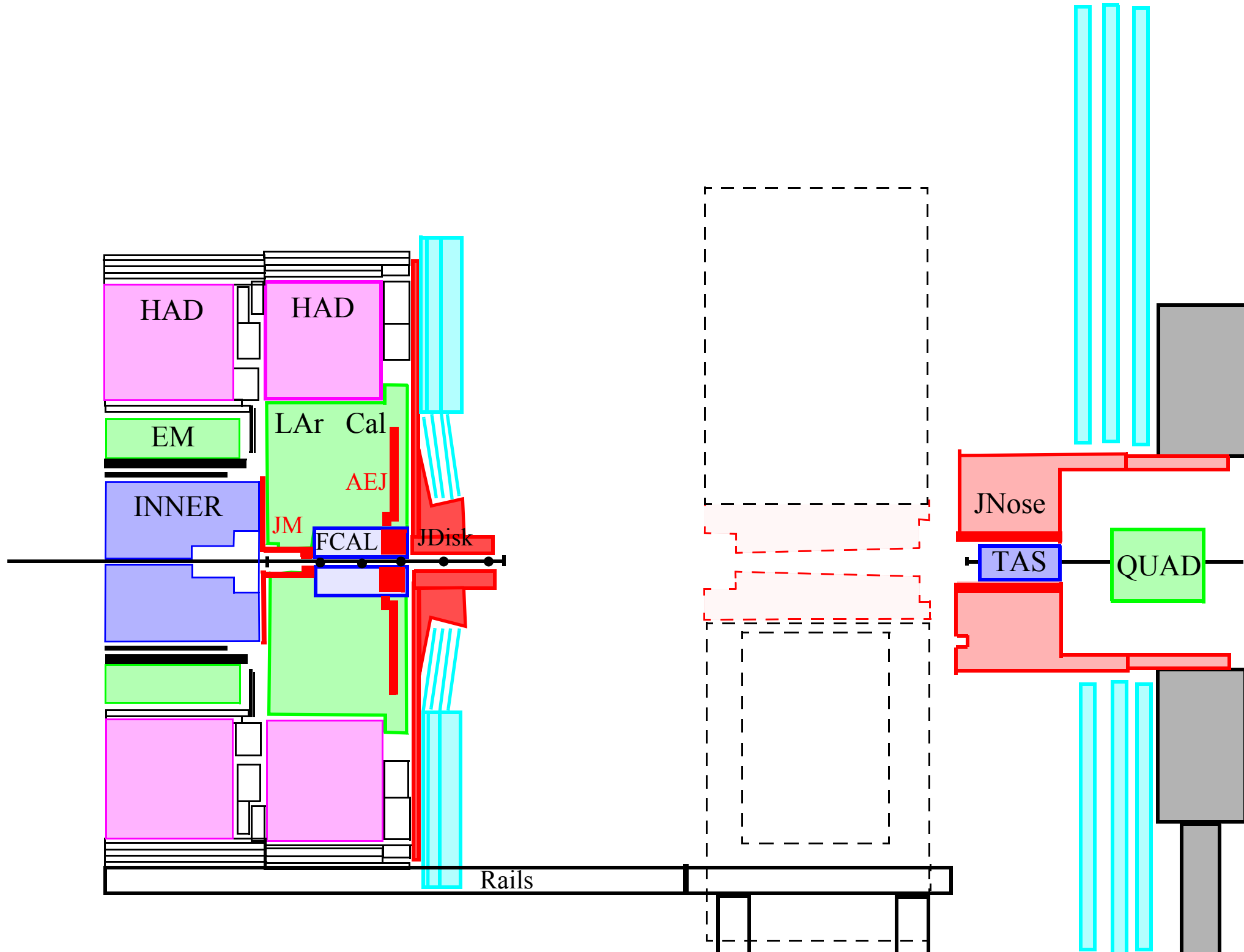


# Remove minivan

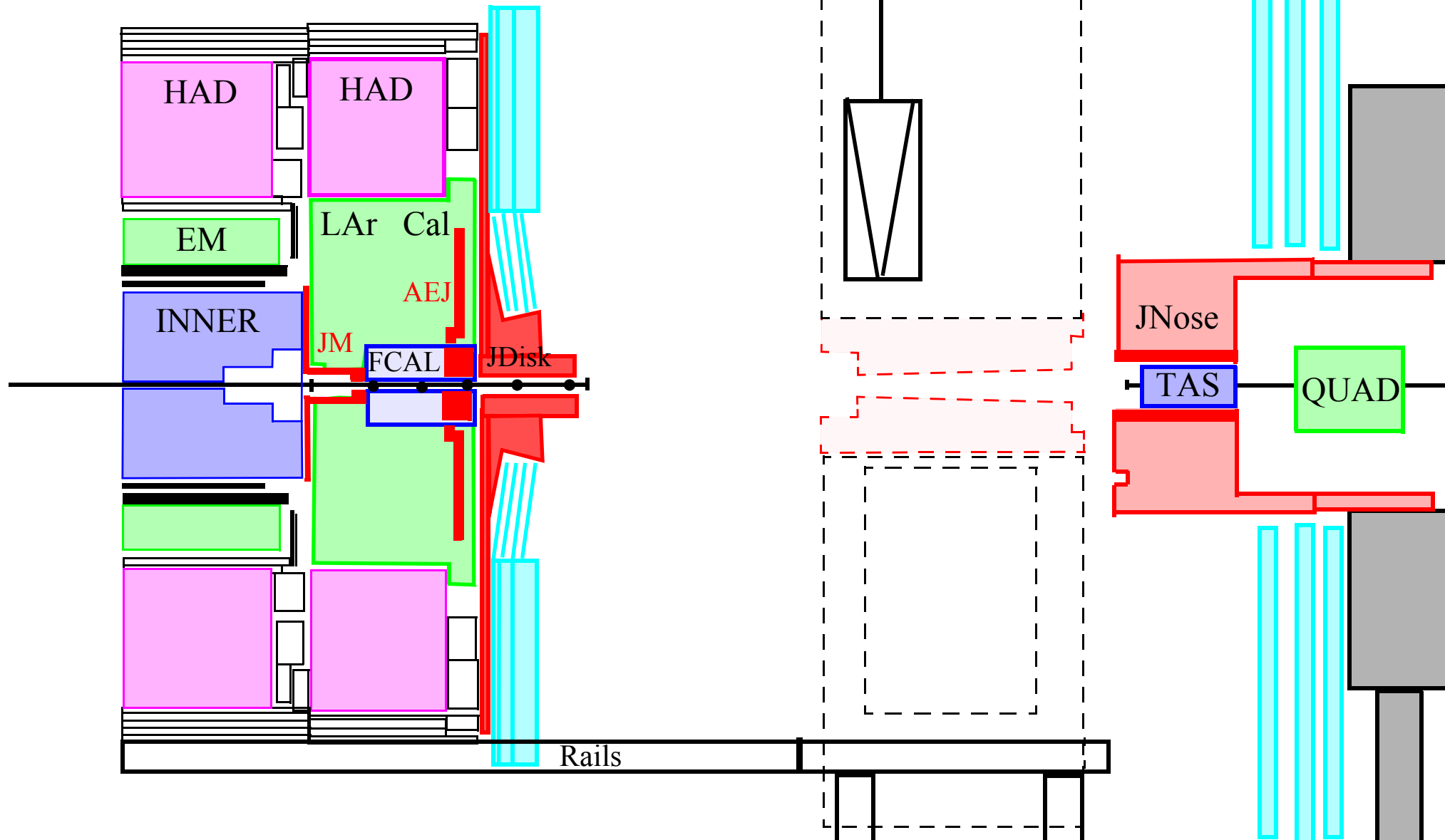


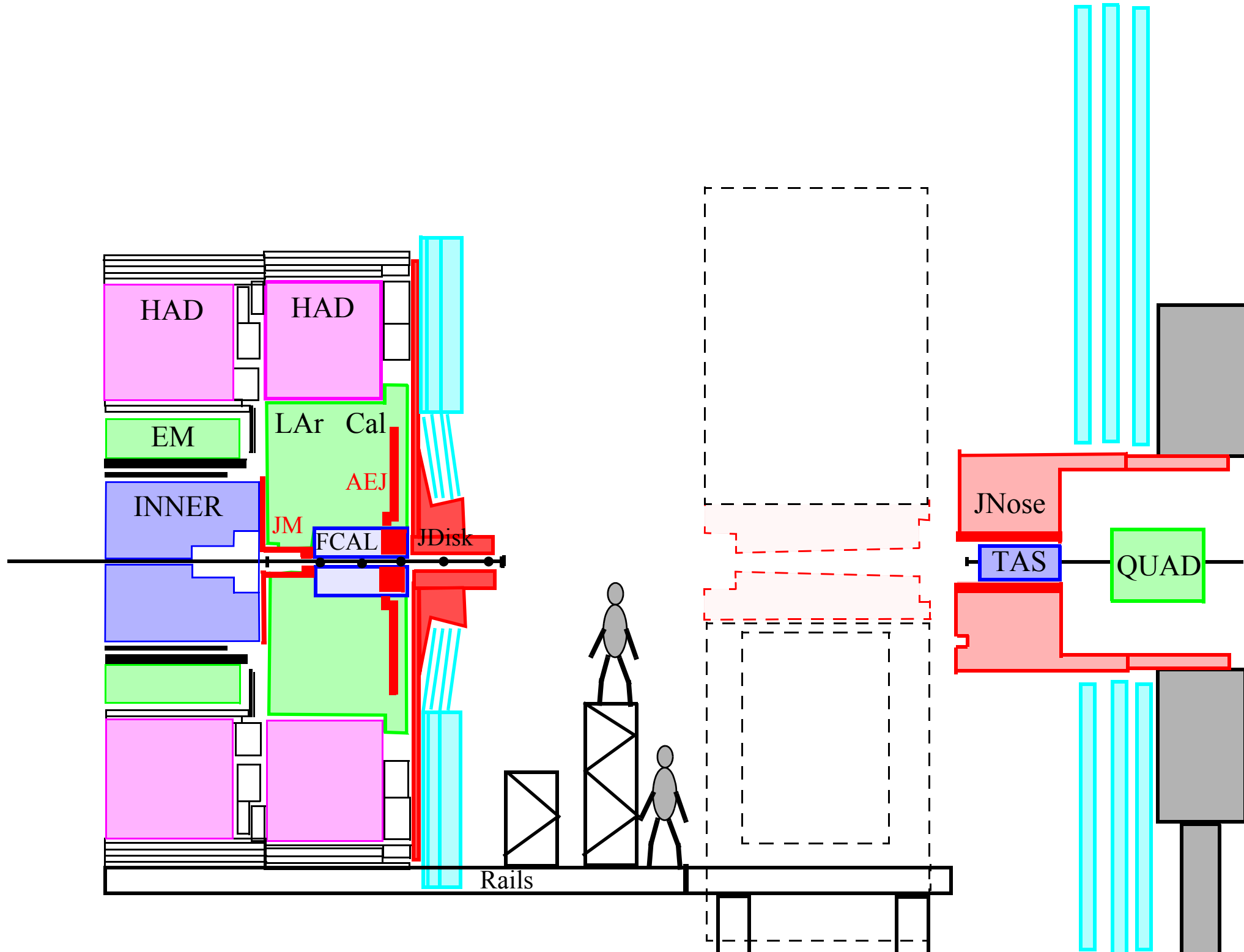


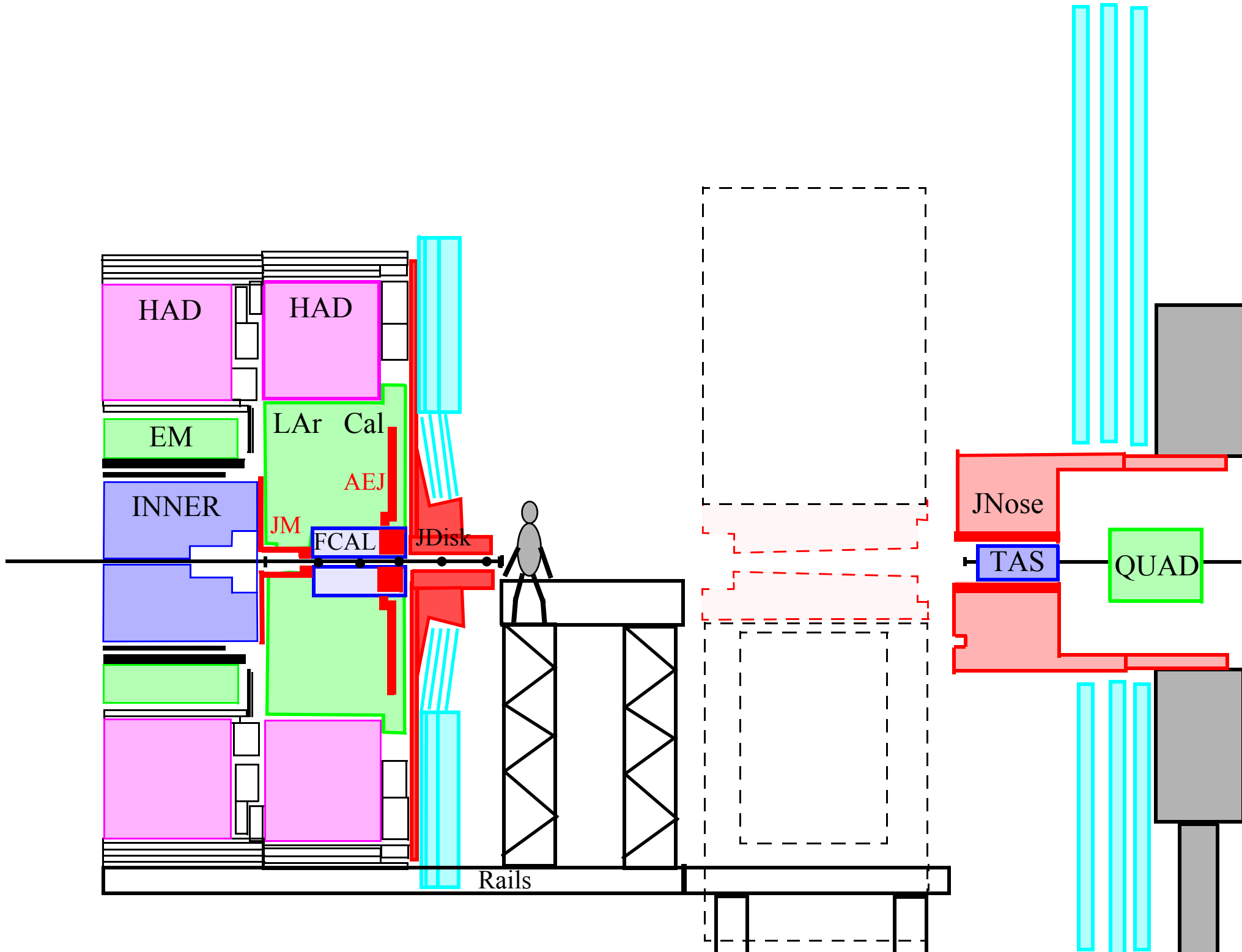




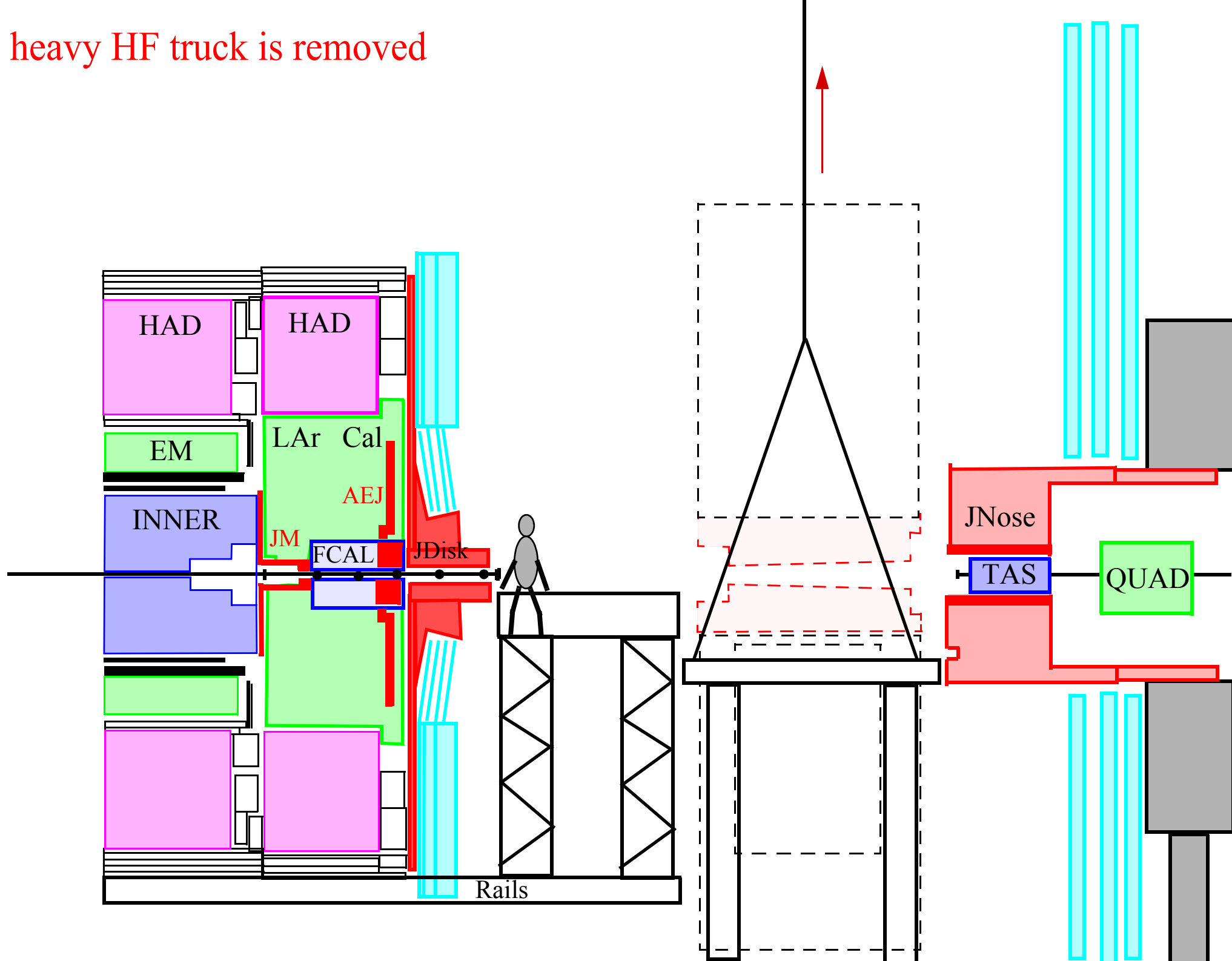
Special scaffolding is installed for the VT installation (which can be removed when the ECT is blocking the access).



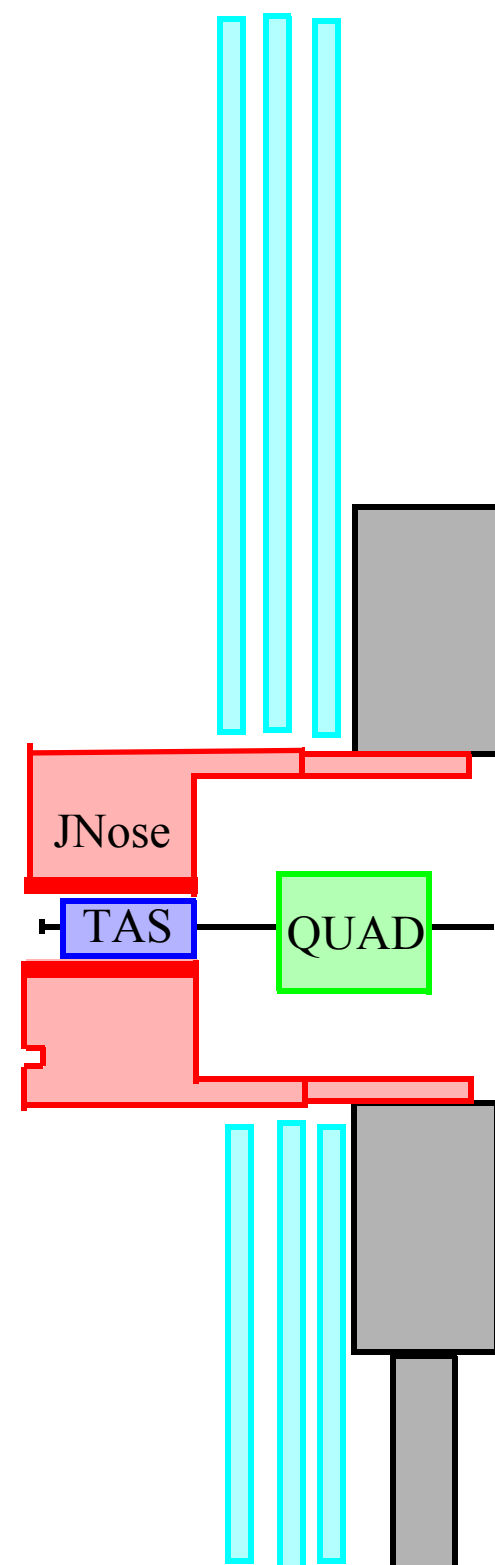
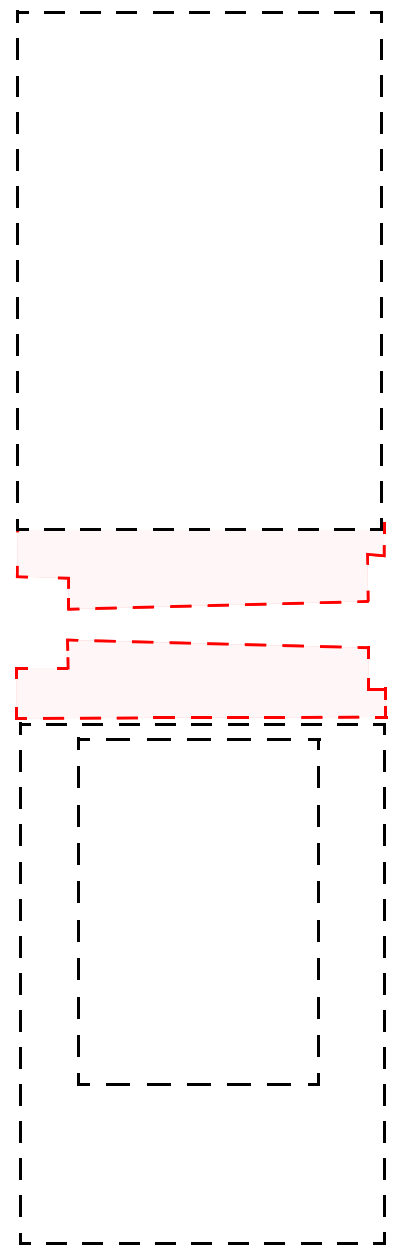
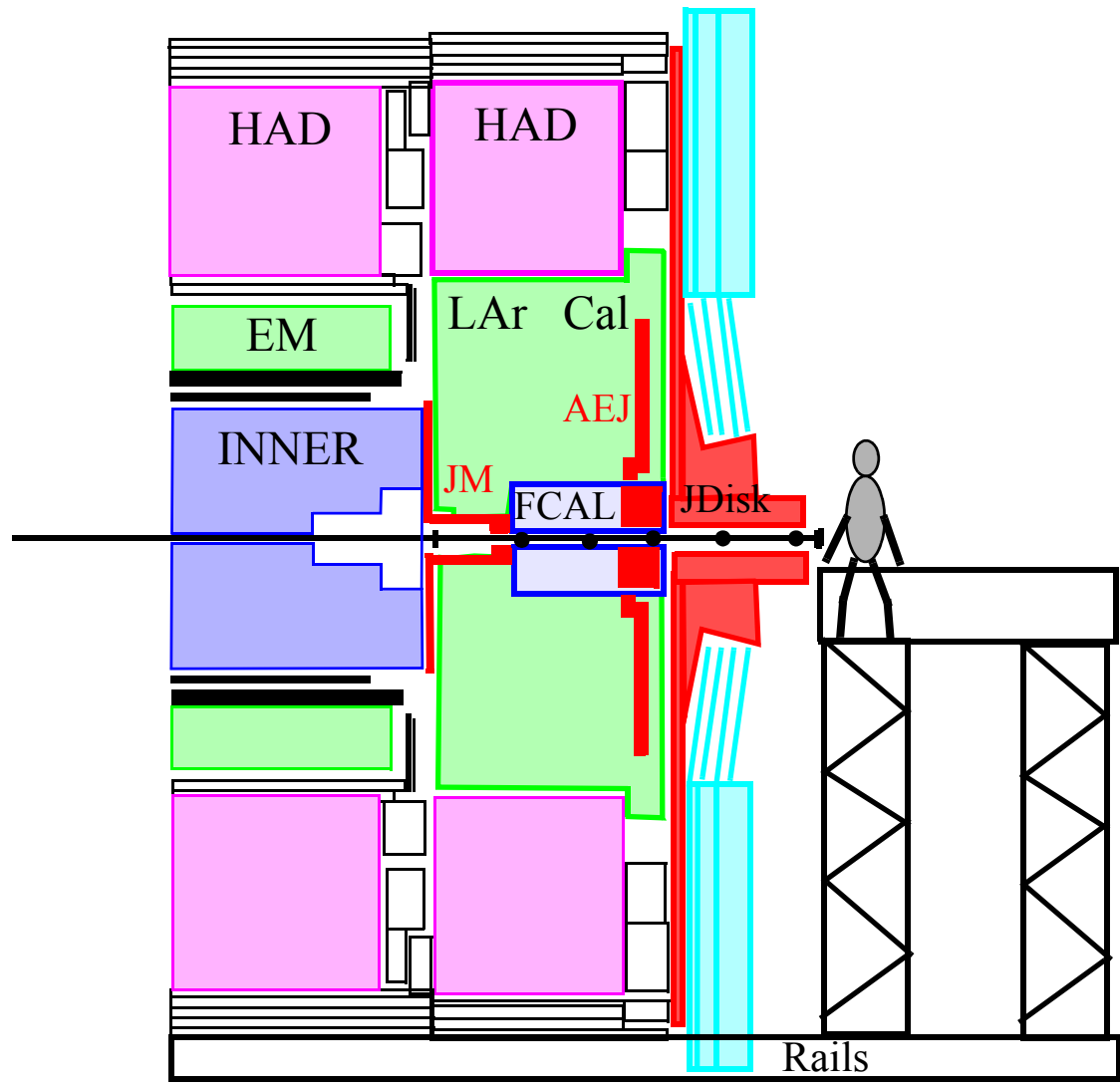




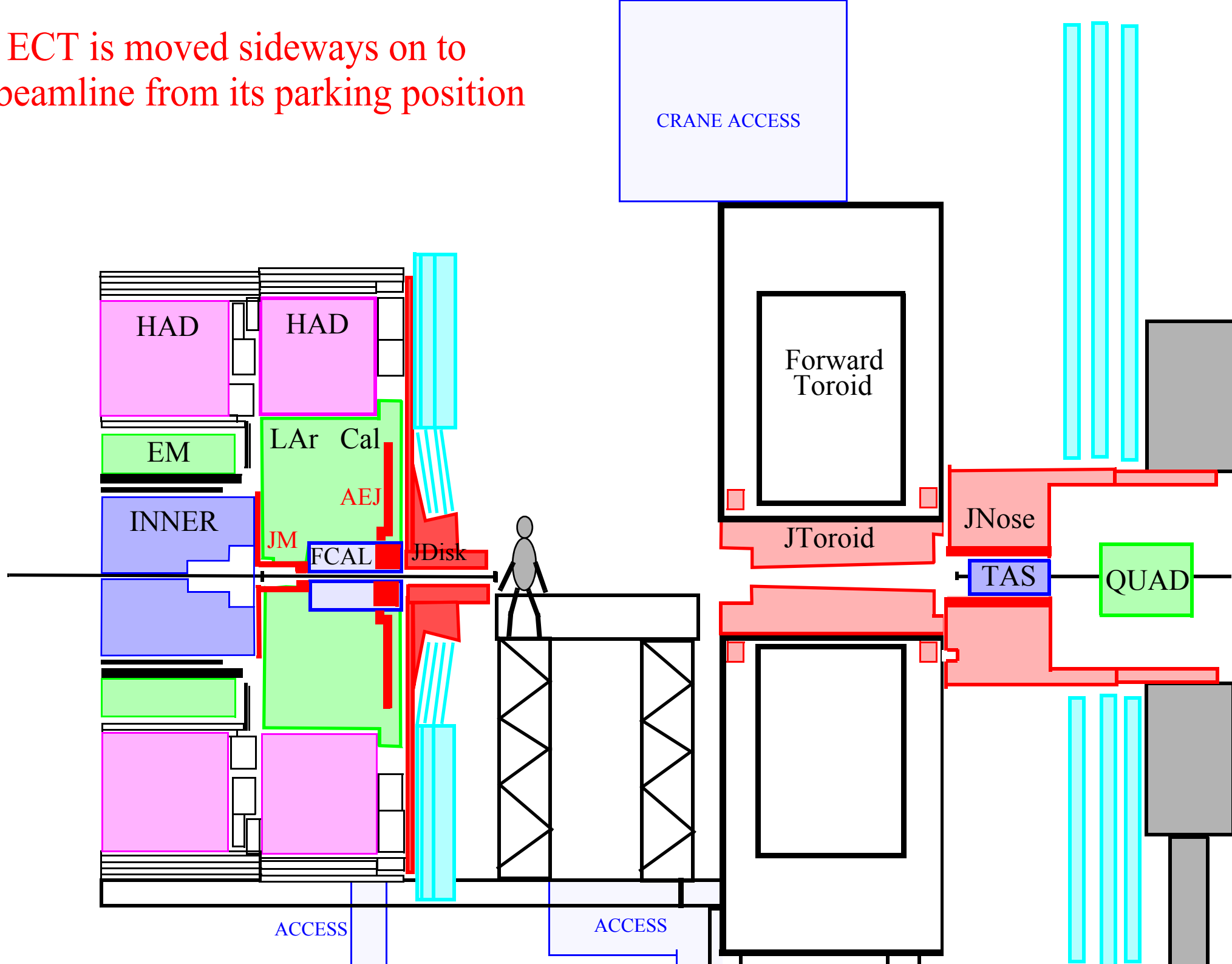
The heavy HF truck is removed



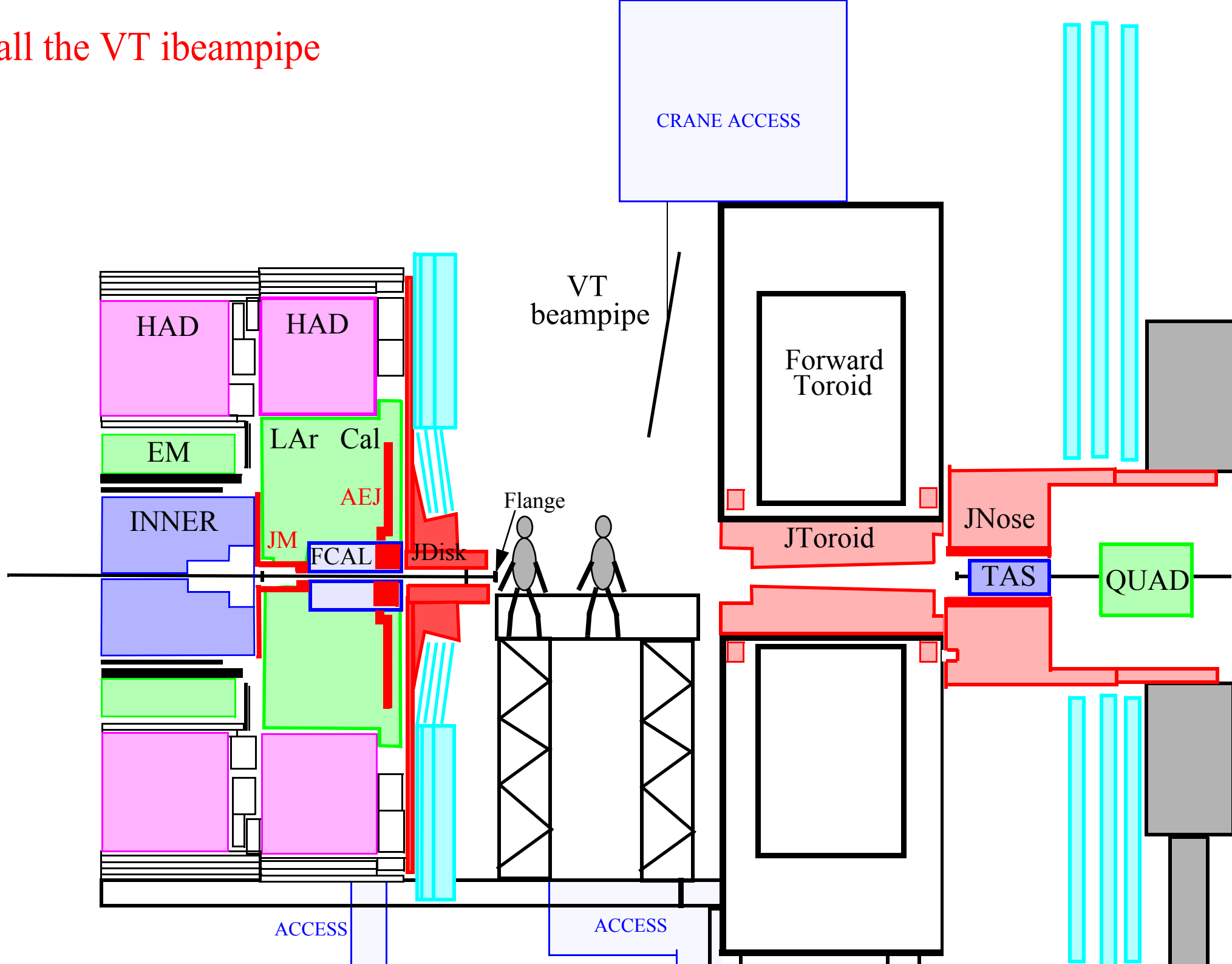


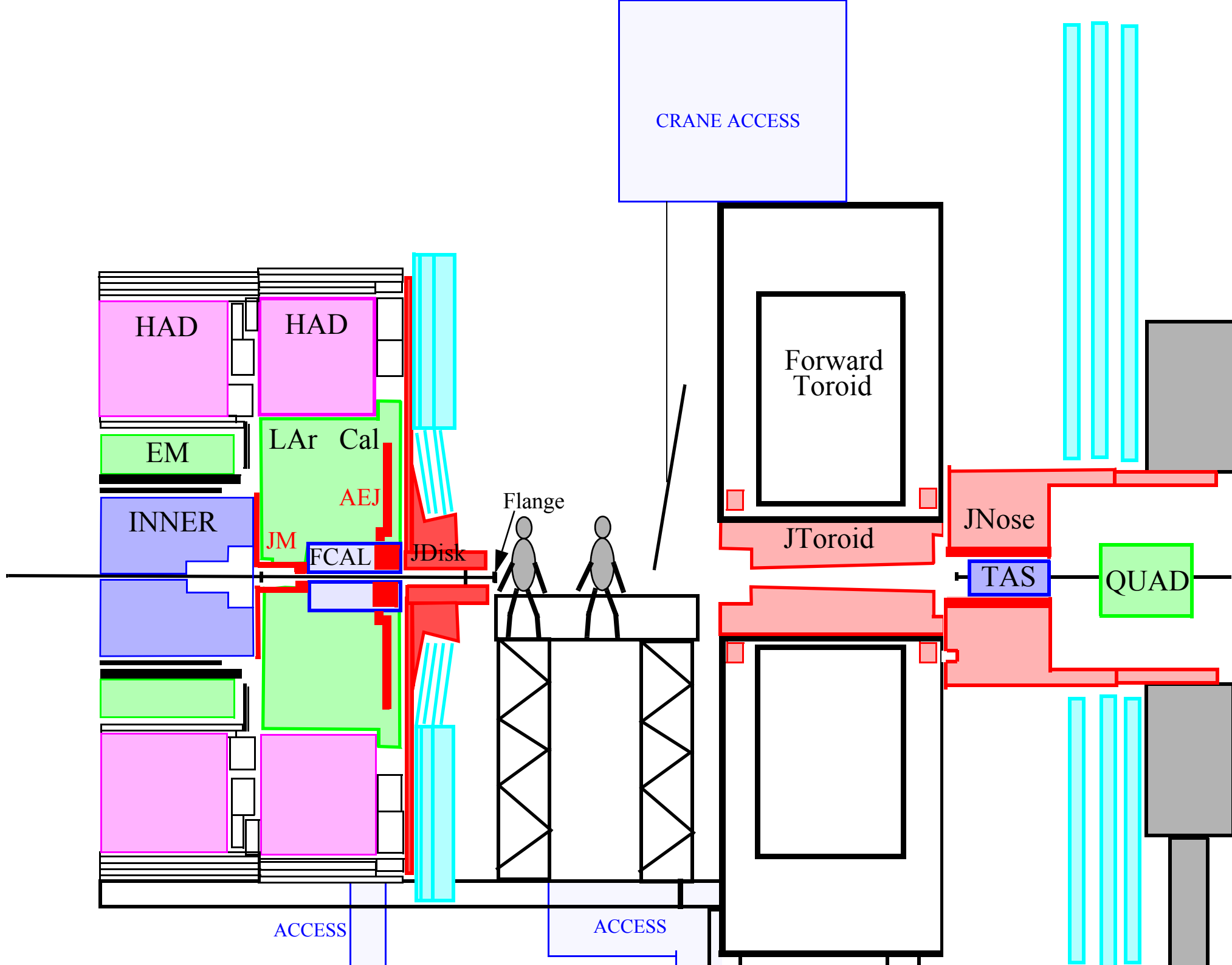


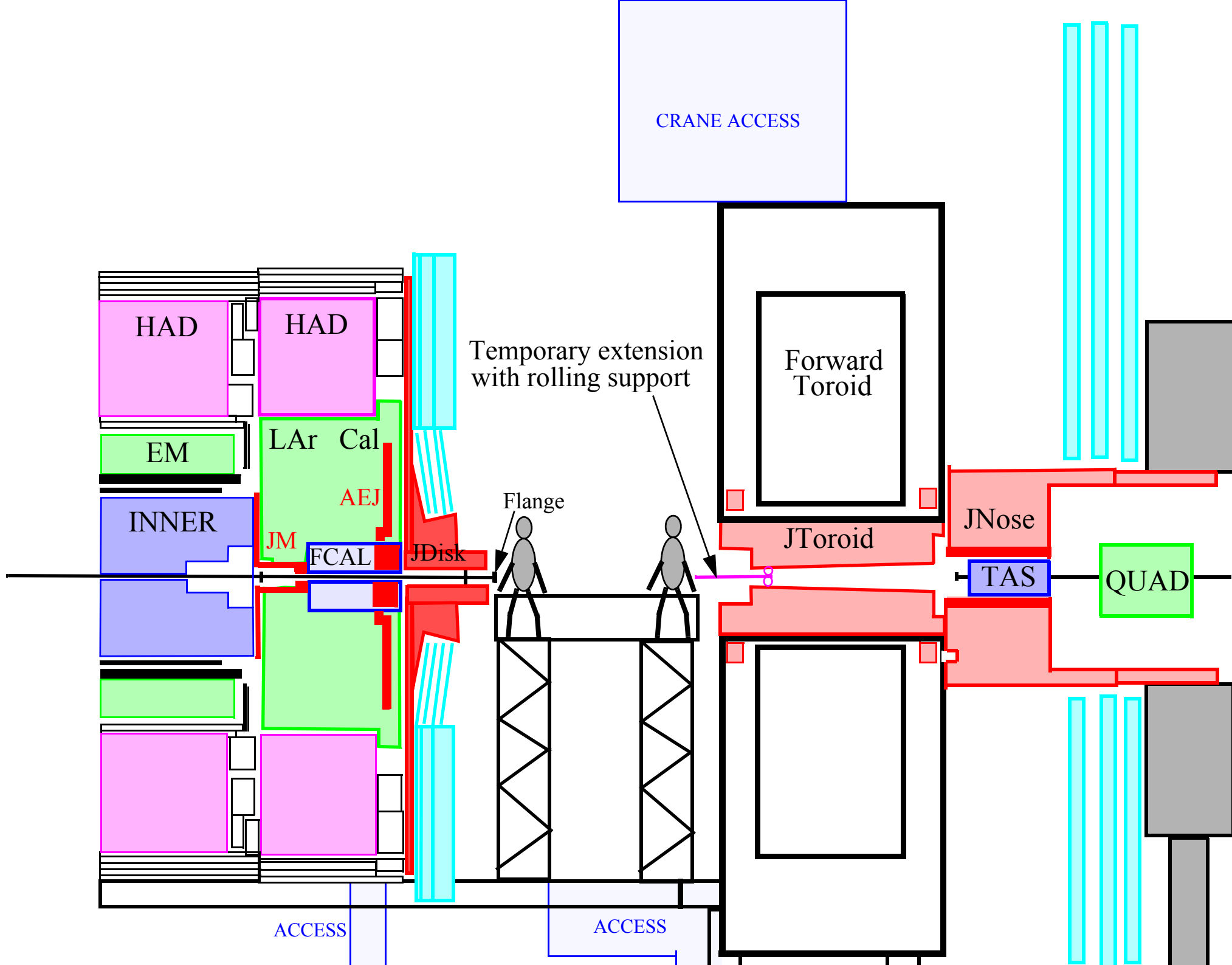
The ECT is moved sideways on to the beamline from its parking position

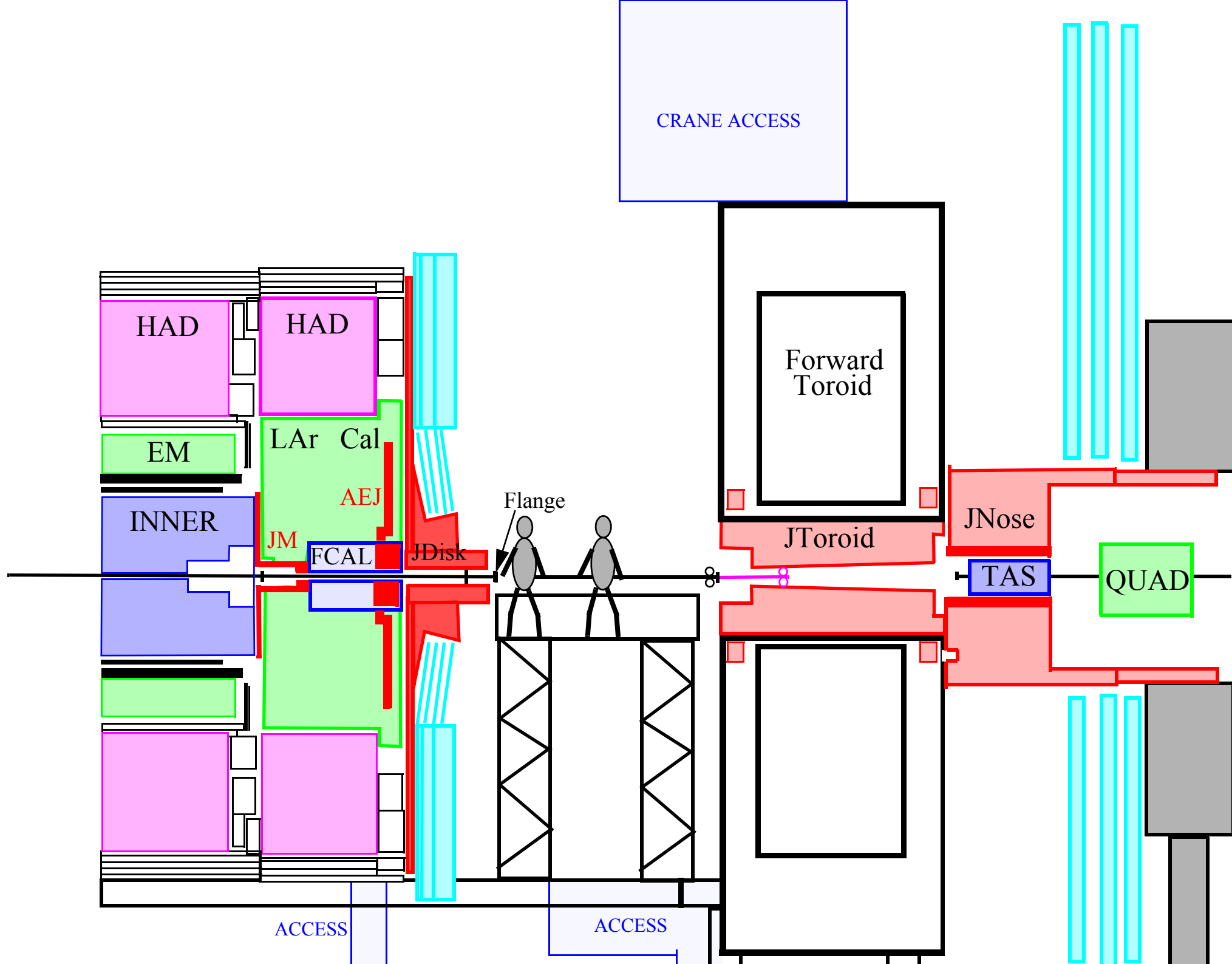


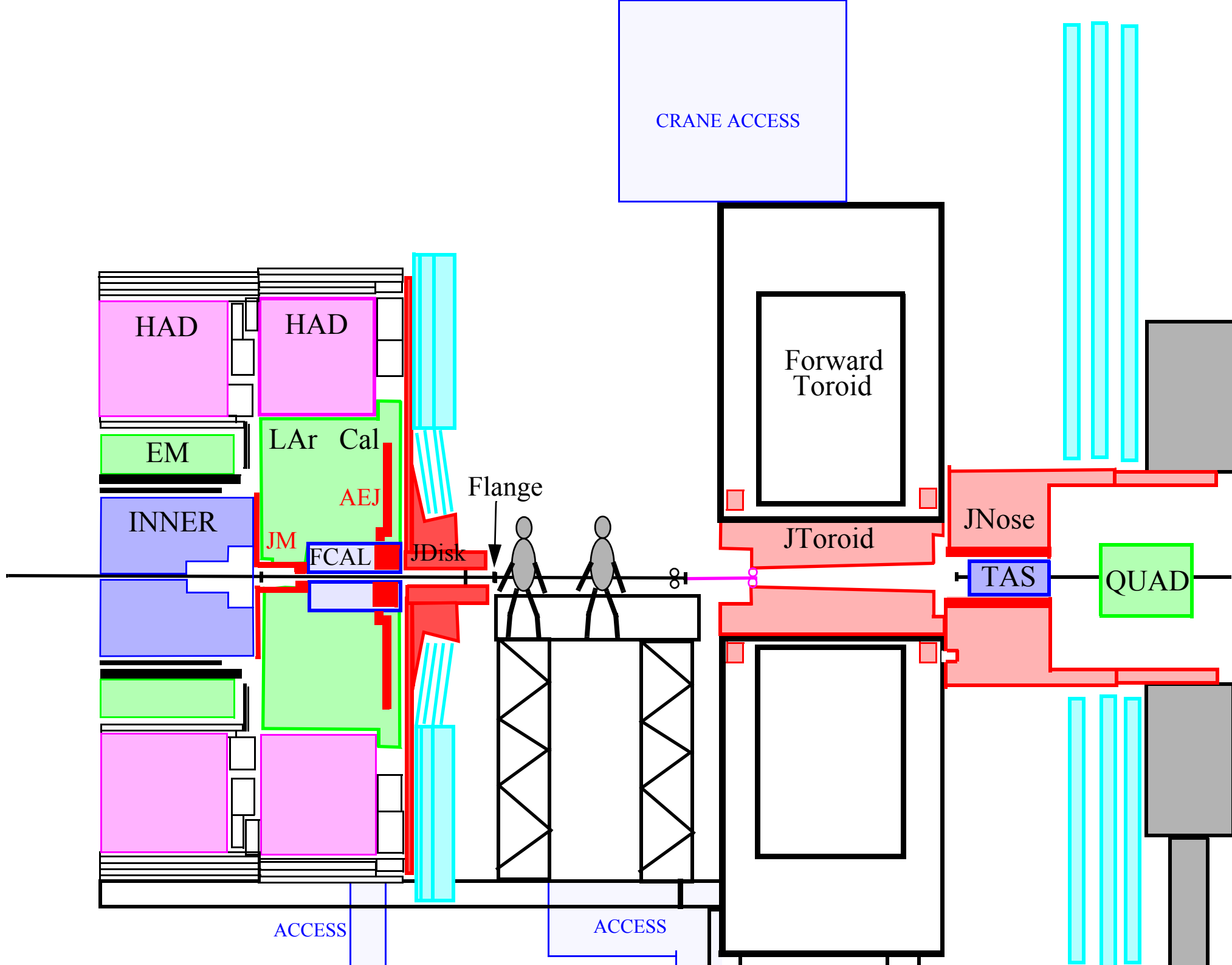
# Install the VT ibeampipe

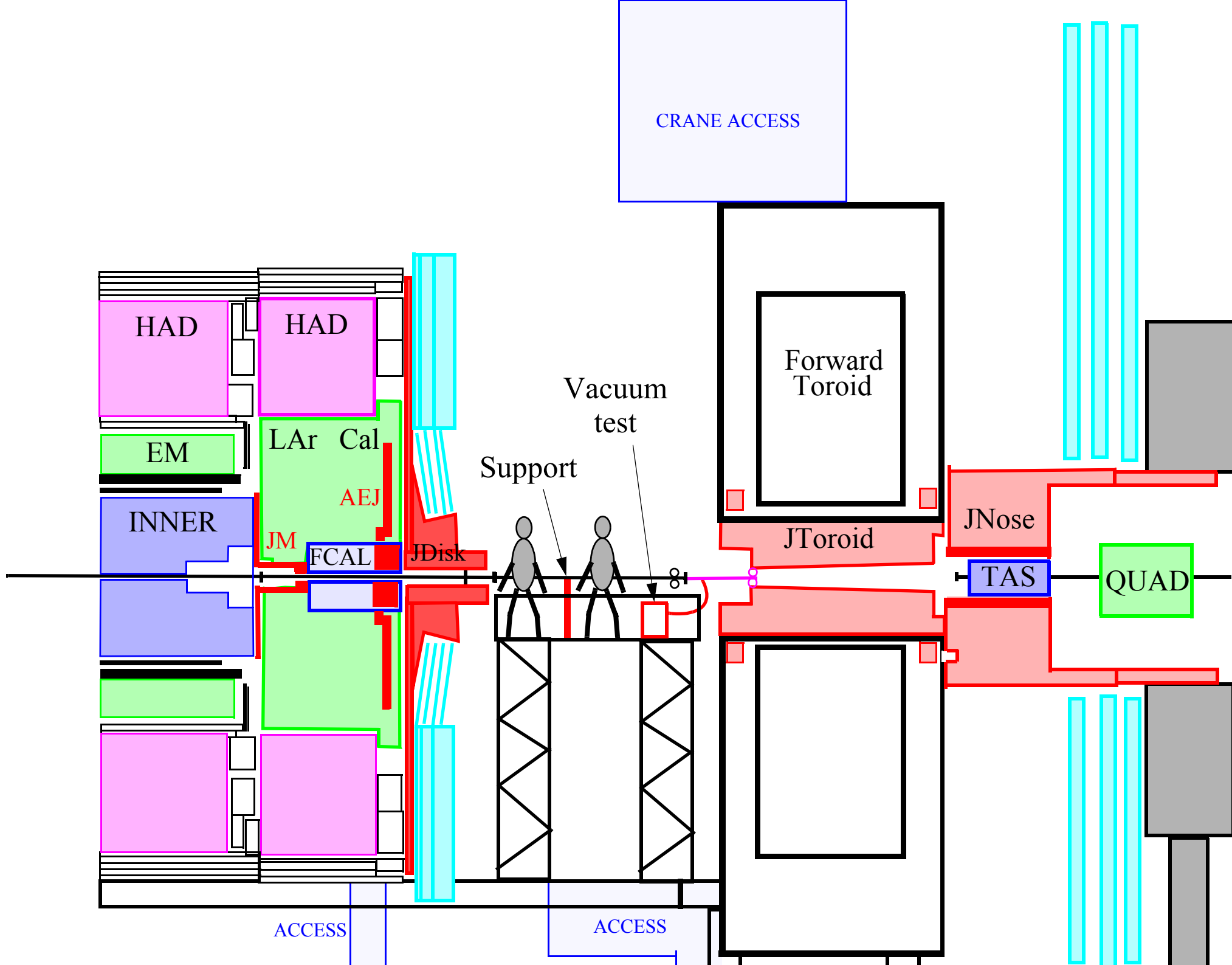




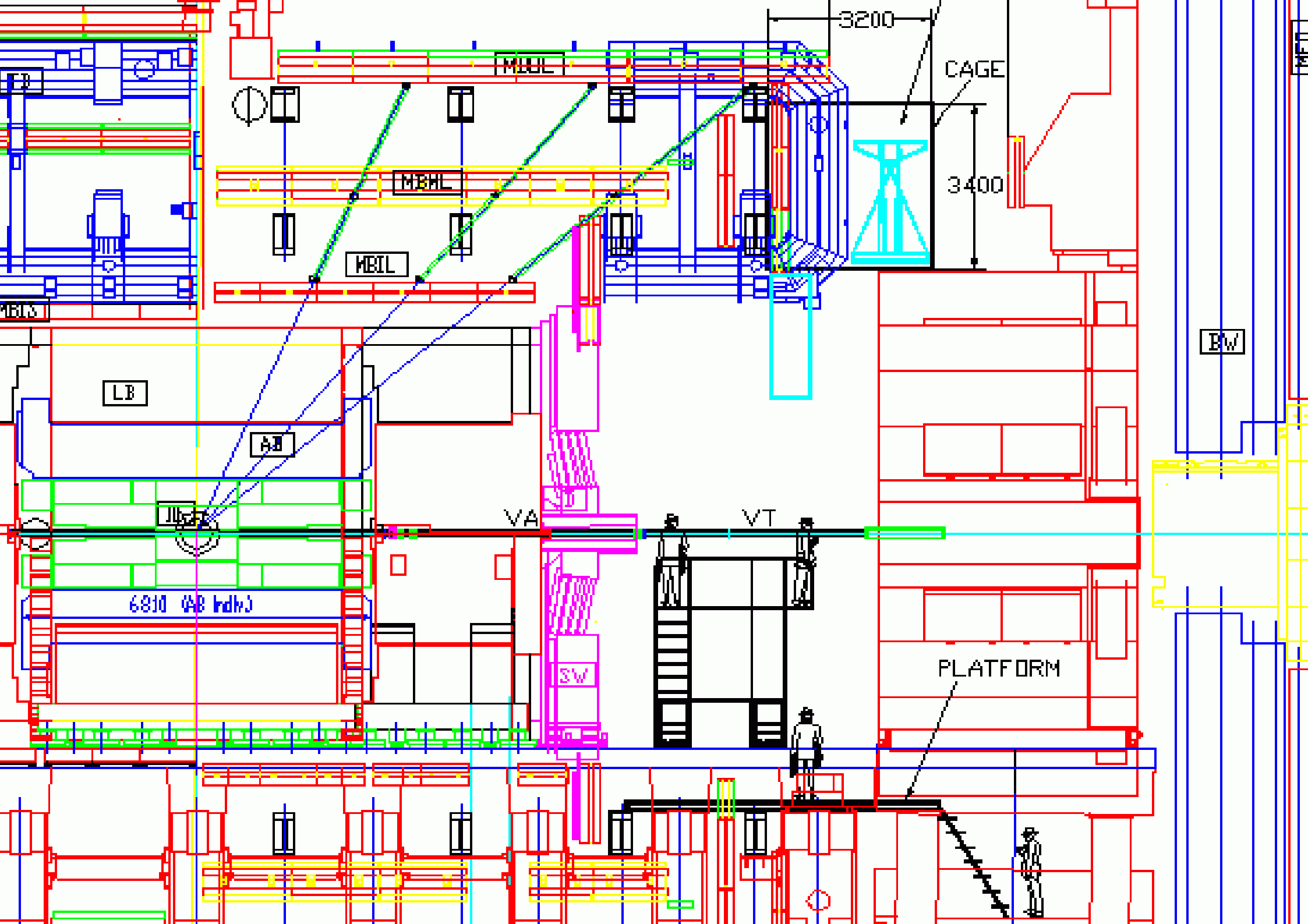


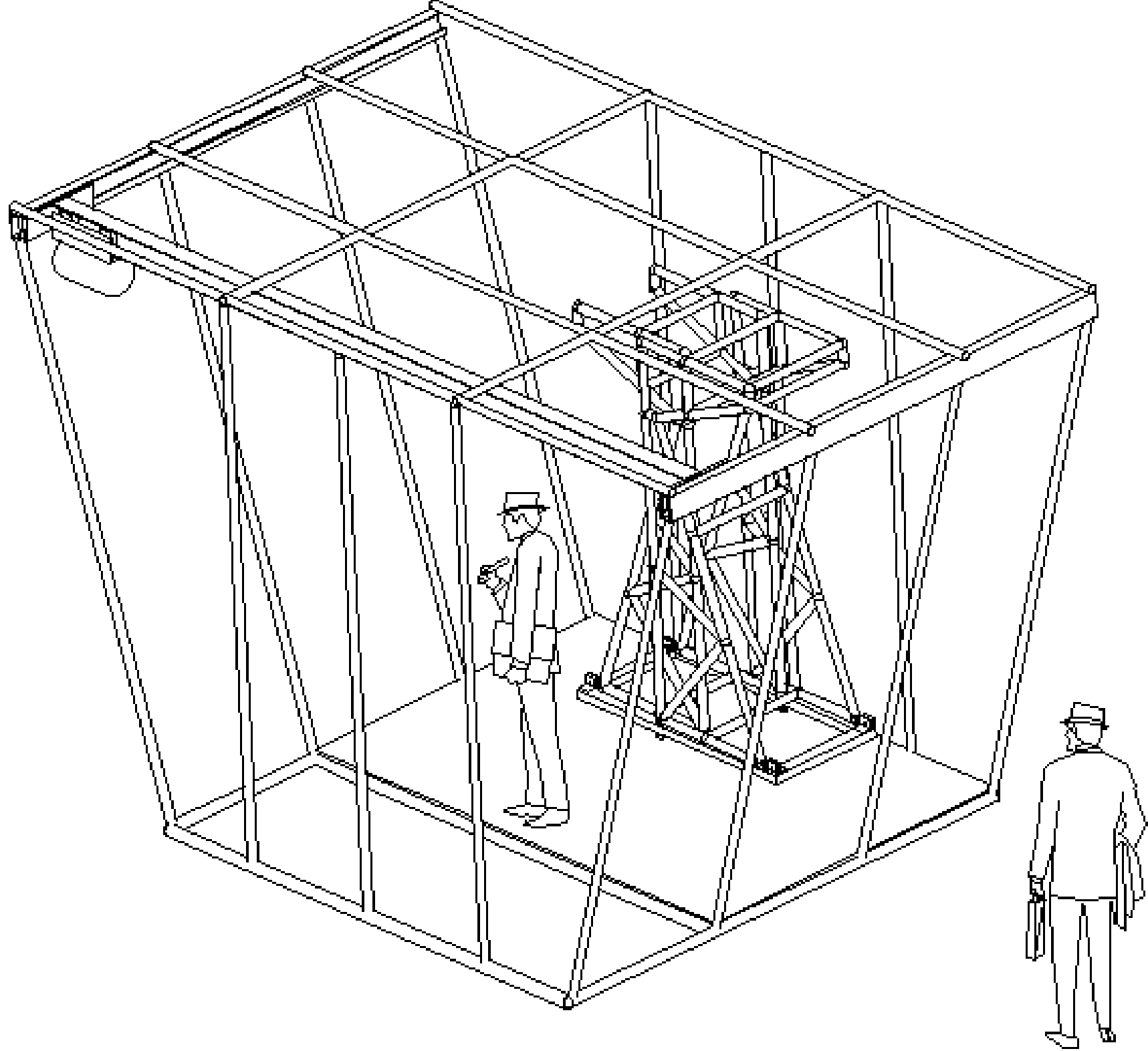


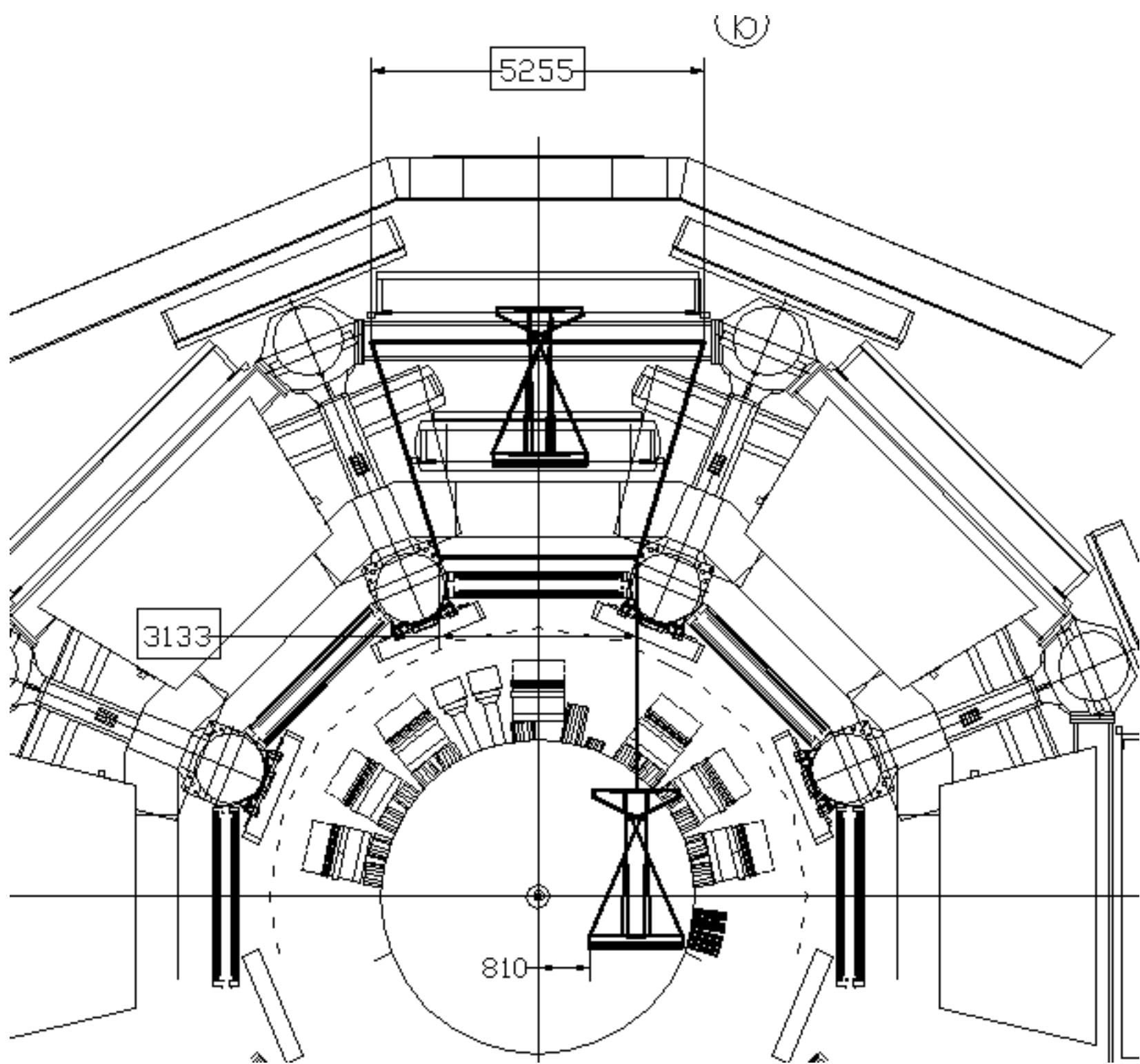




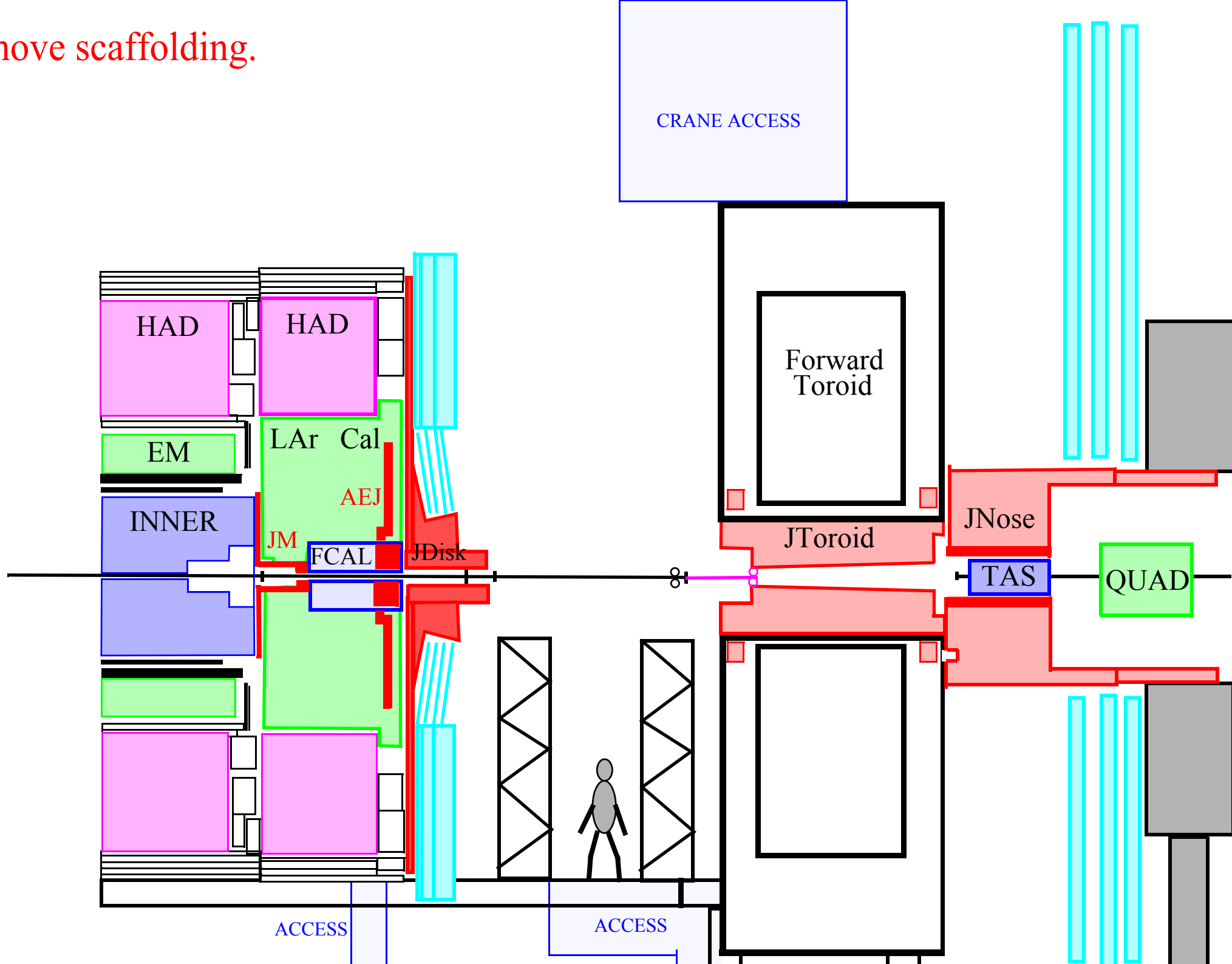


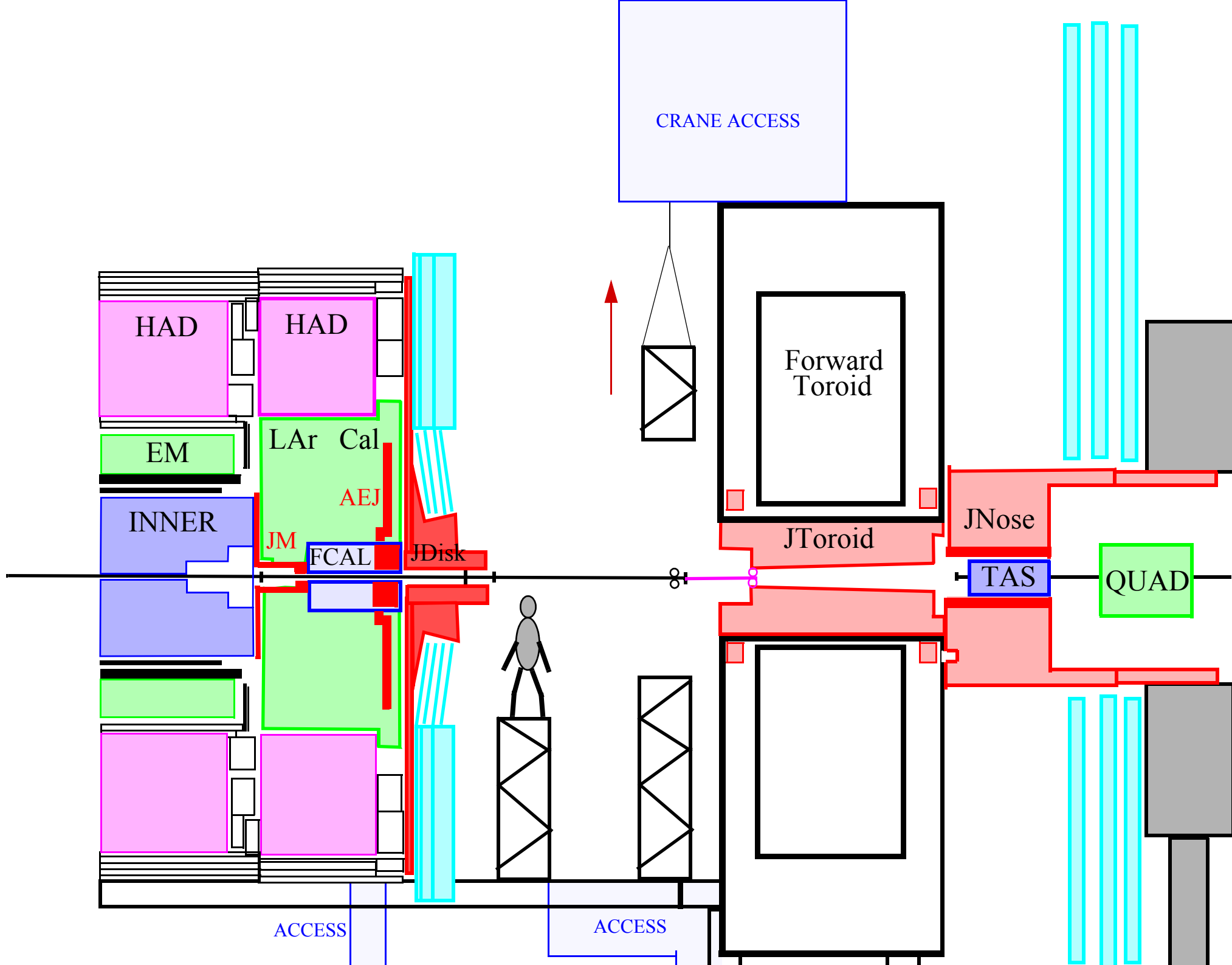


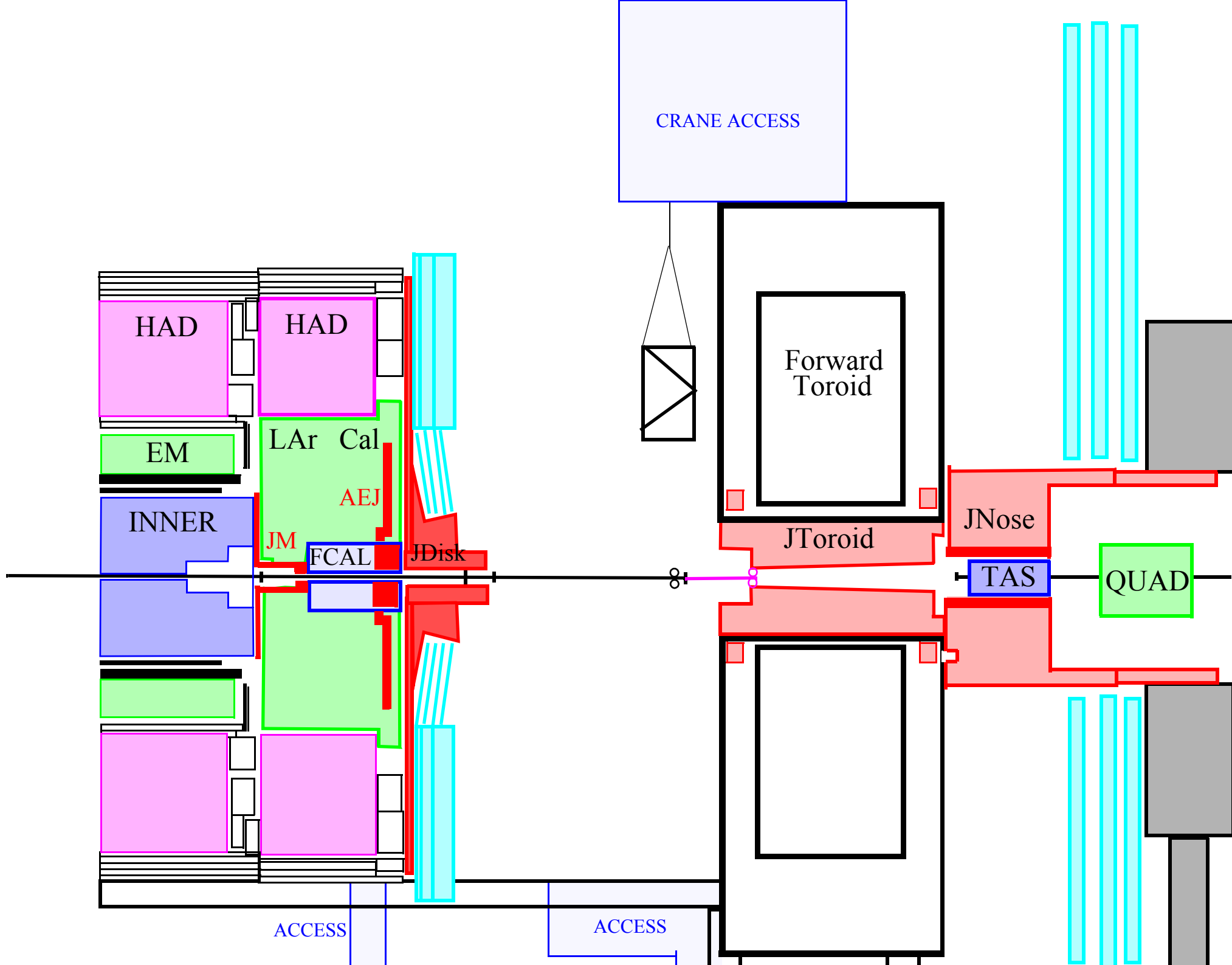




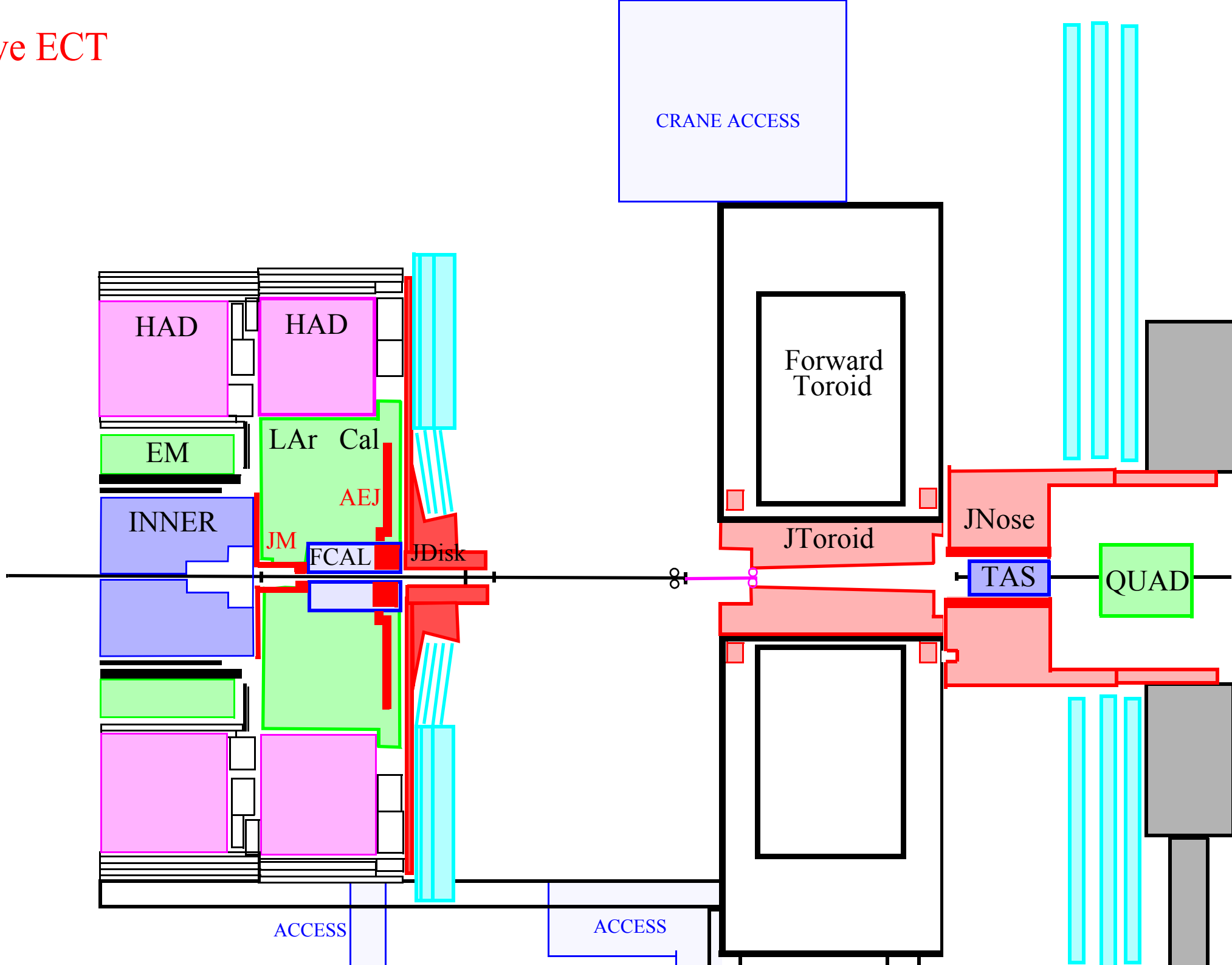
Remove scaffolding.

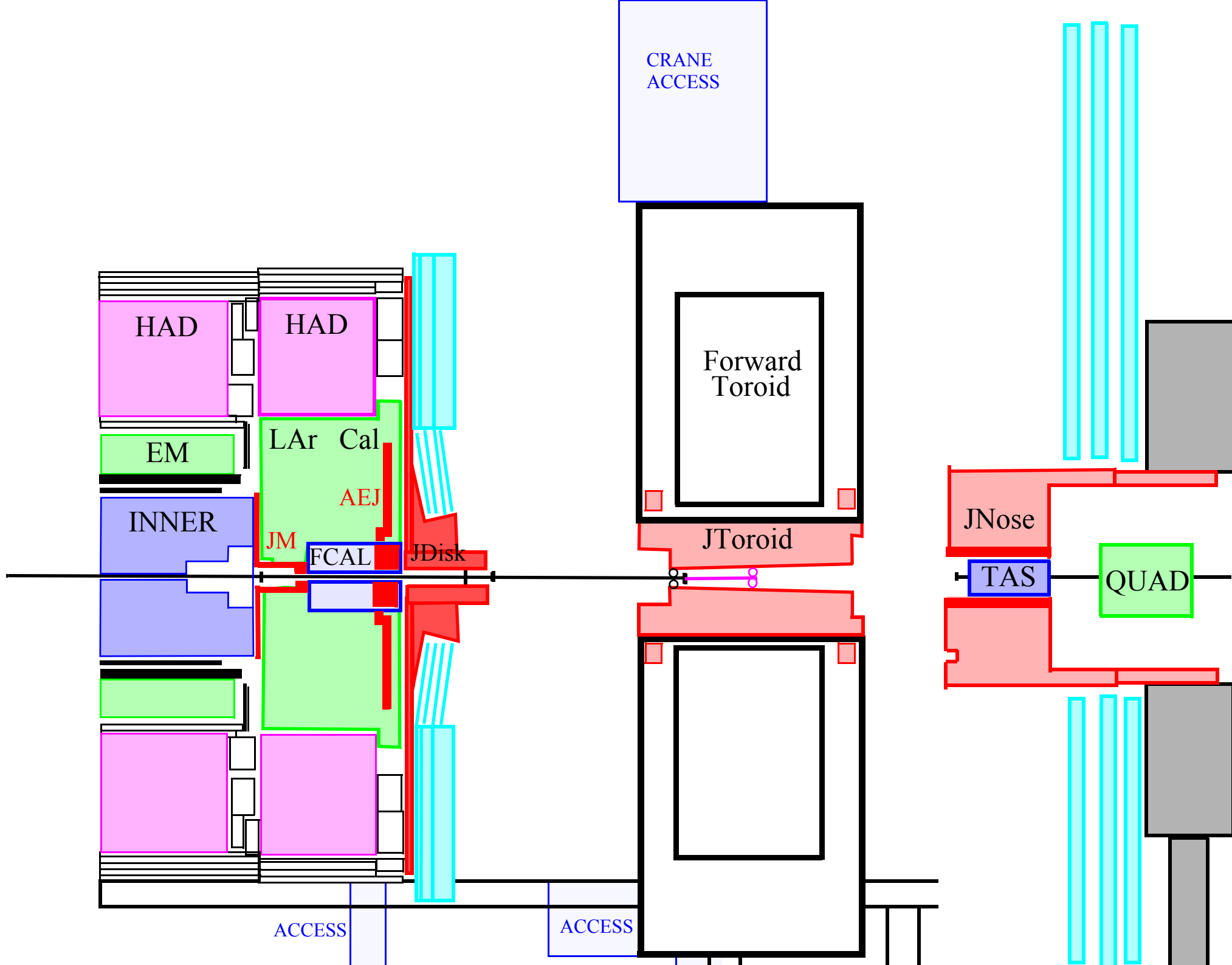




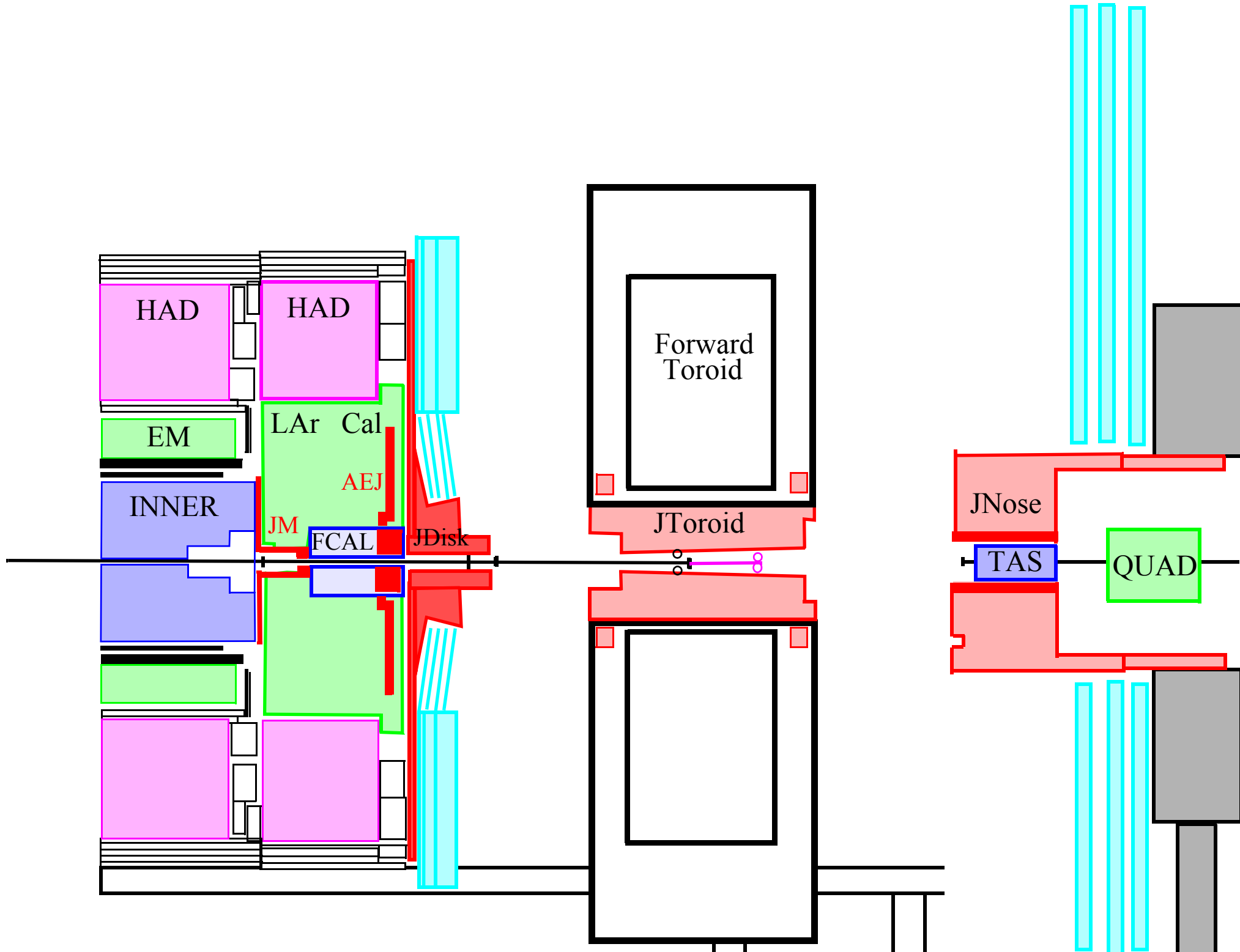


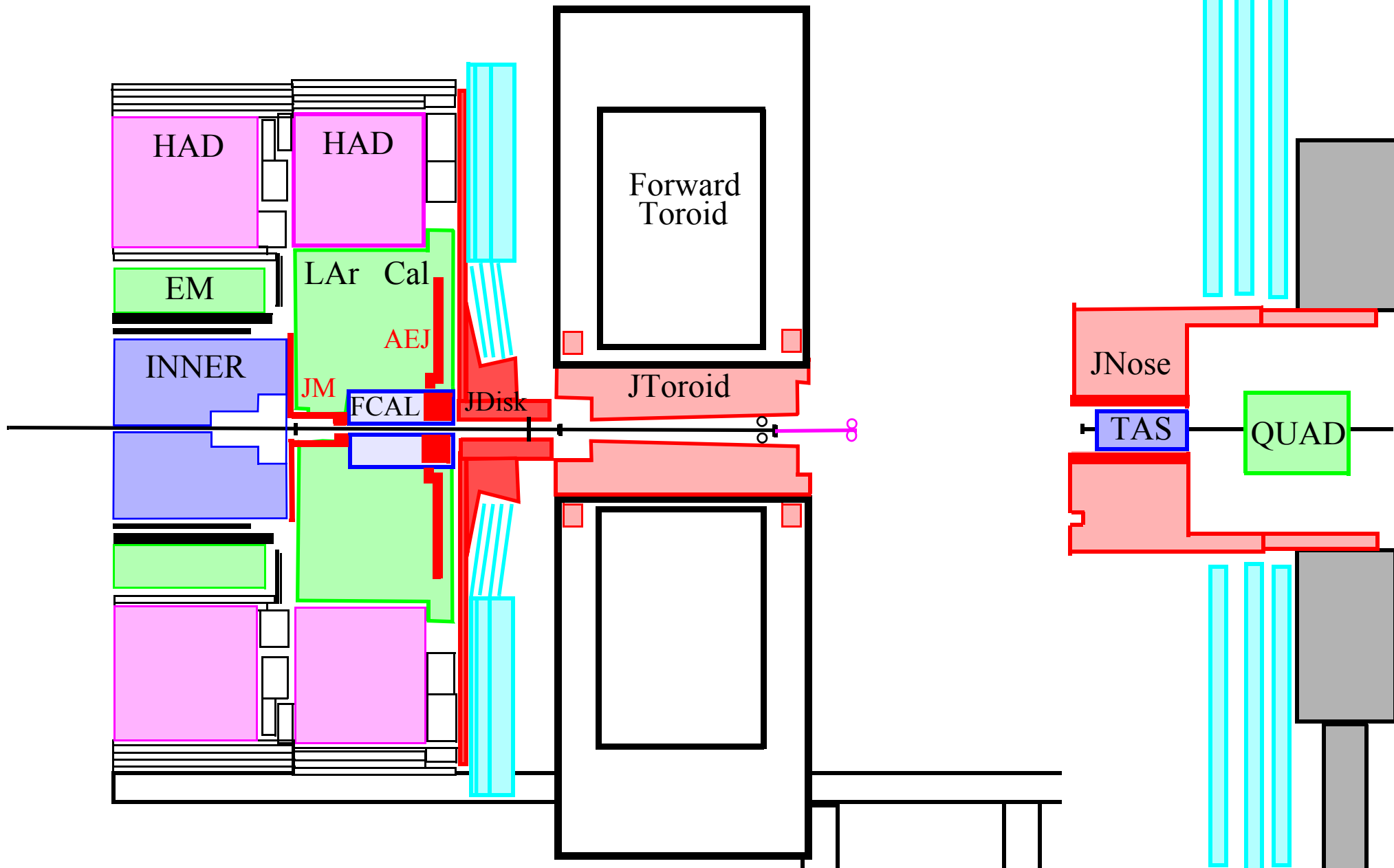
# Move ECT

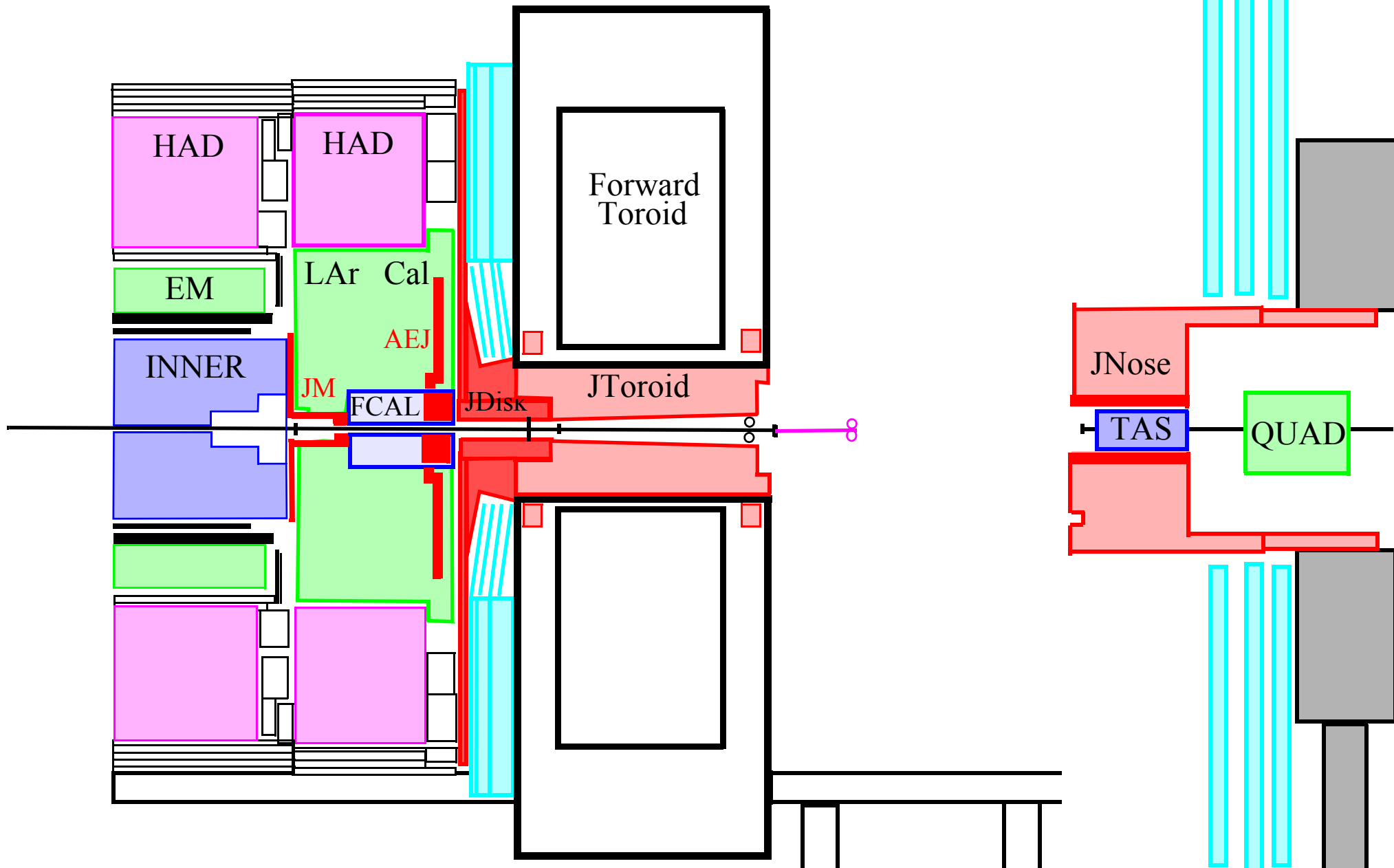




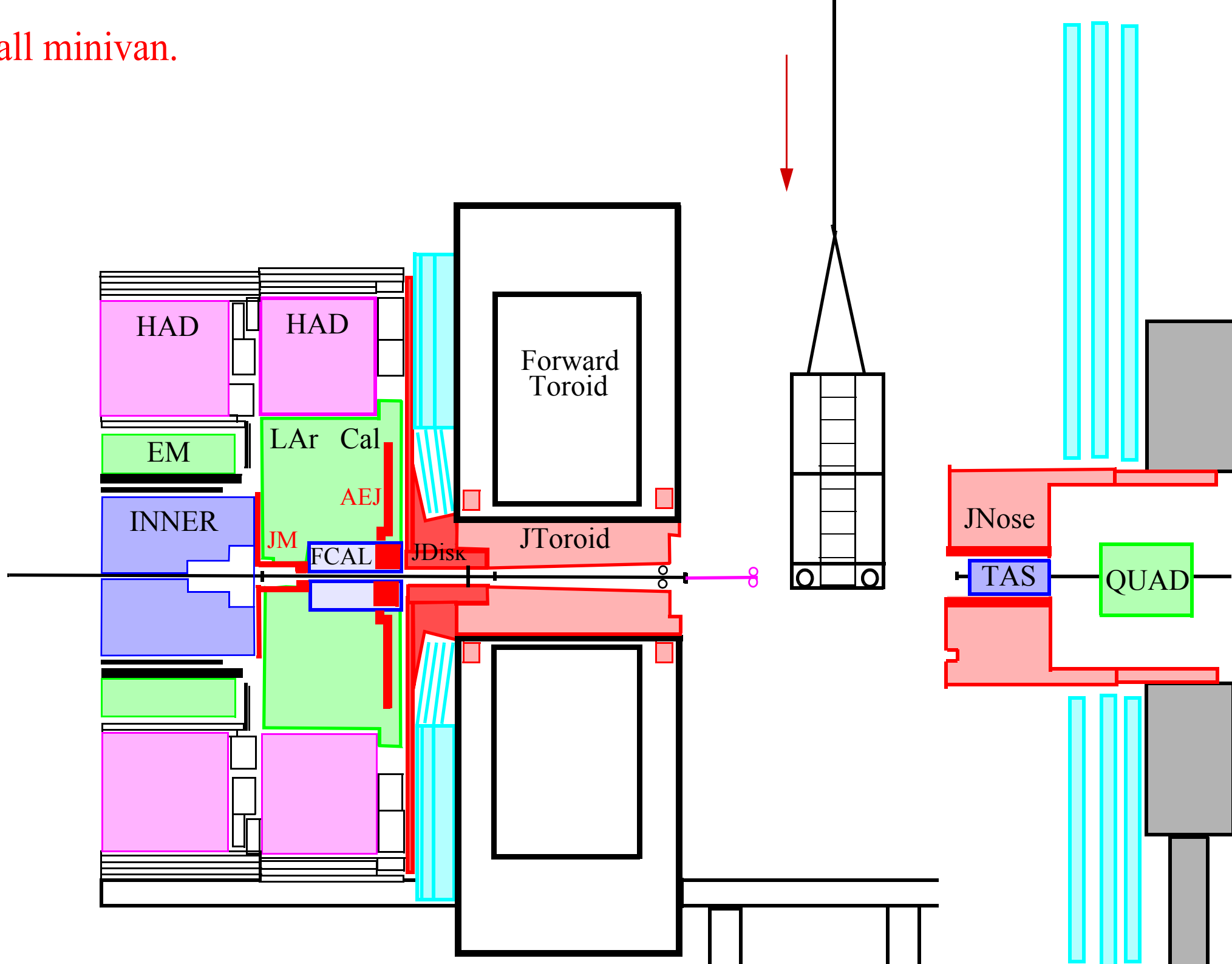


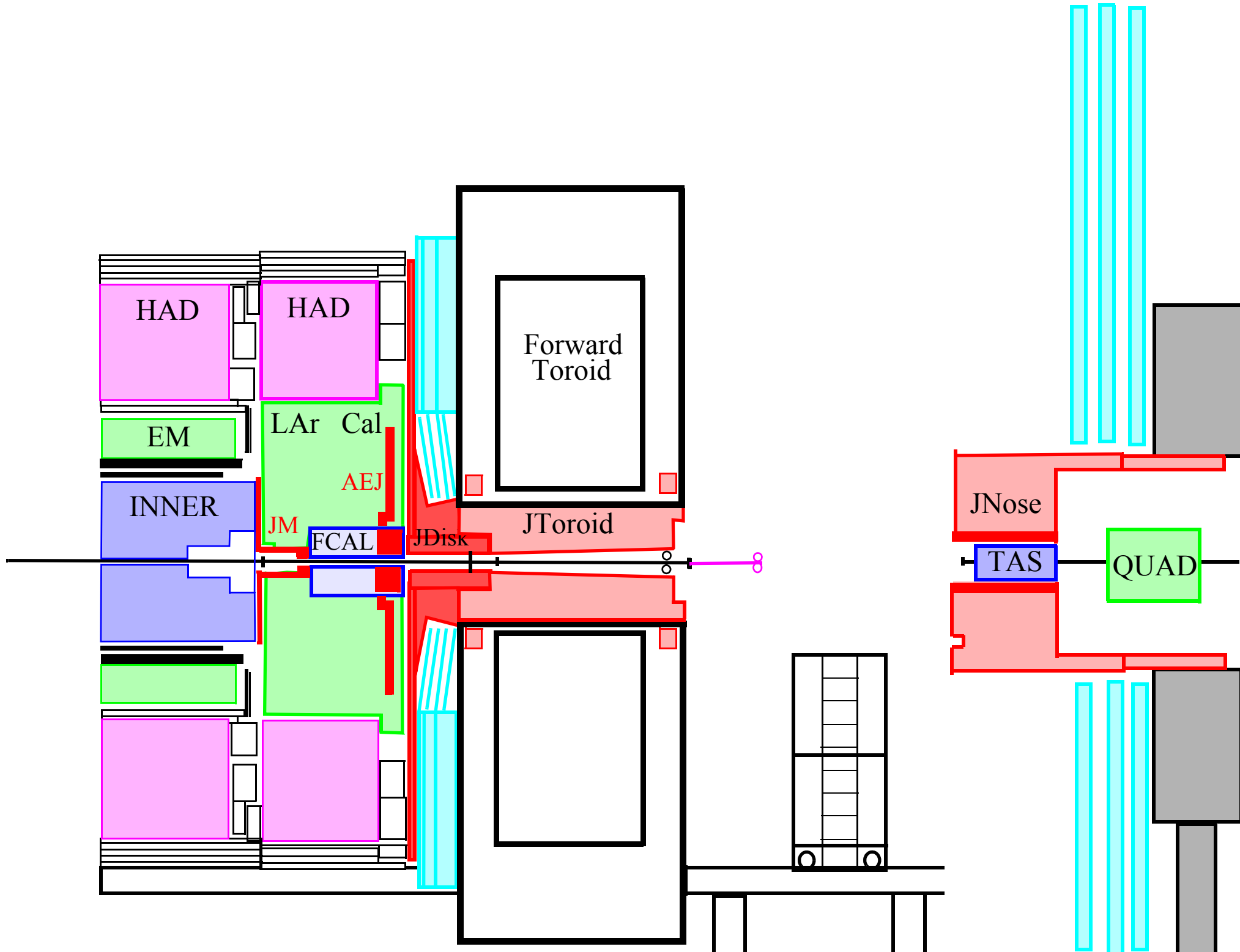


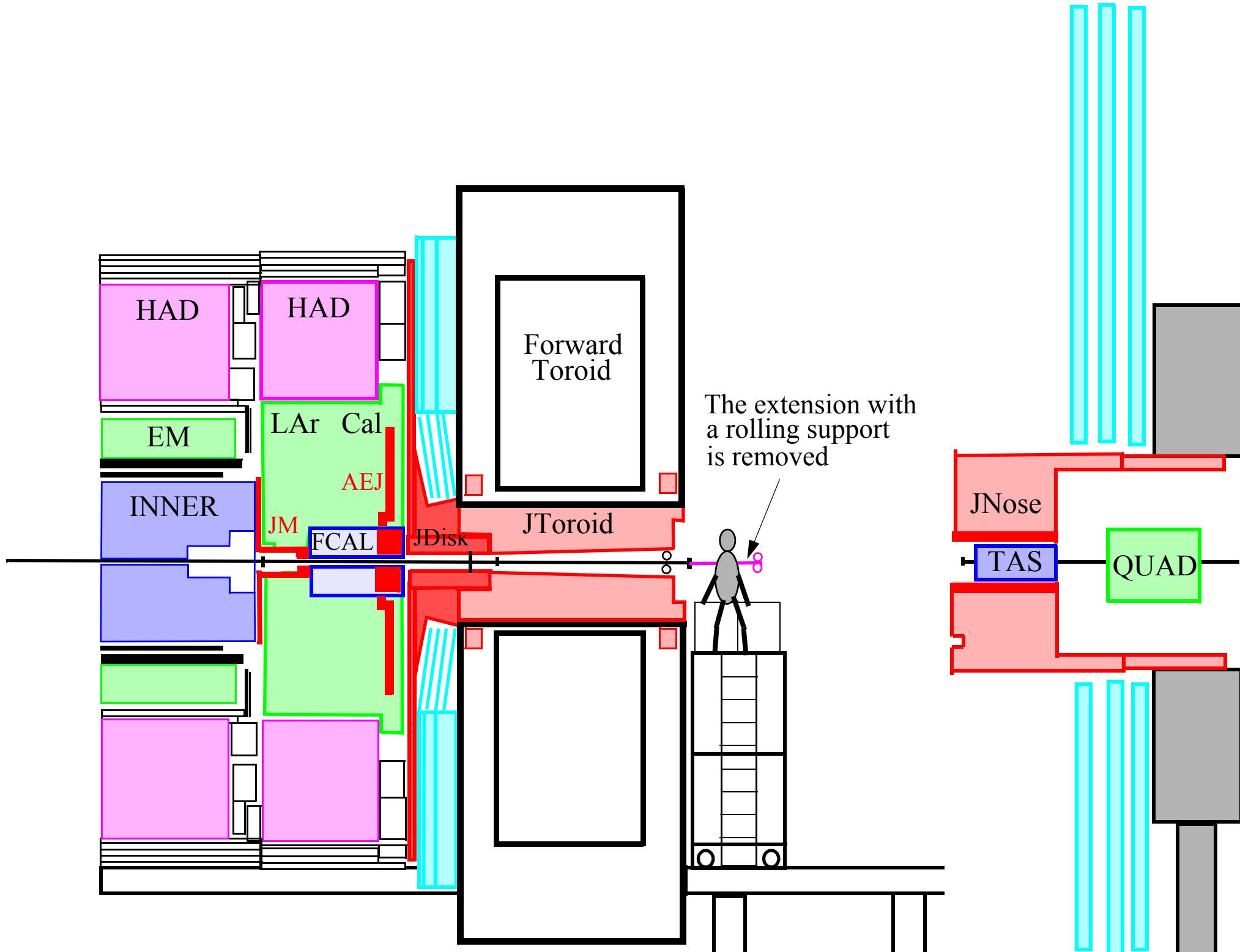


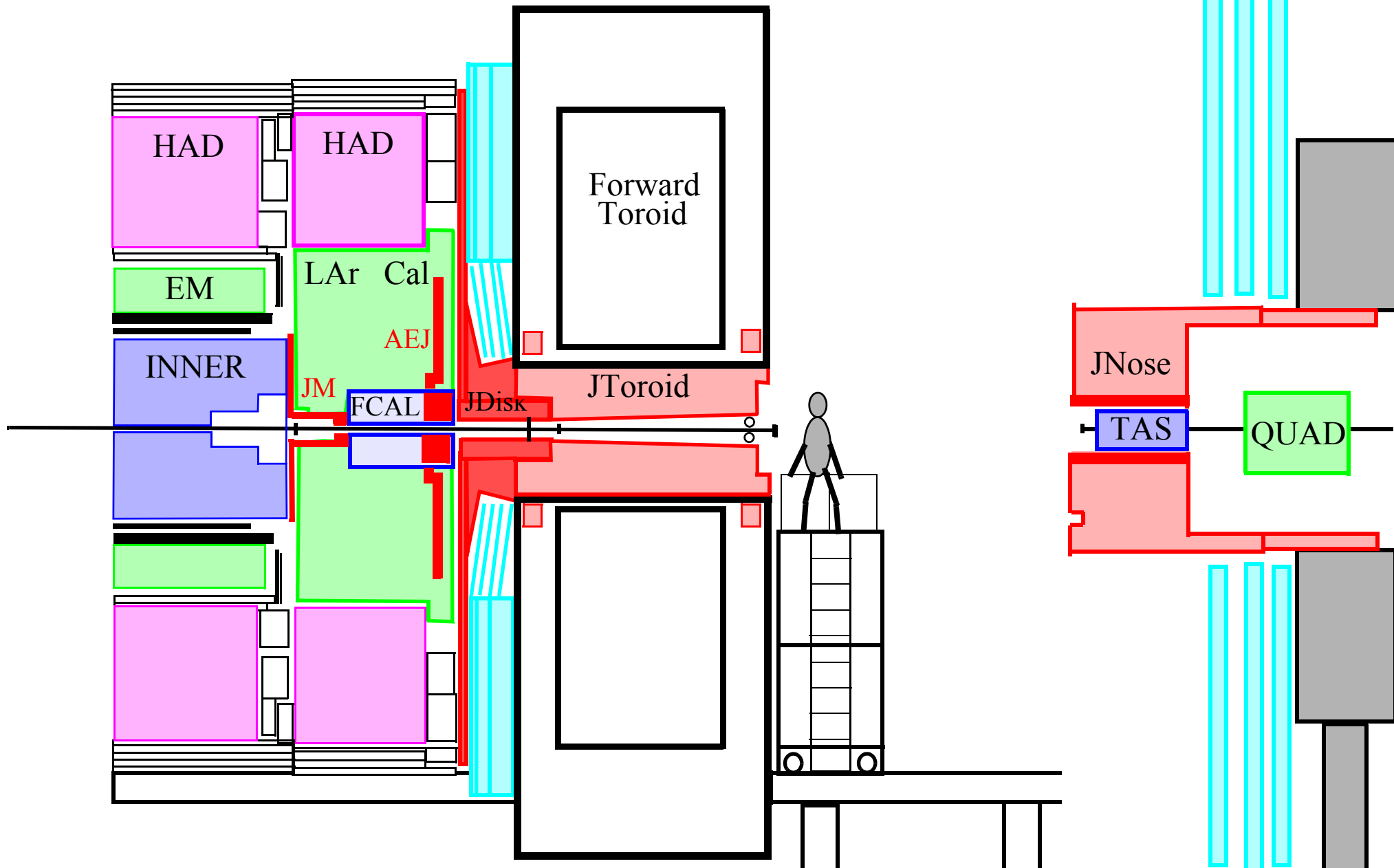


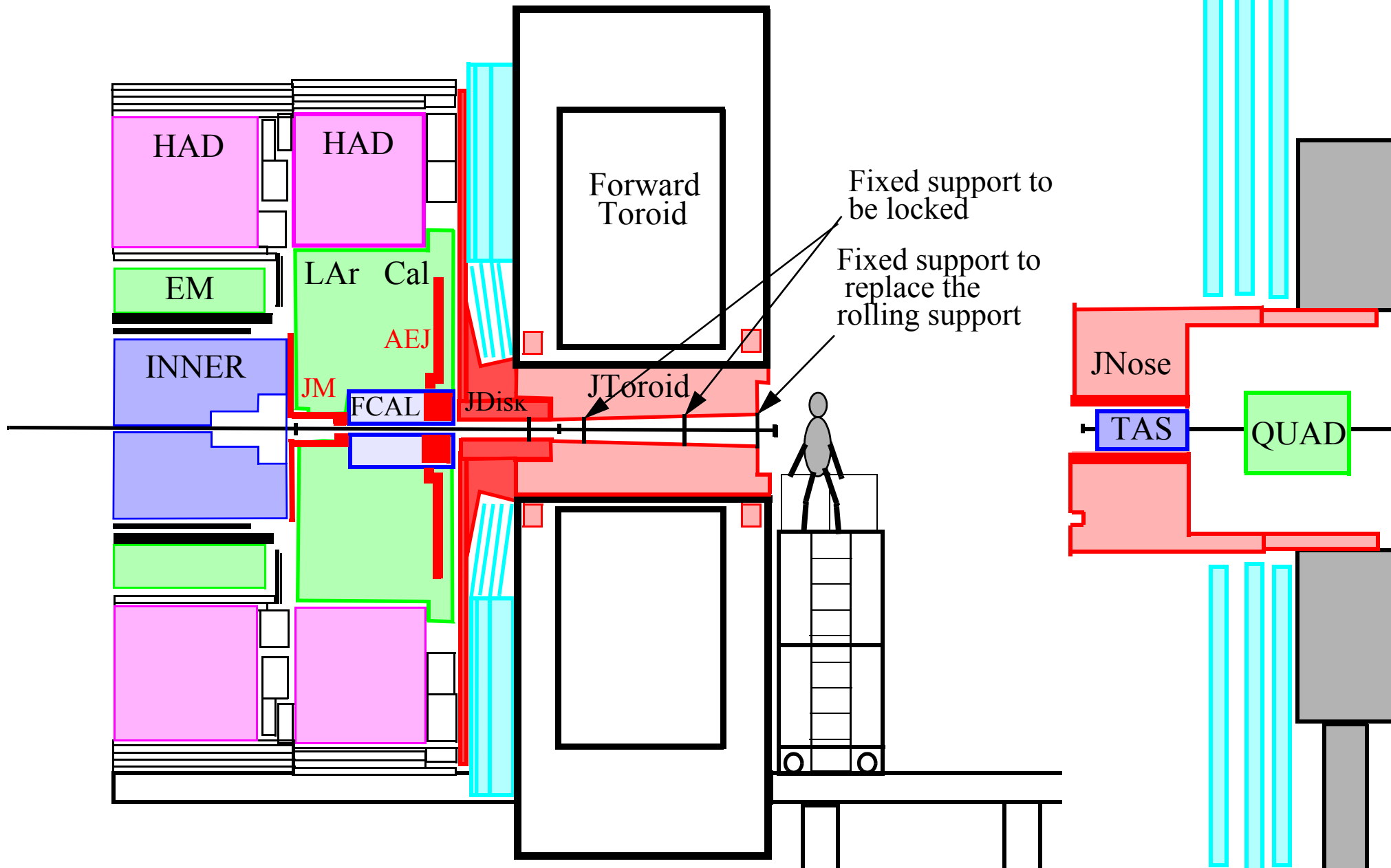
Install minivan.





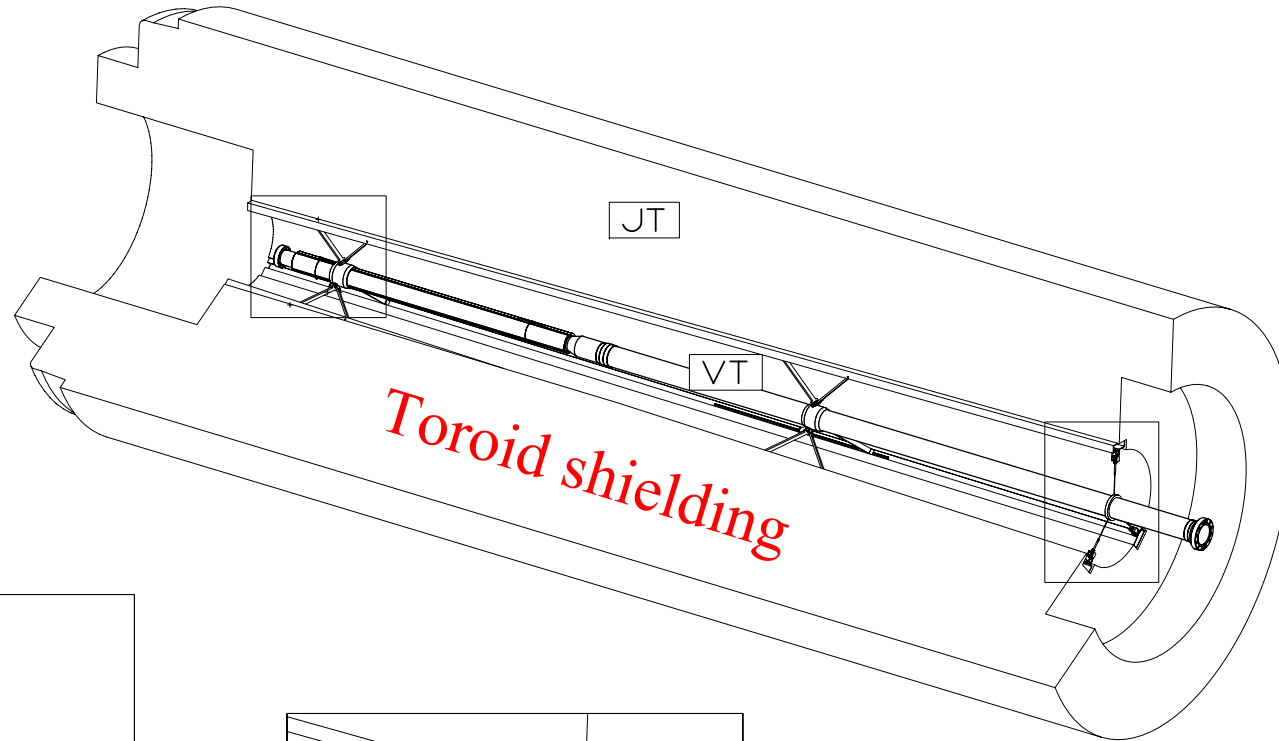




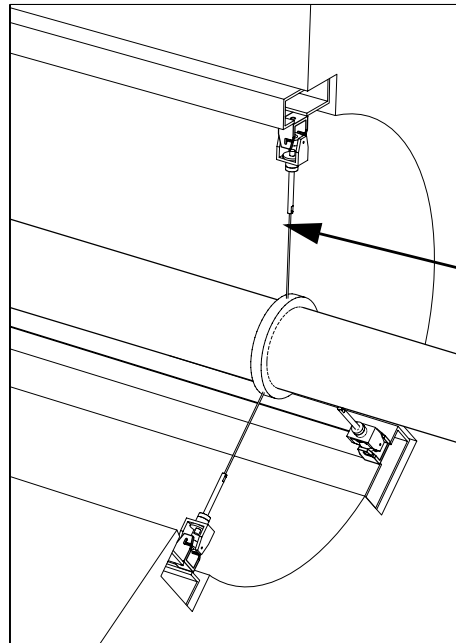
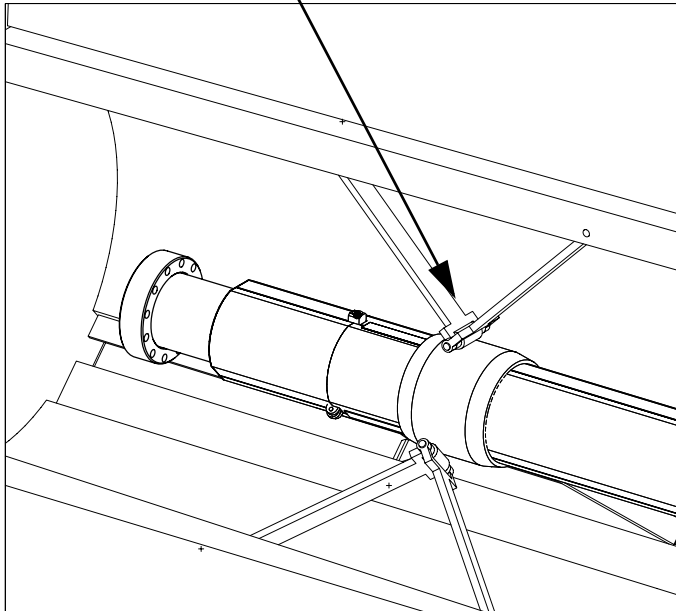
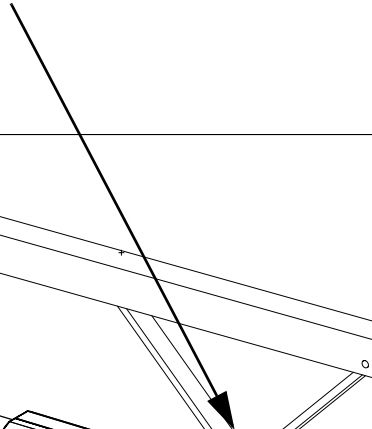




# Beampipe supports

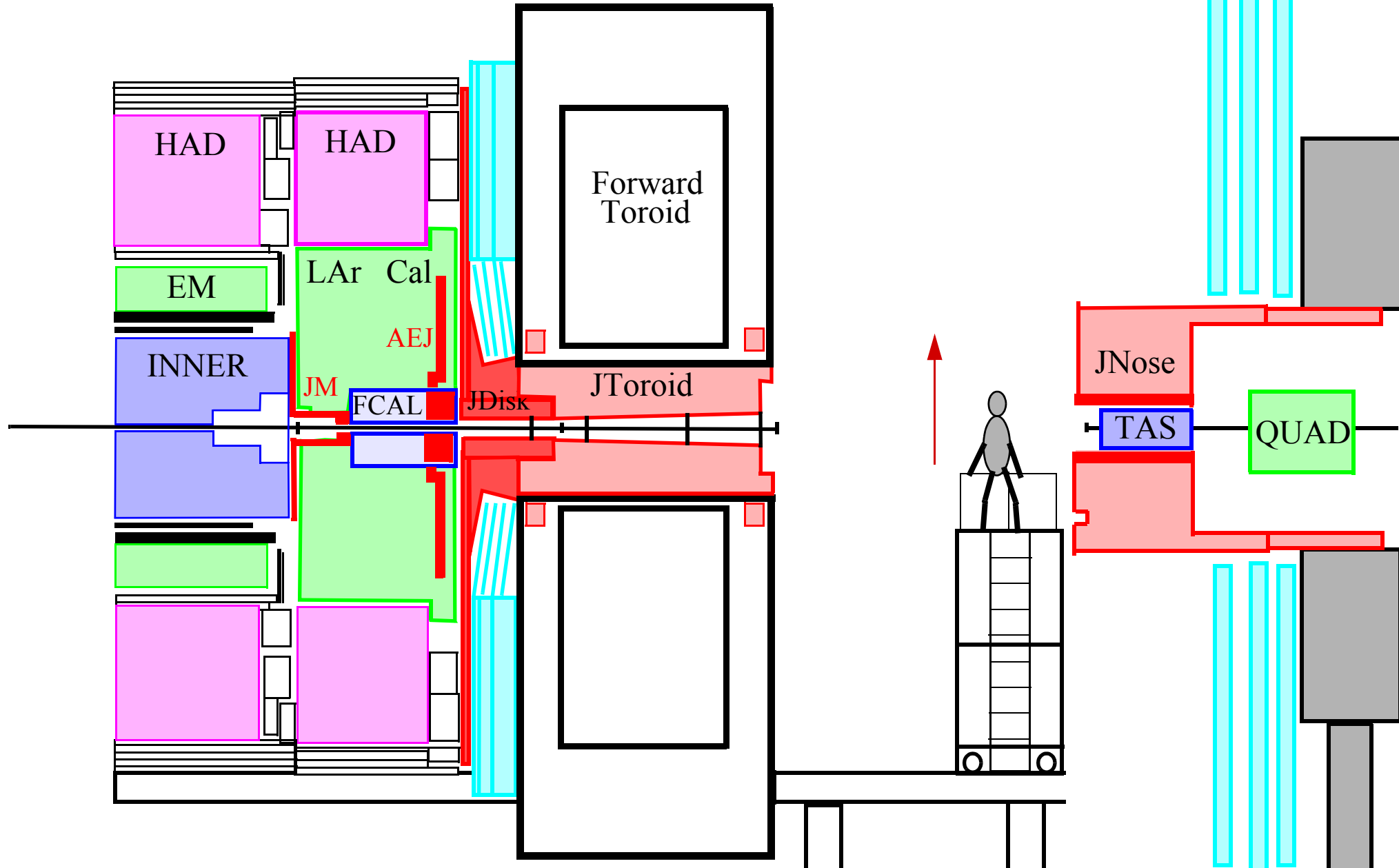


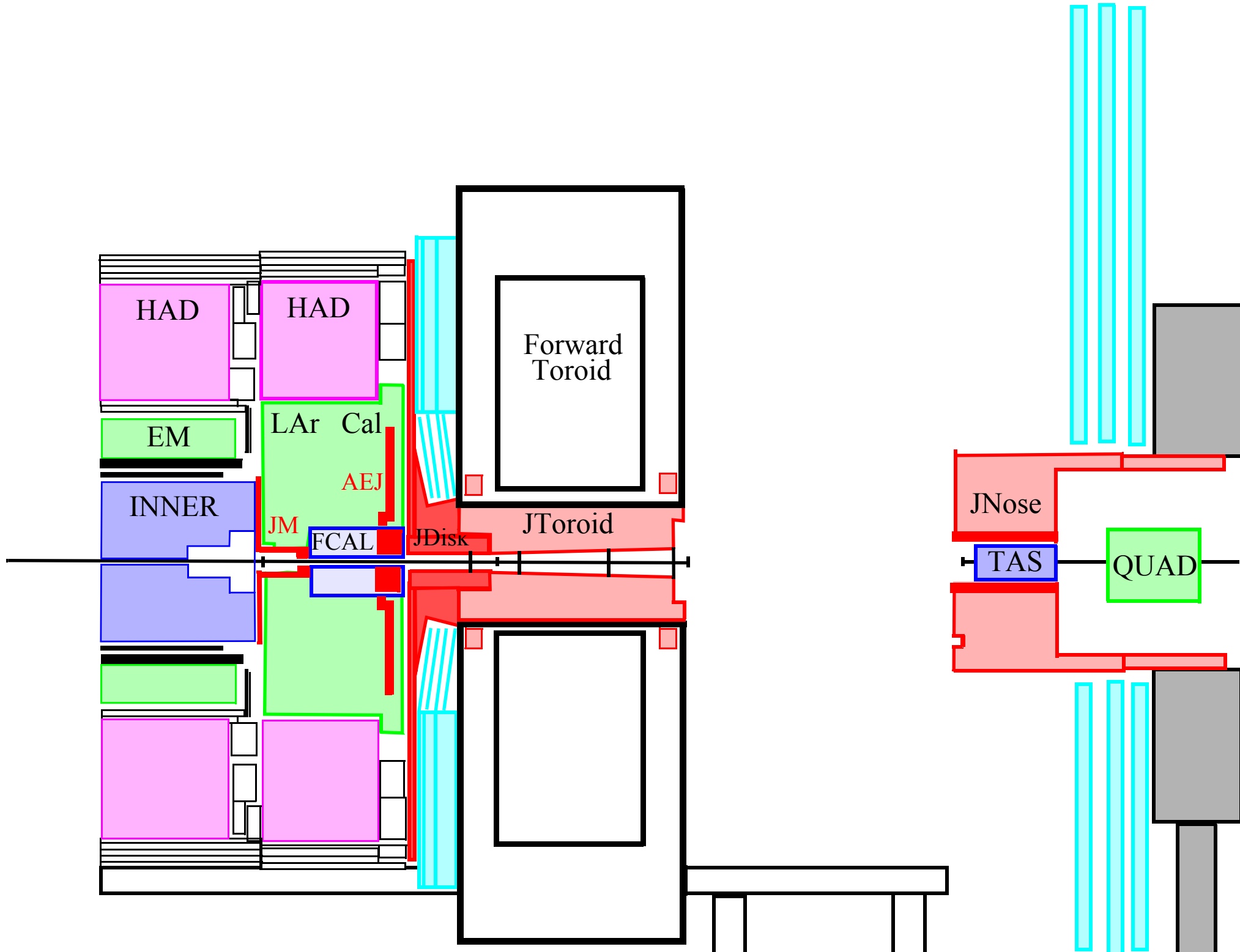
This support has to be locked.



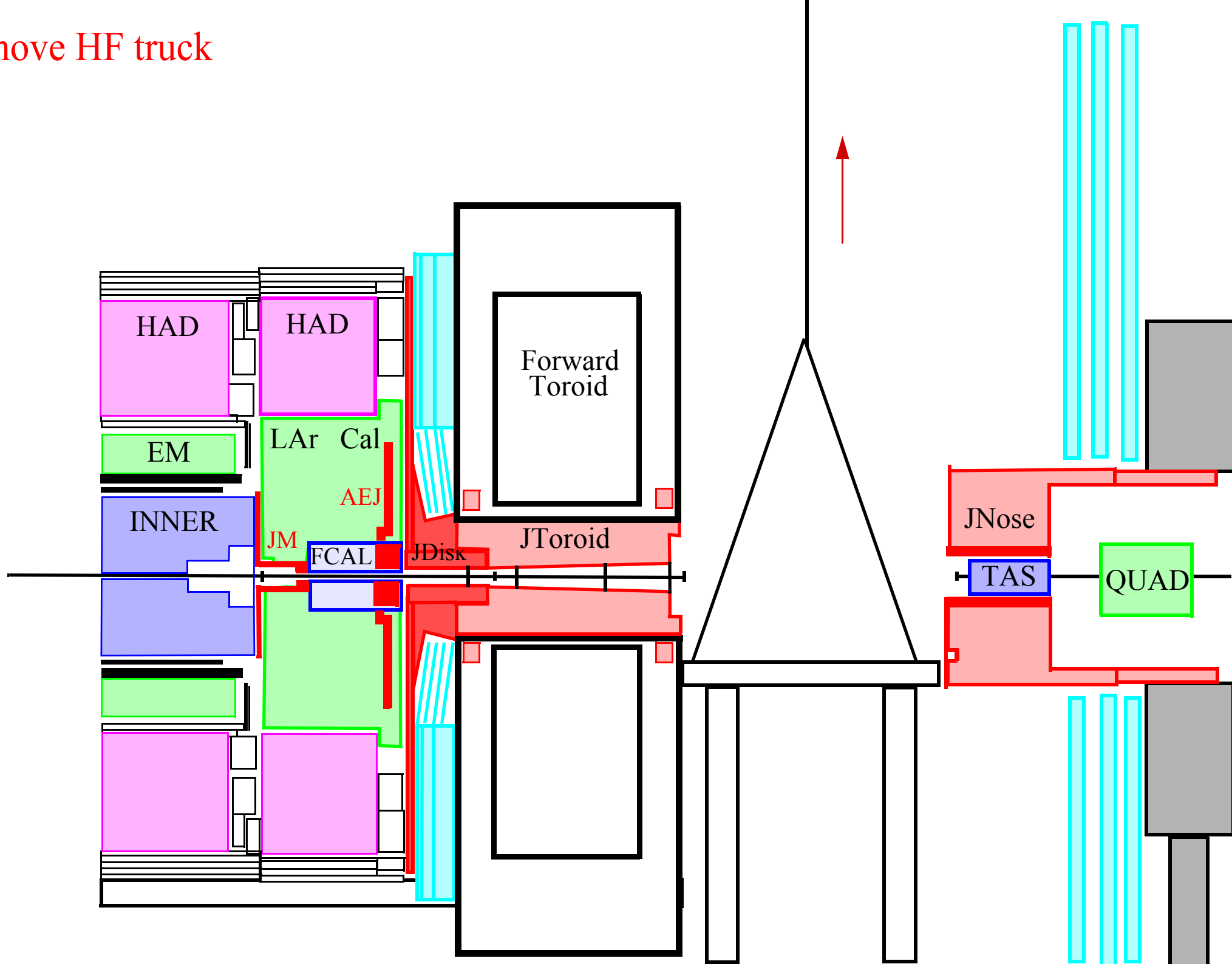
This support has to be attached and the rolling support has to be removed.

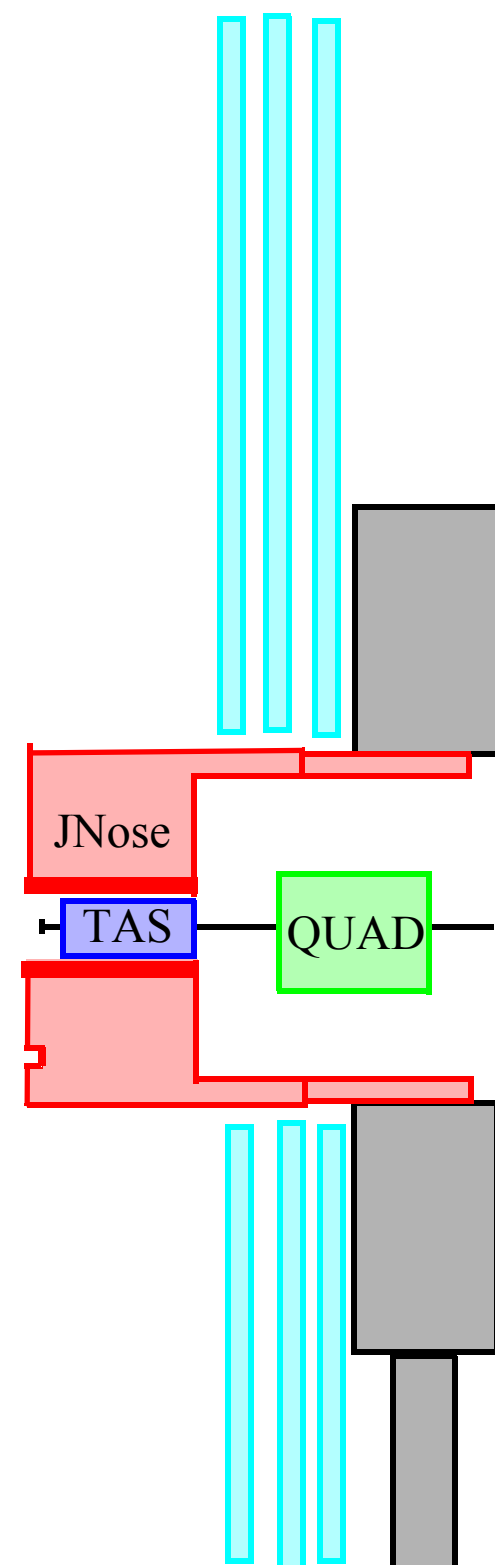
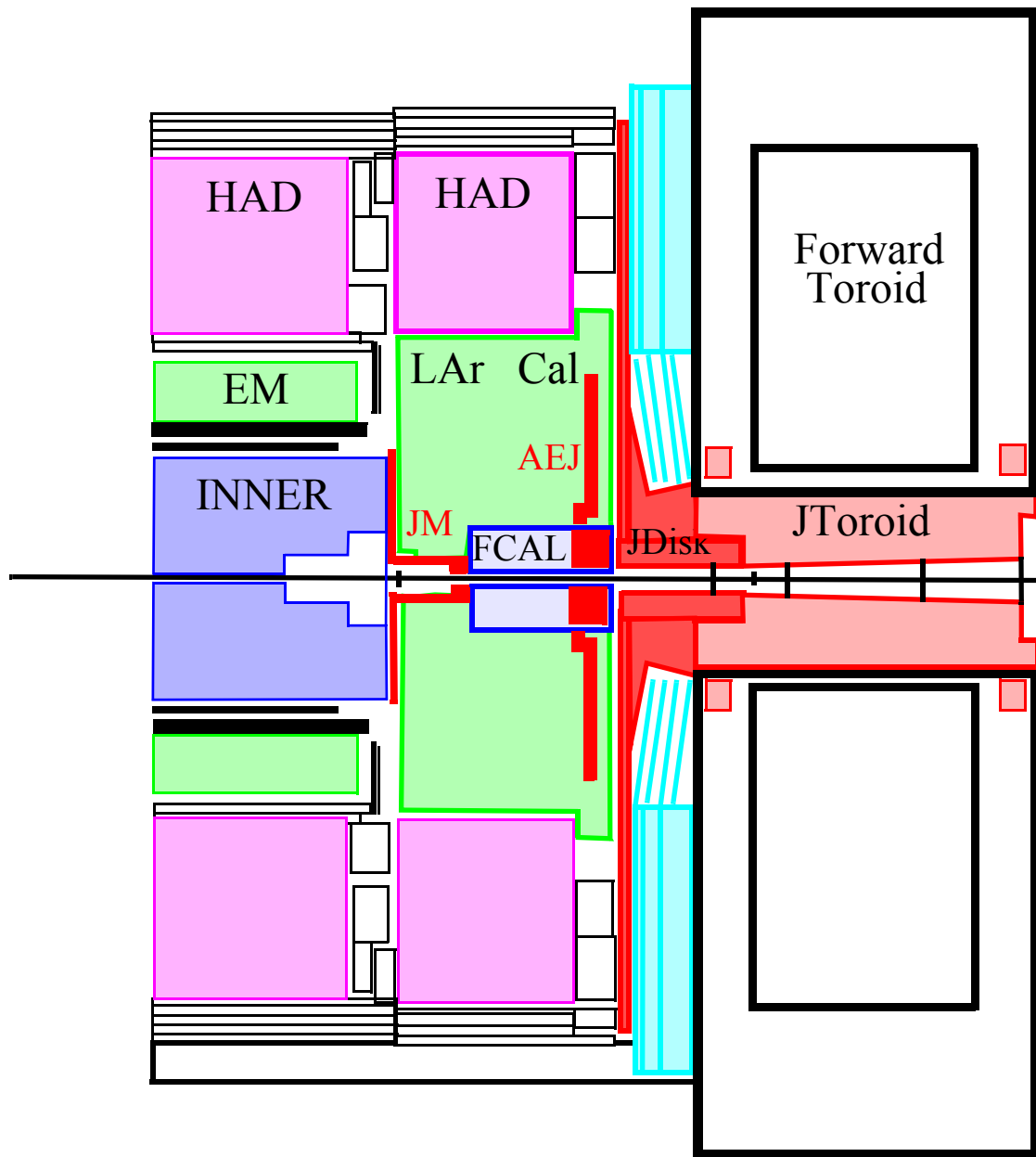
# Remove minivan



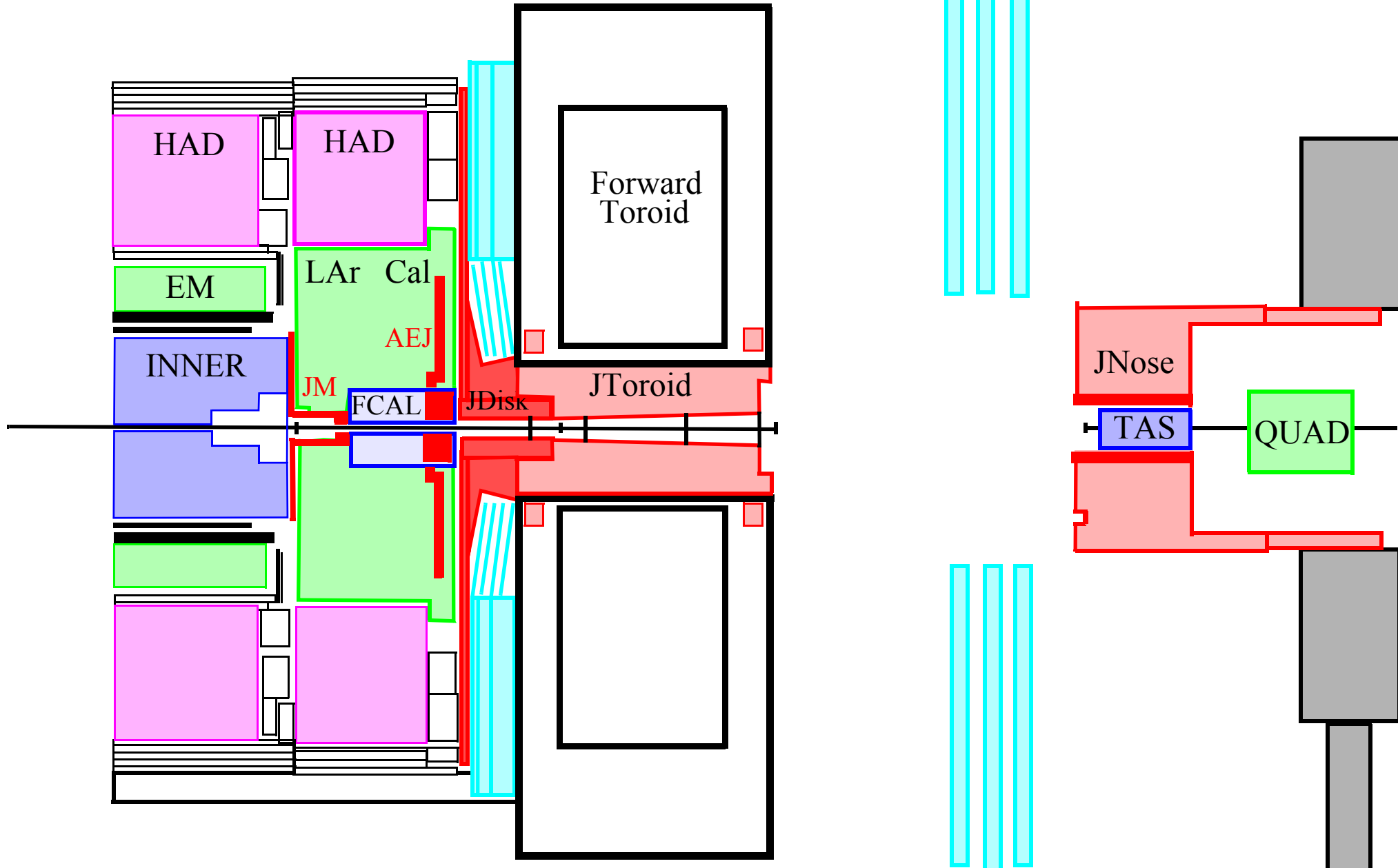


# Remove HF truck

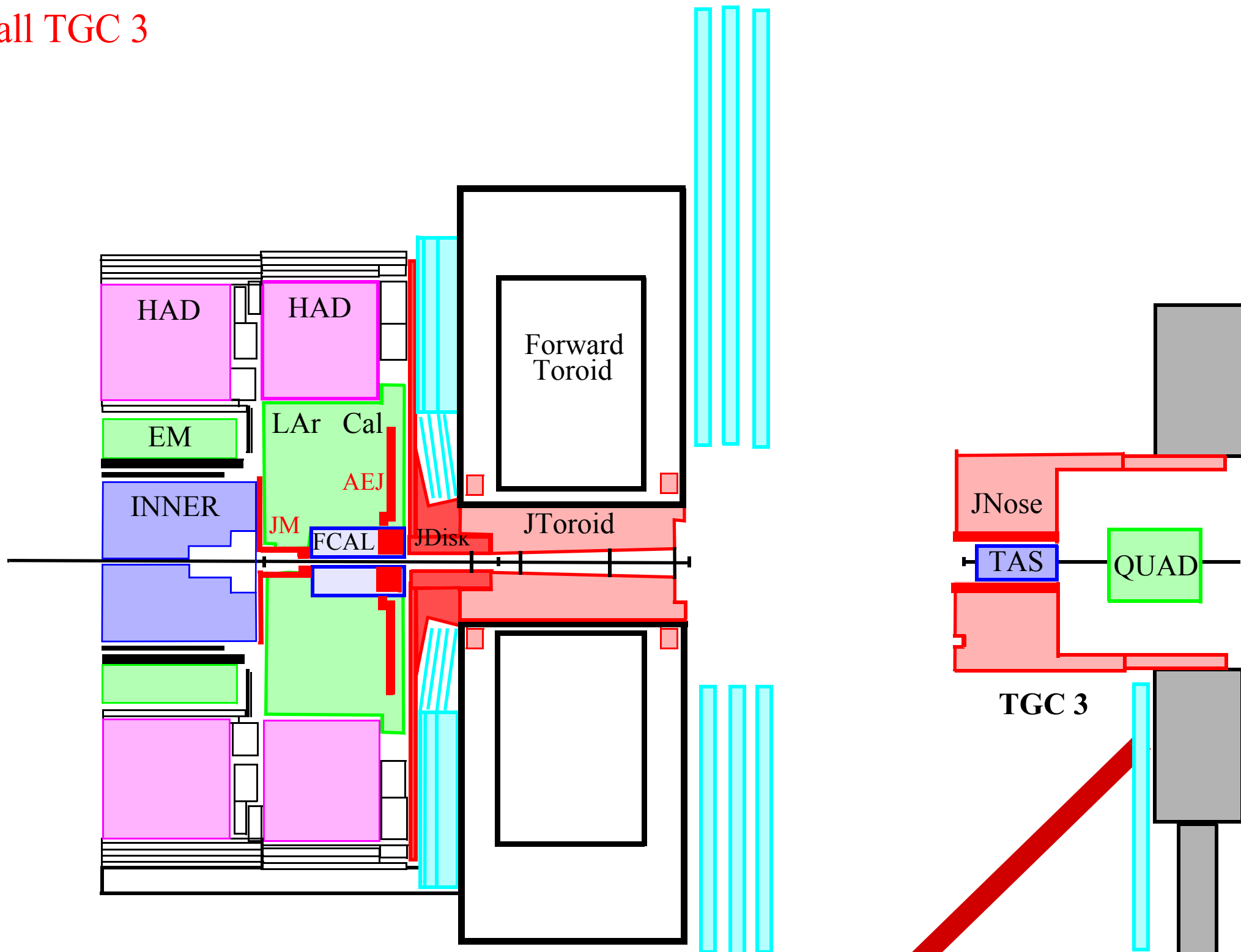


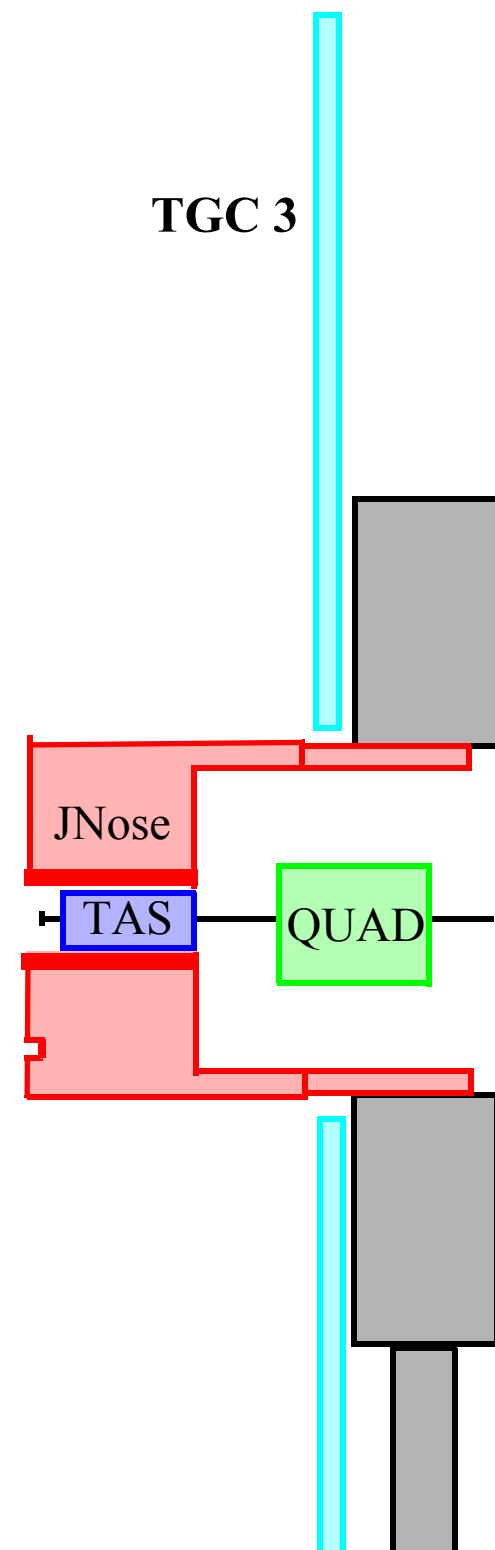
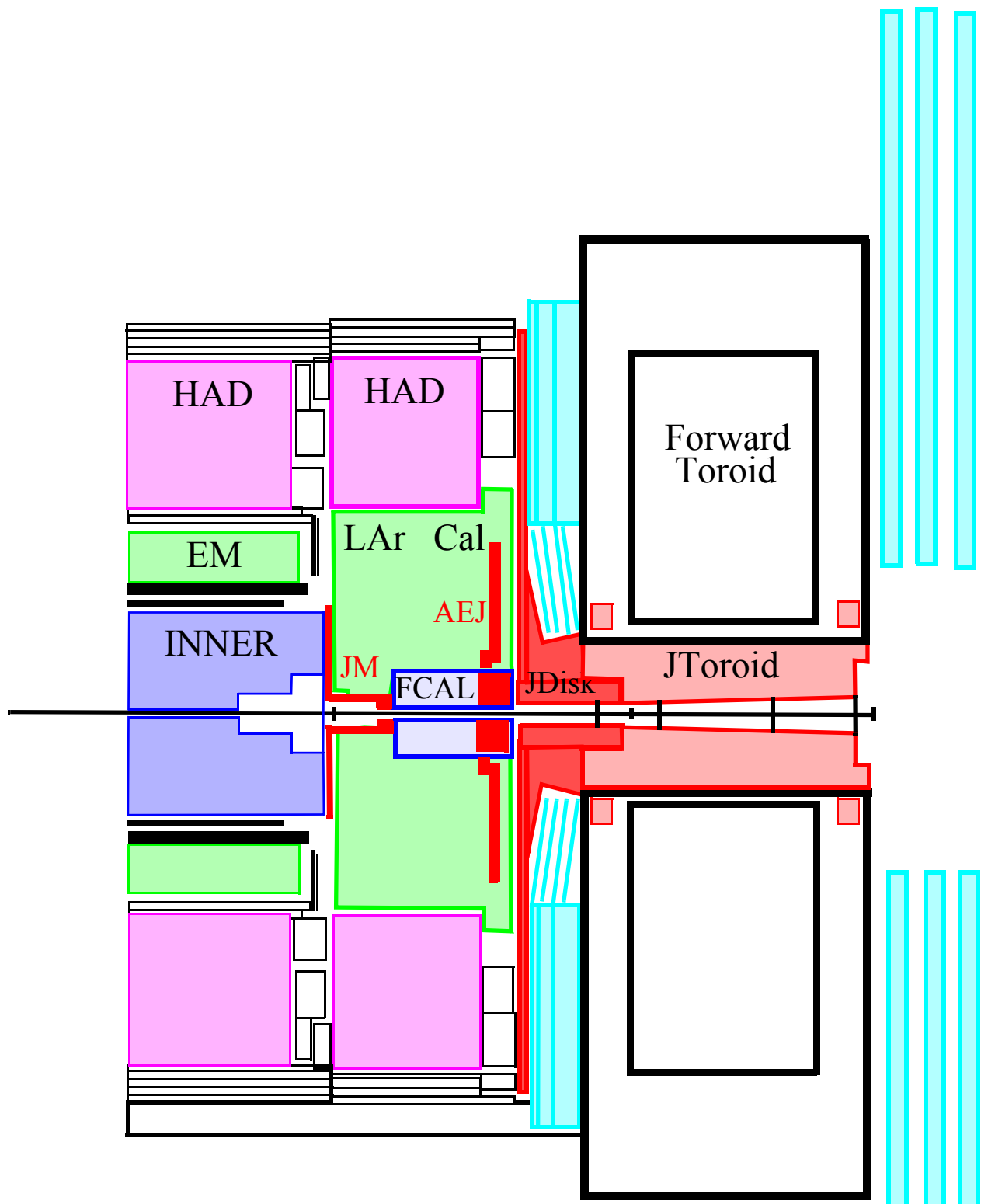


# Move Big Wheel.



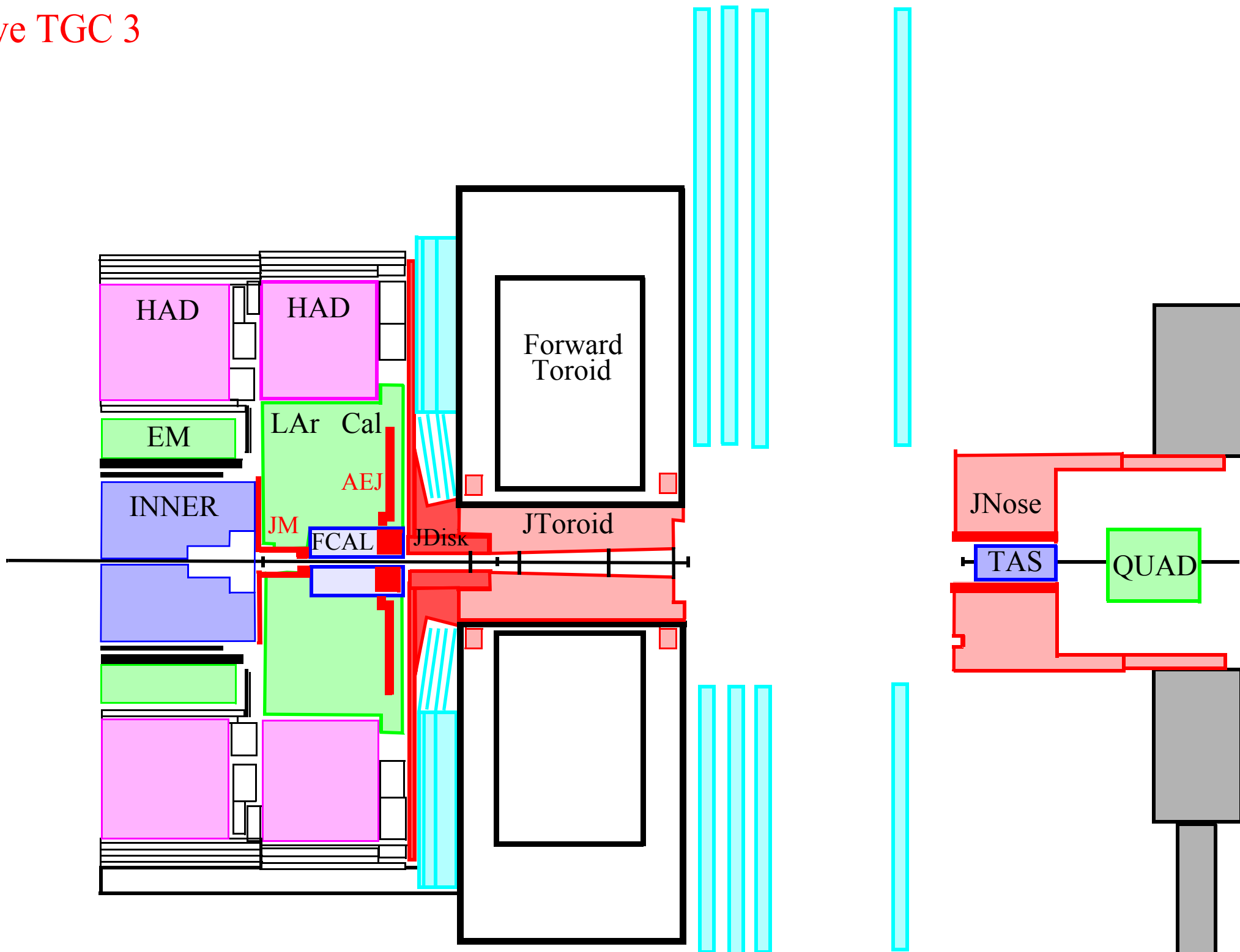
# Install TGC 3

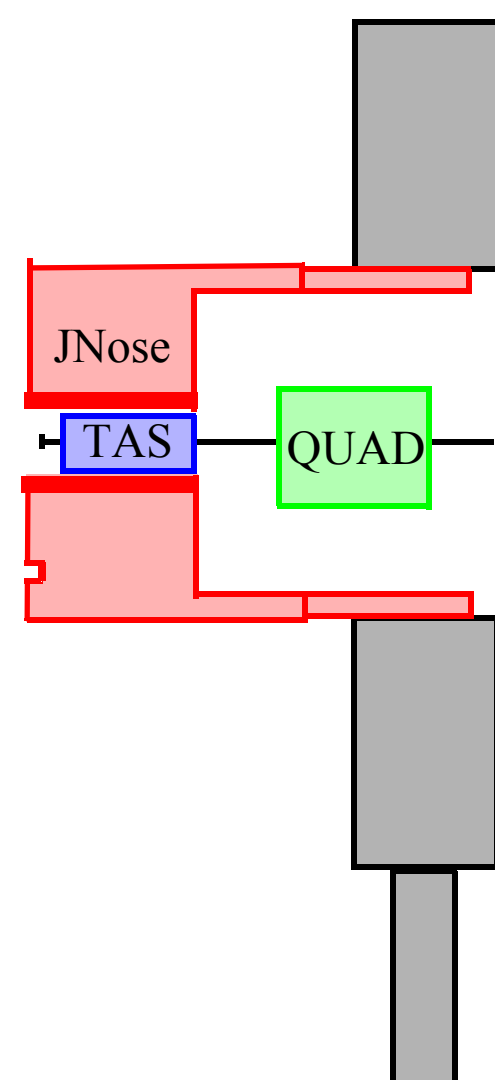
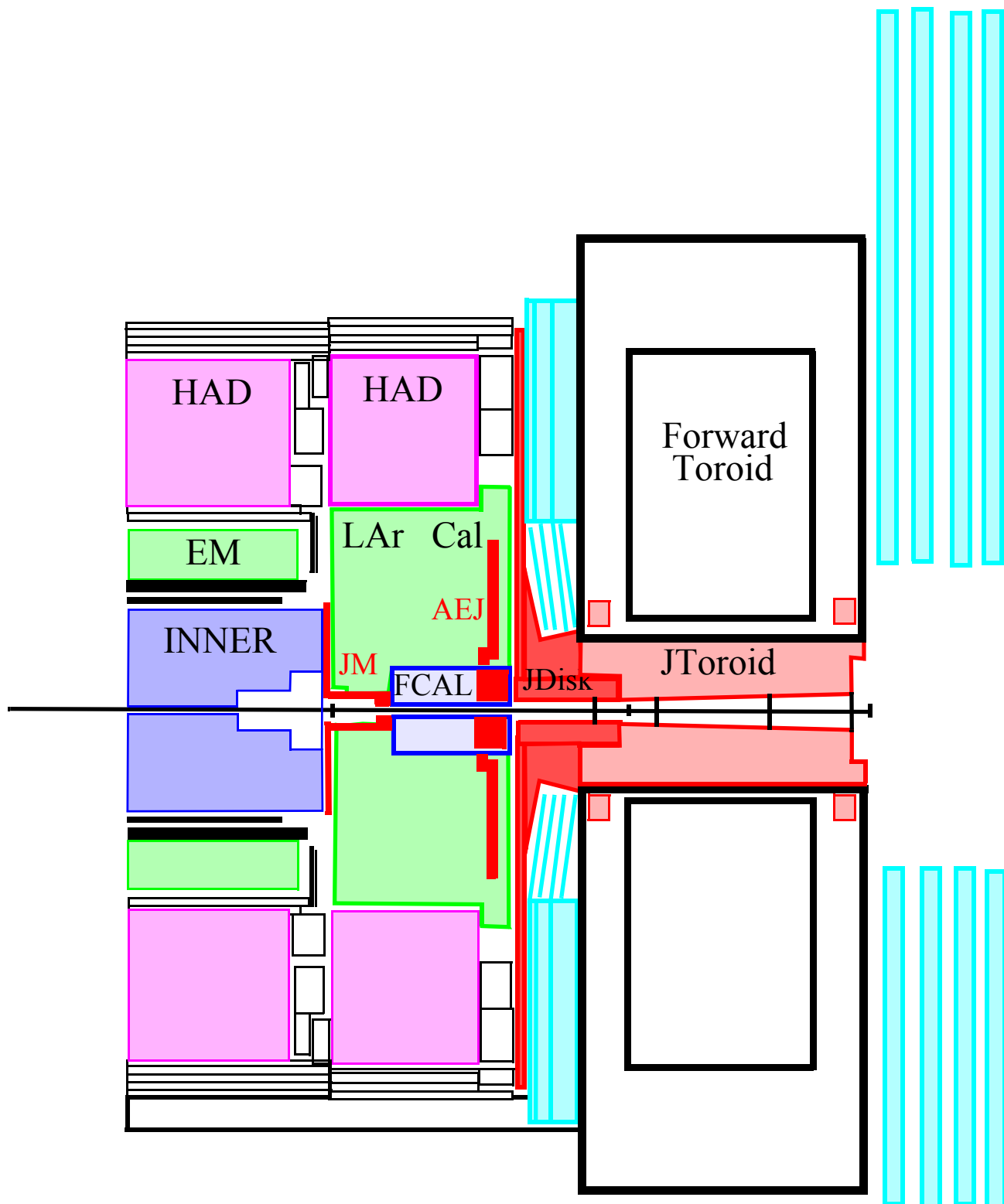




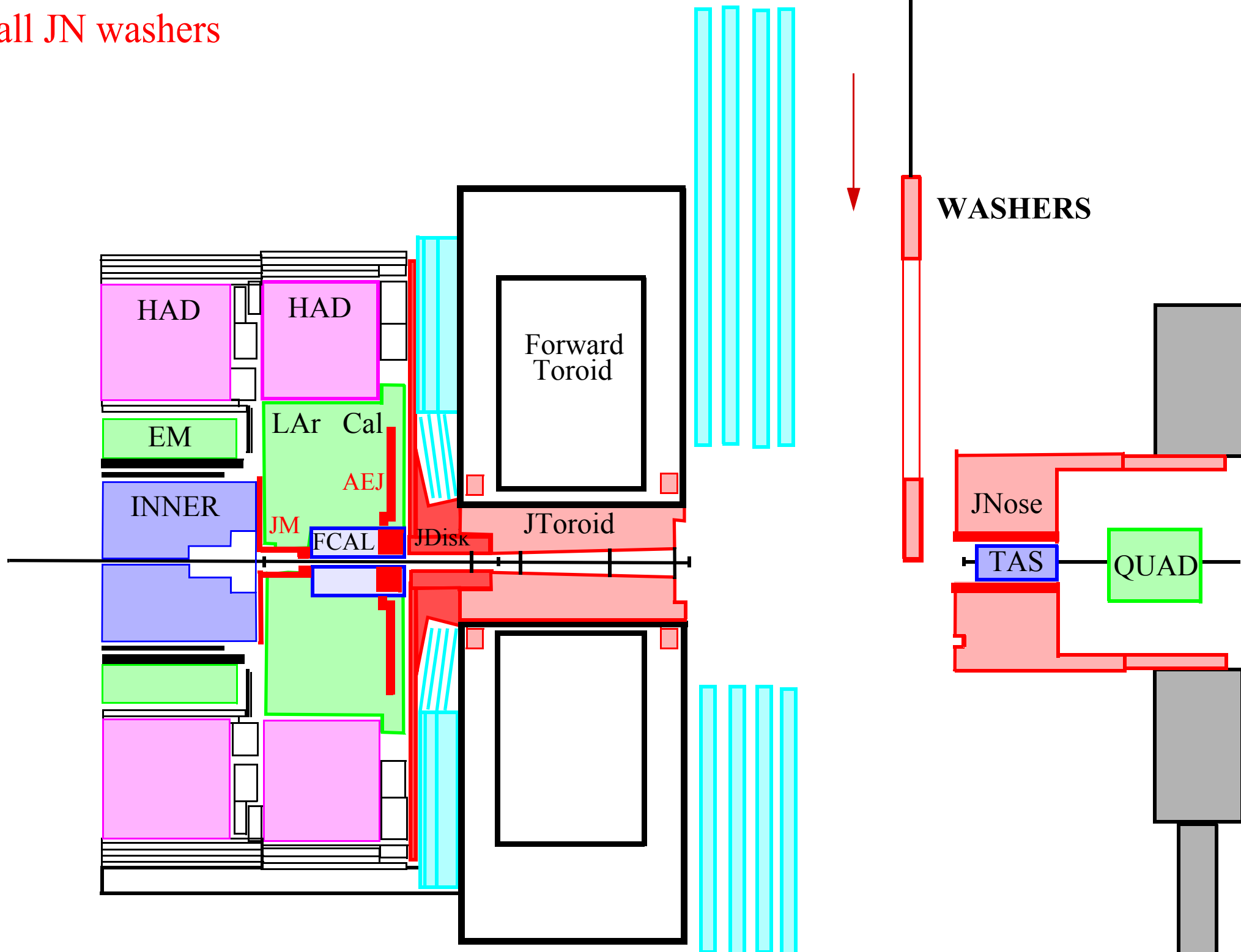


# Move TGC 3

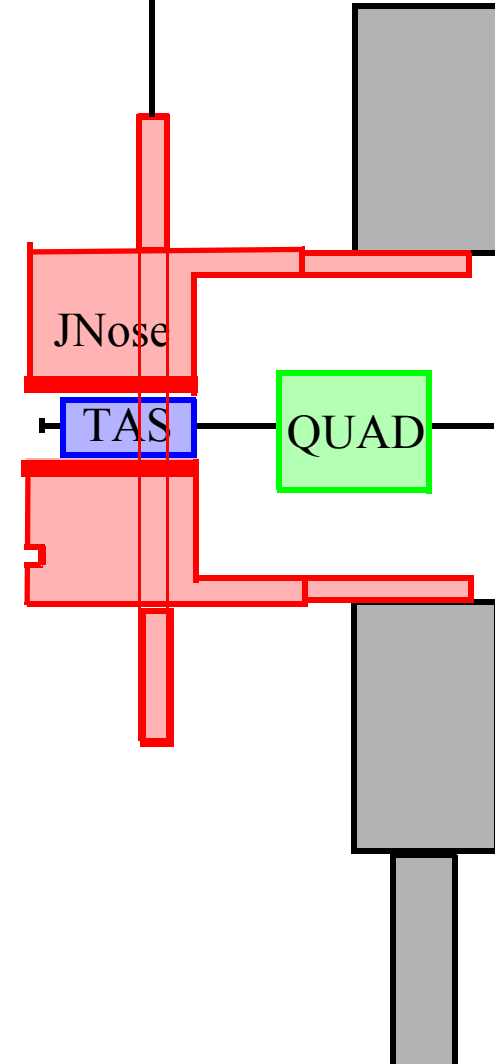
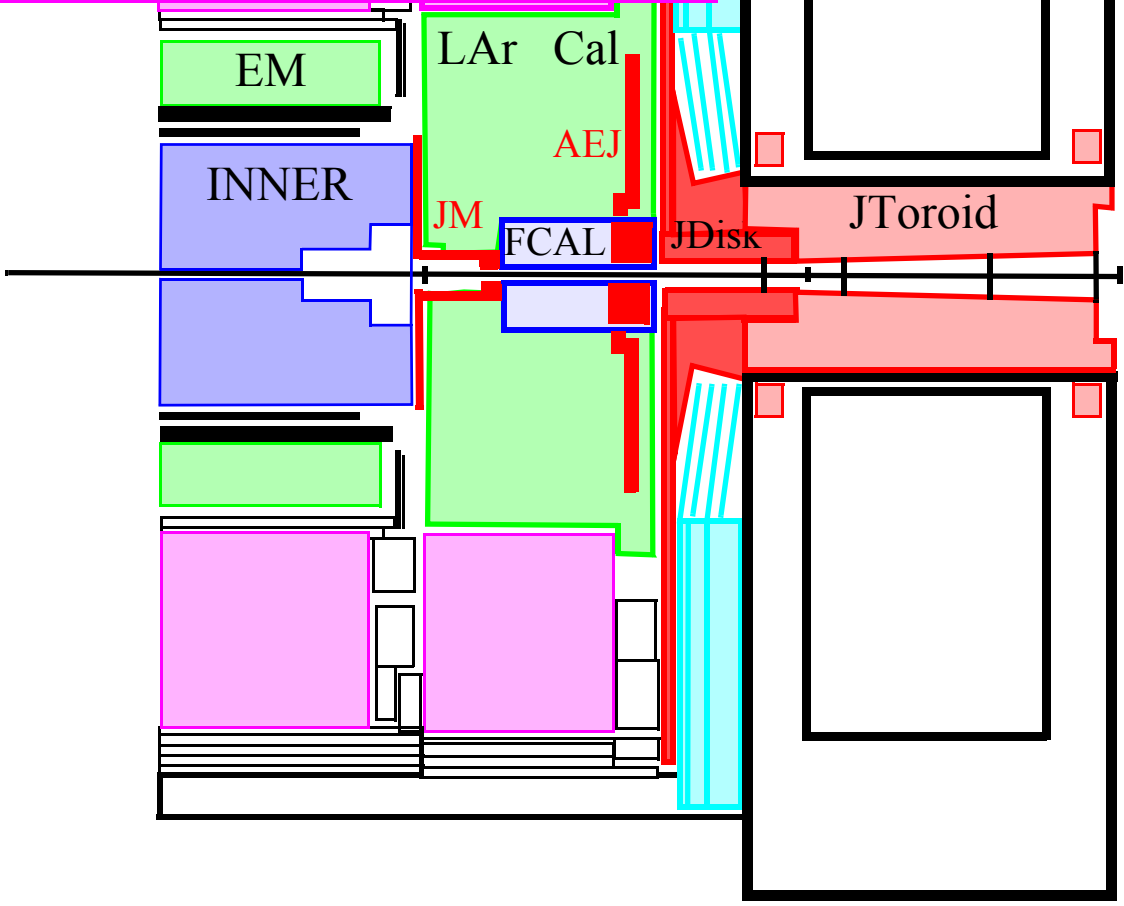
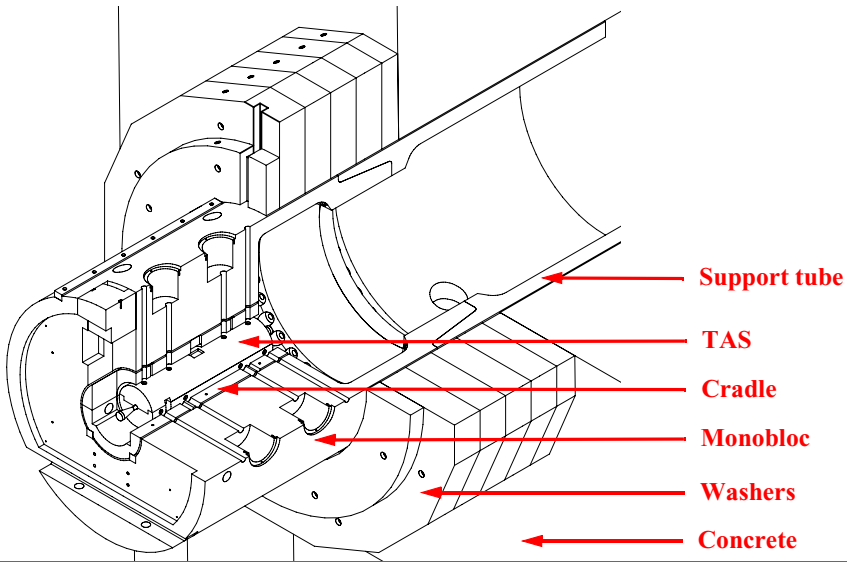


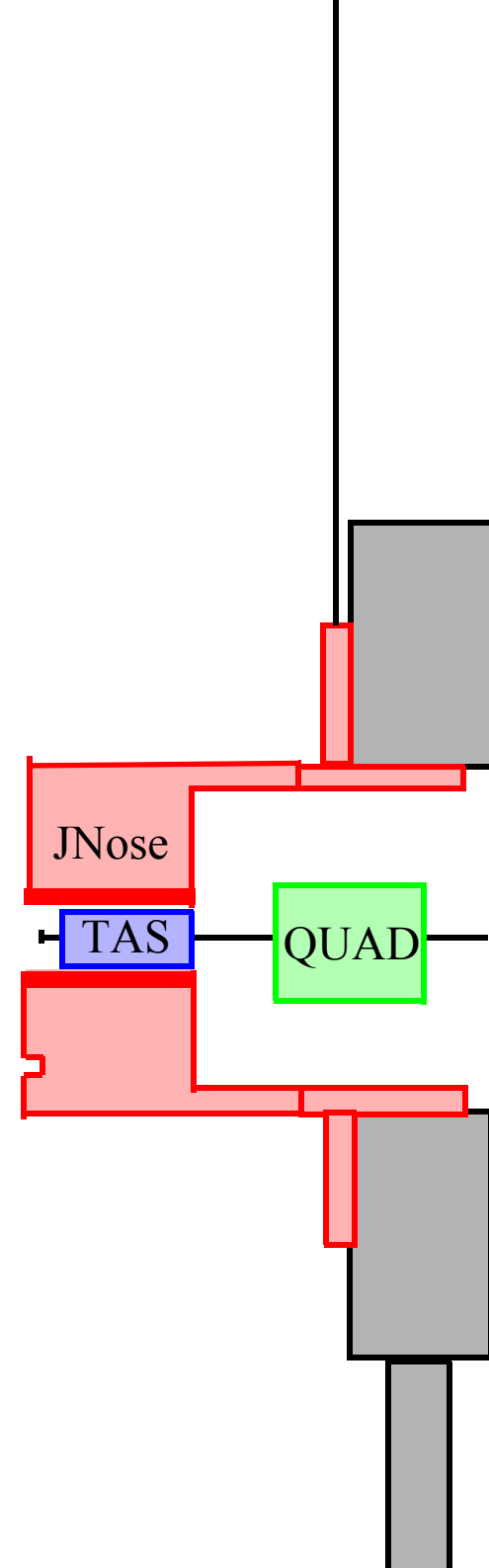
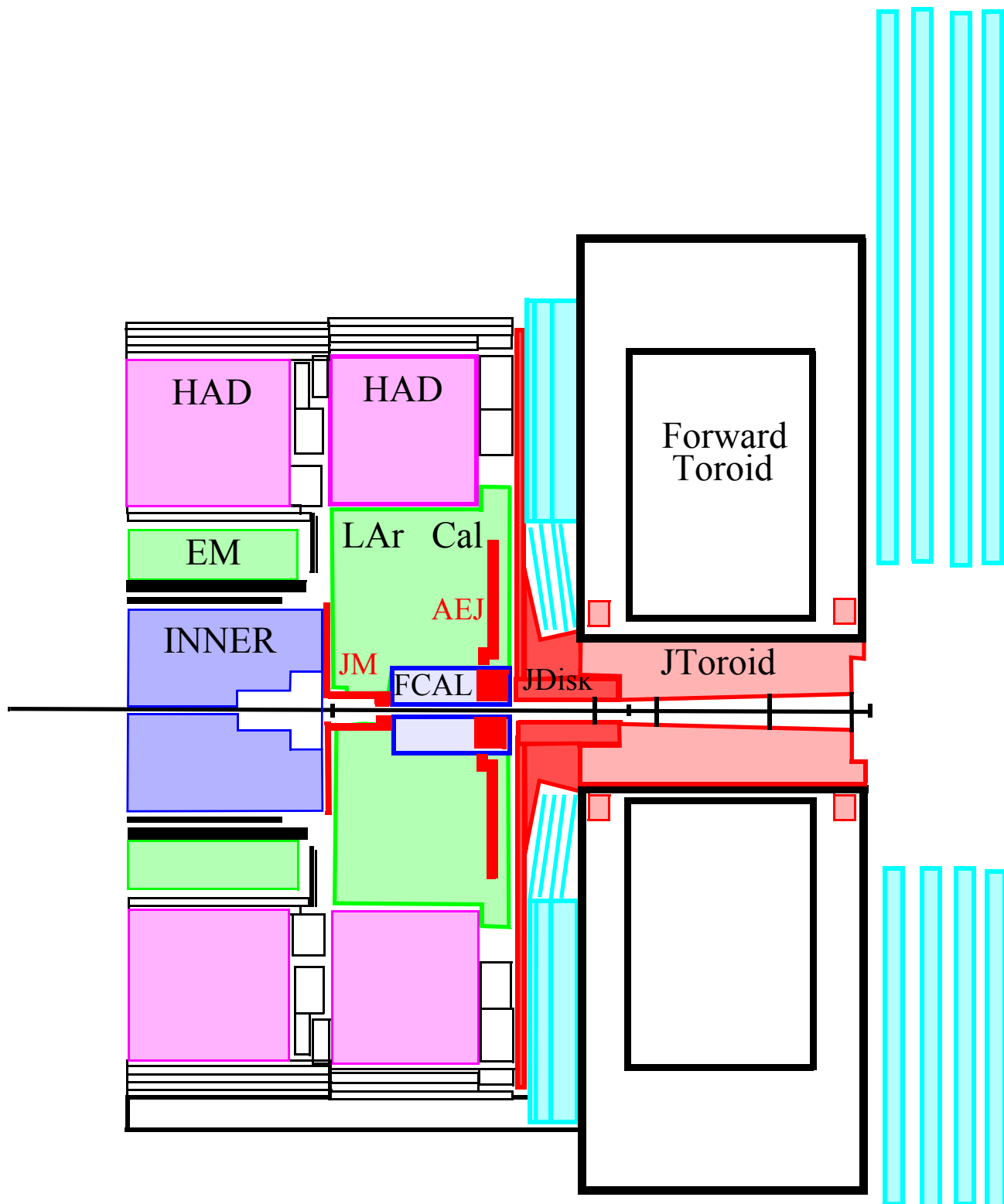


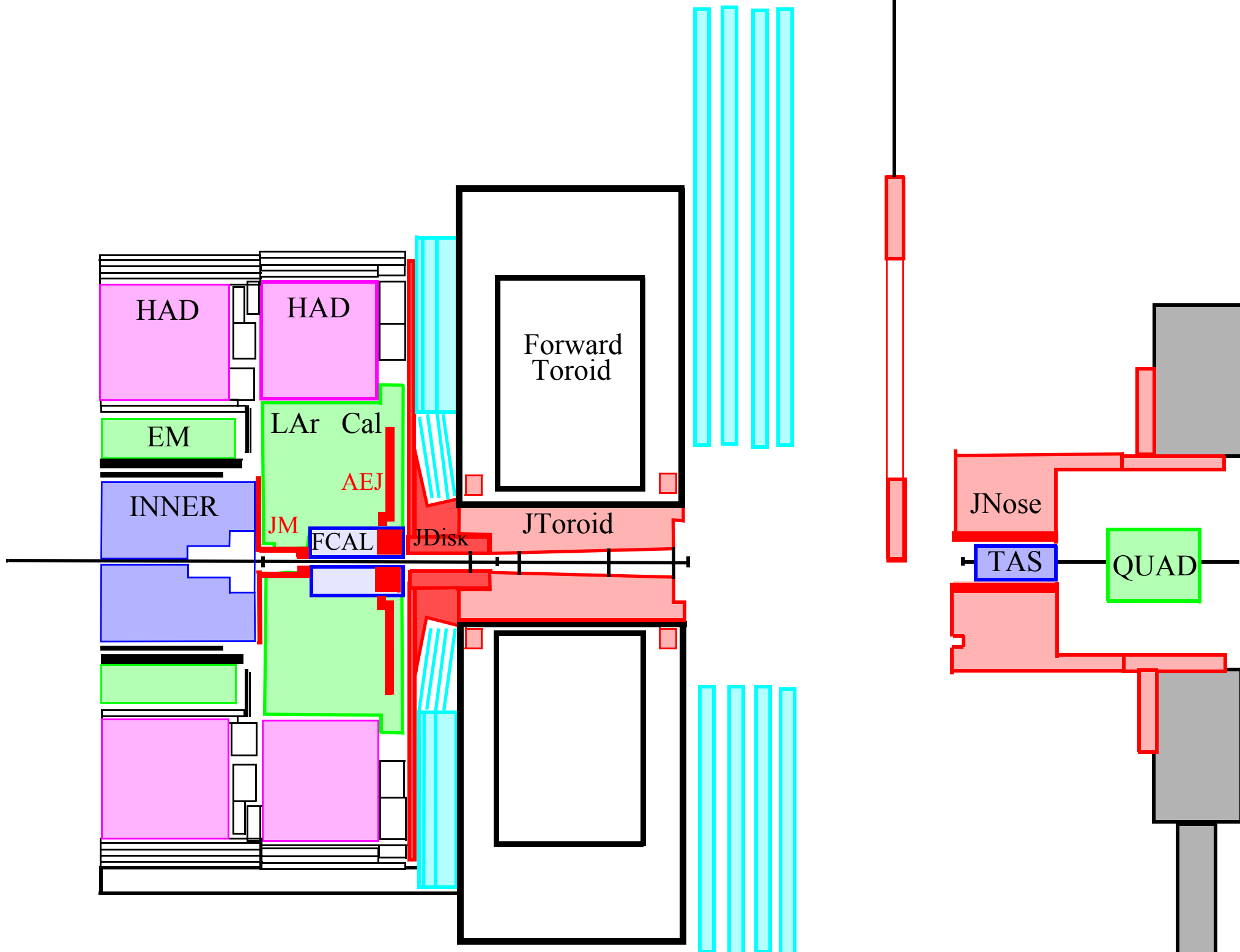
# Install JN washers



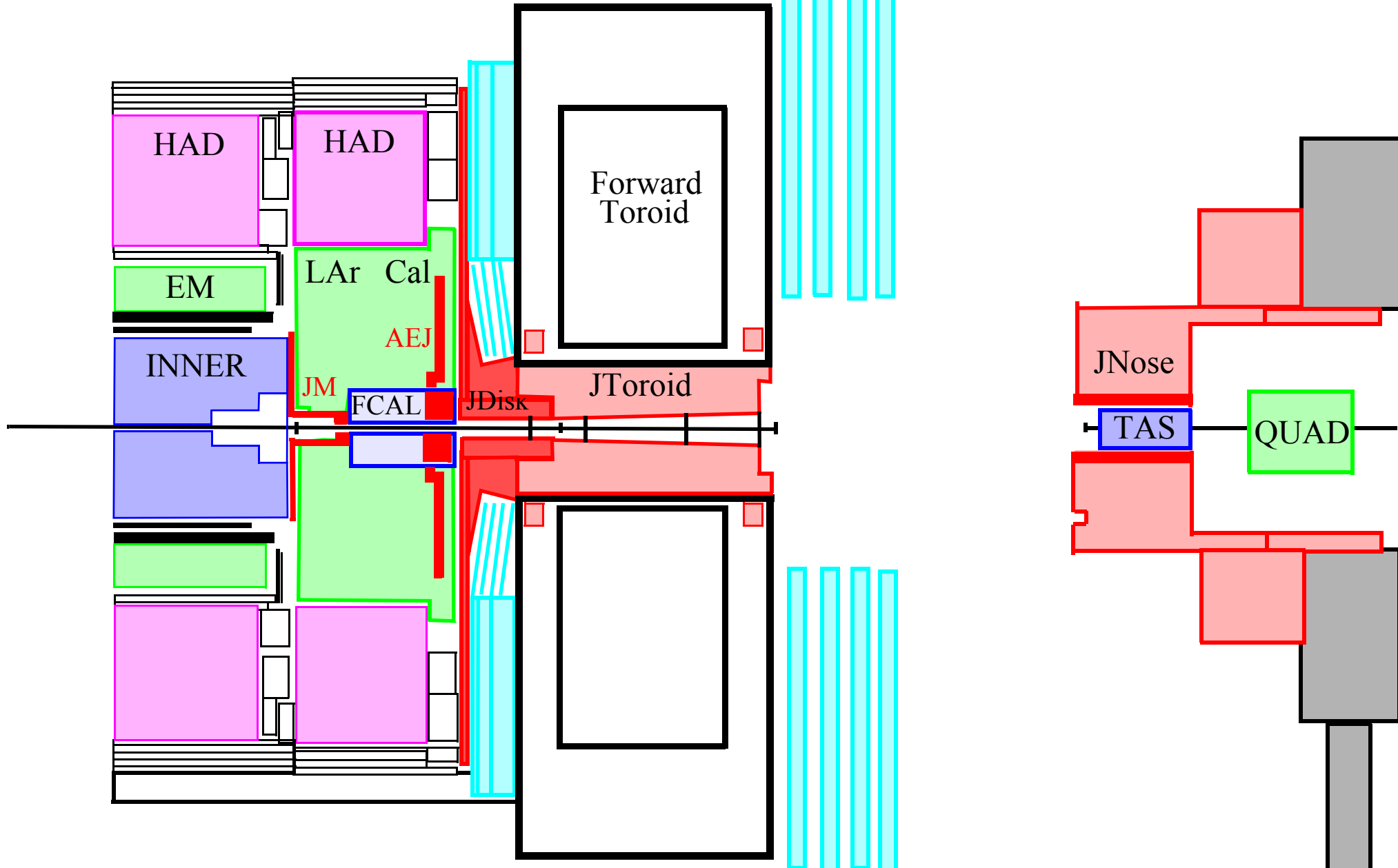
# The Nose Shielding - JN

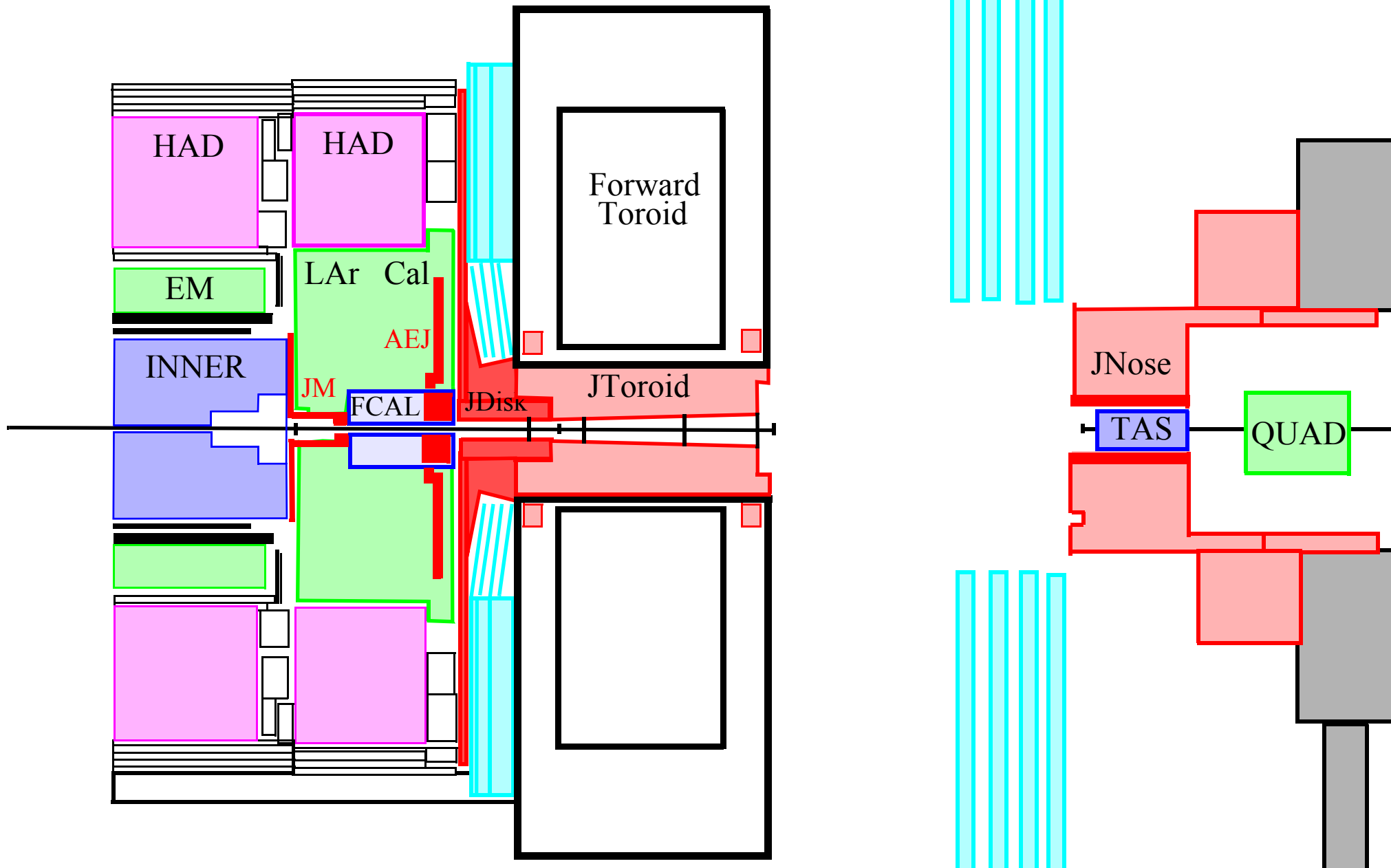




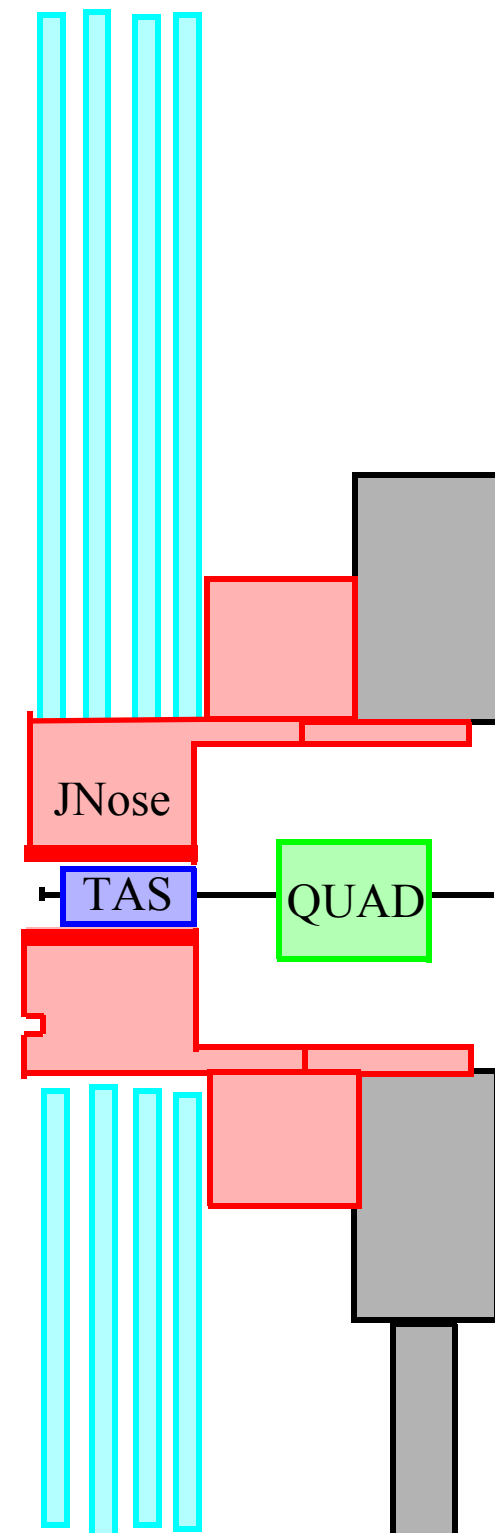
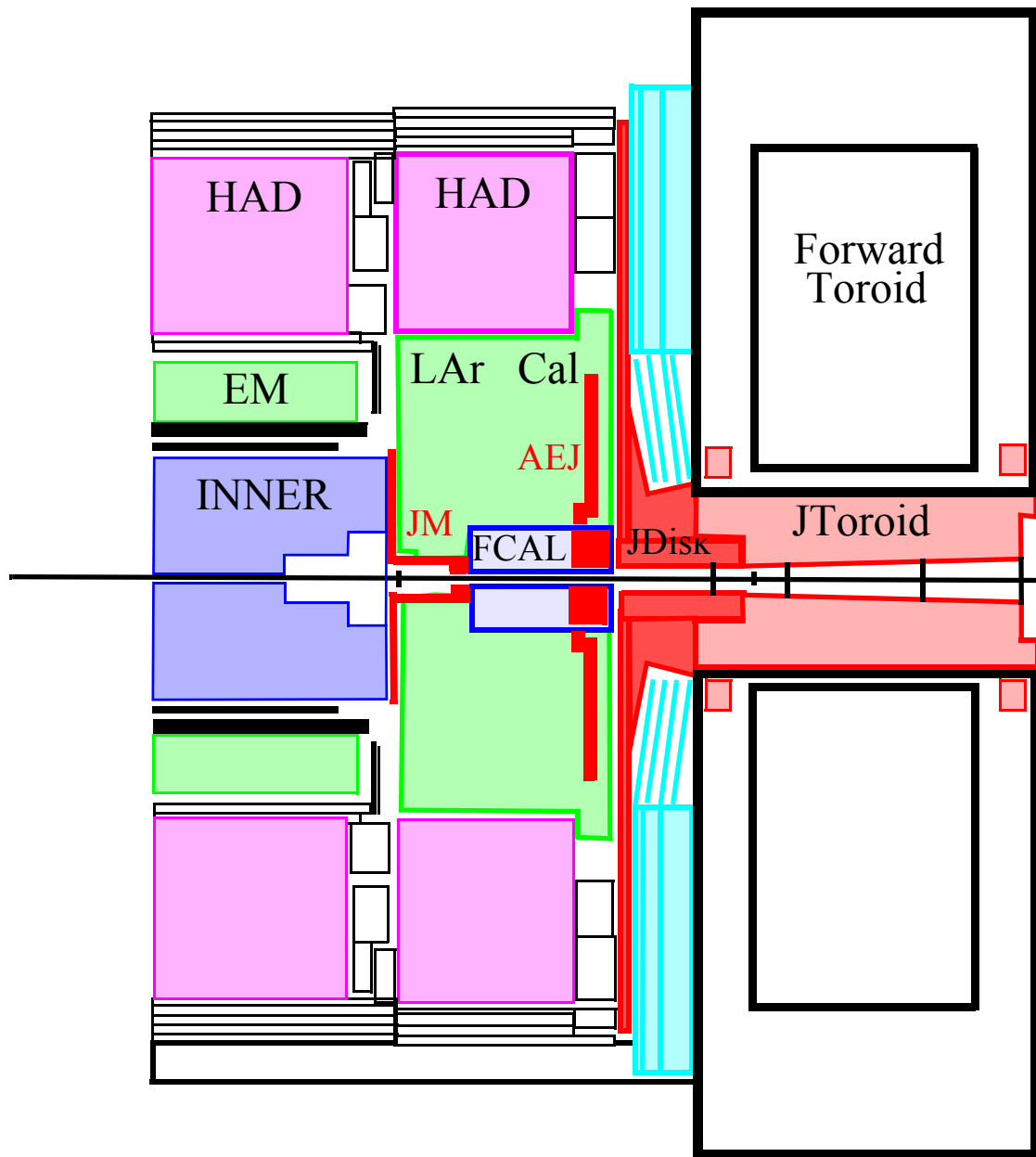


Move BW to parking position

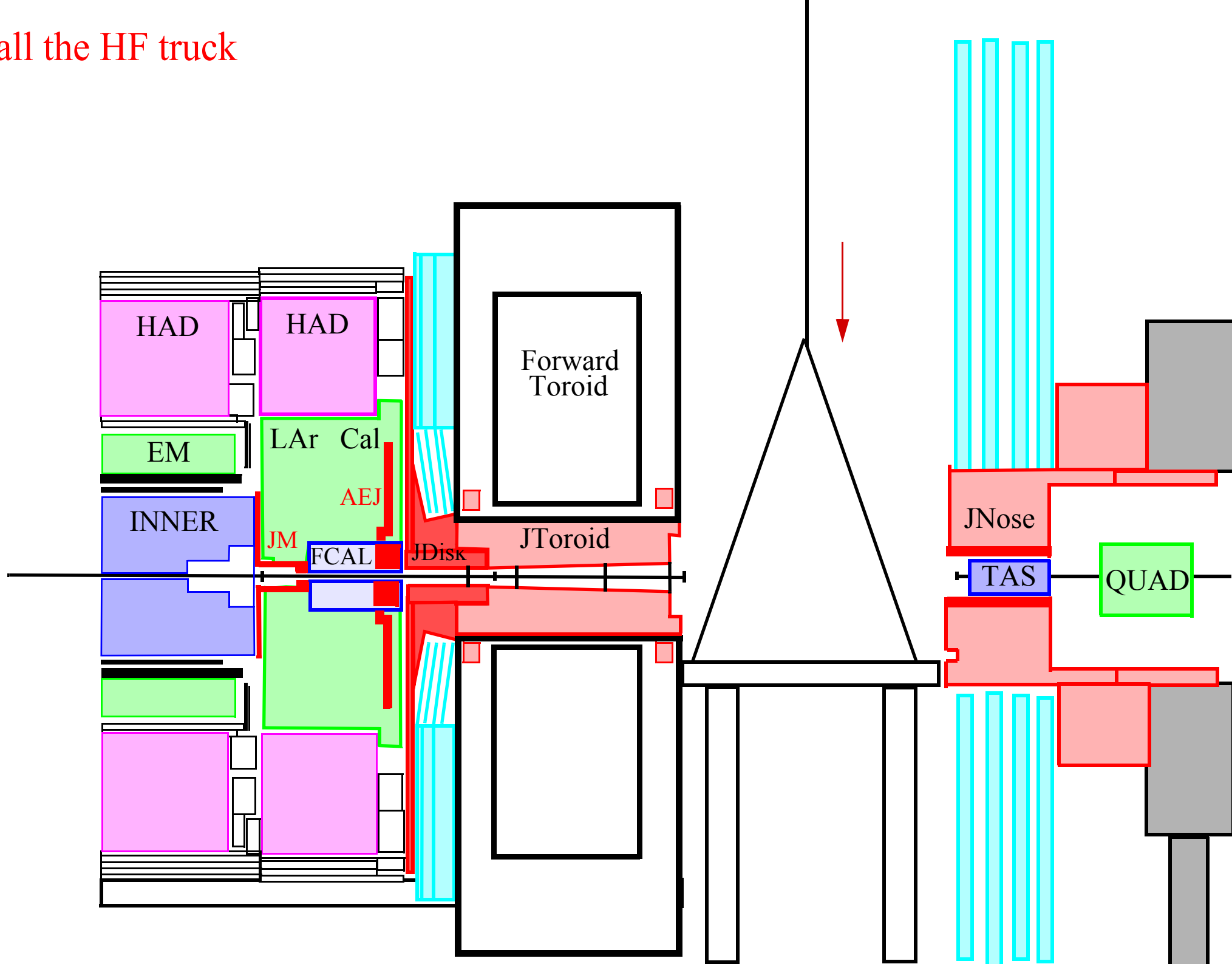


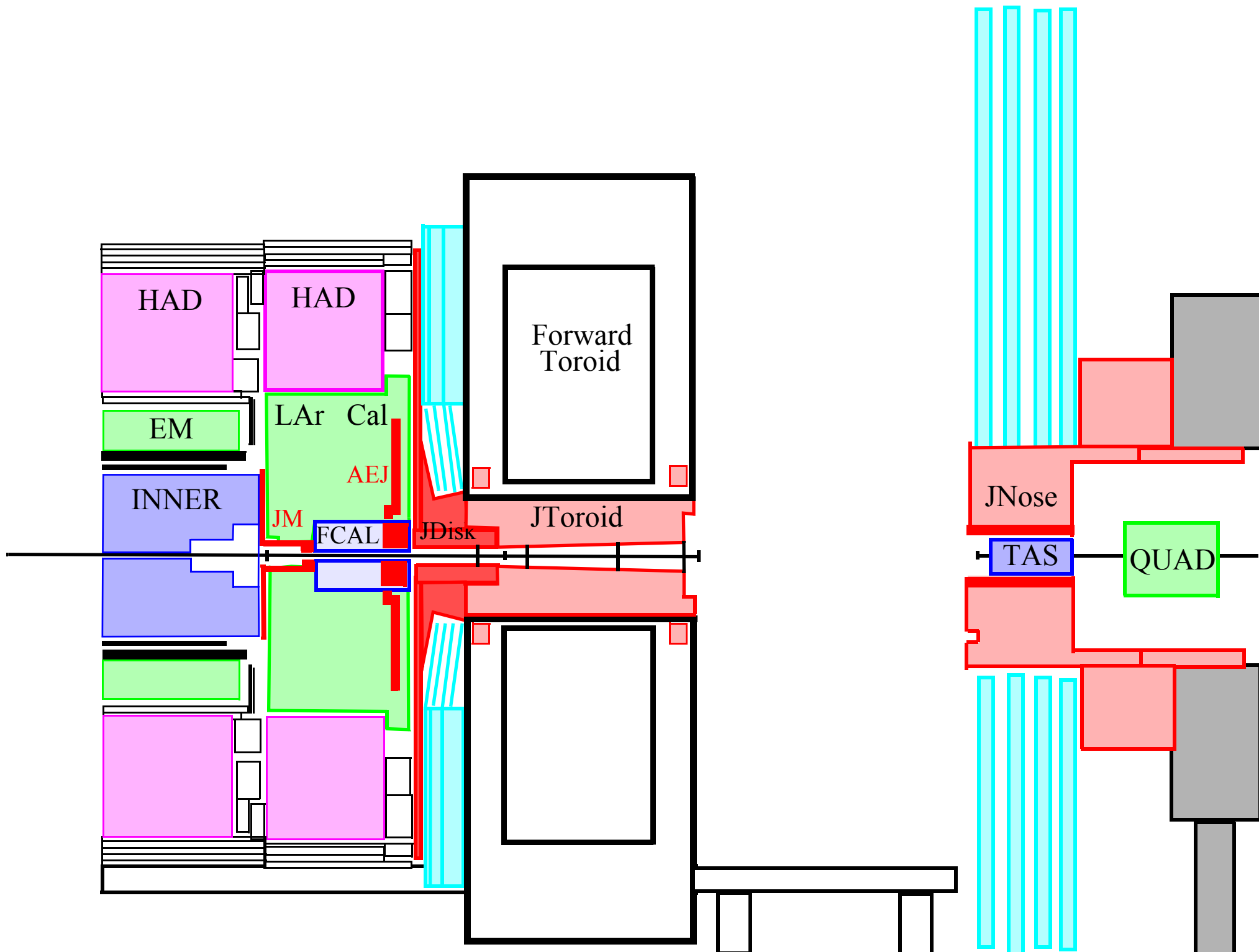




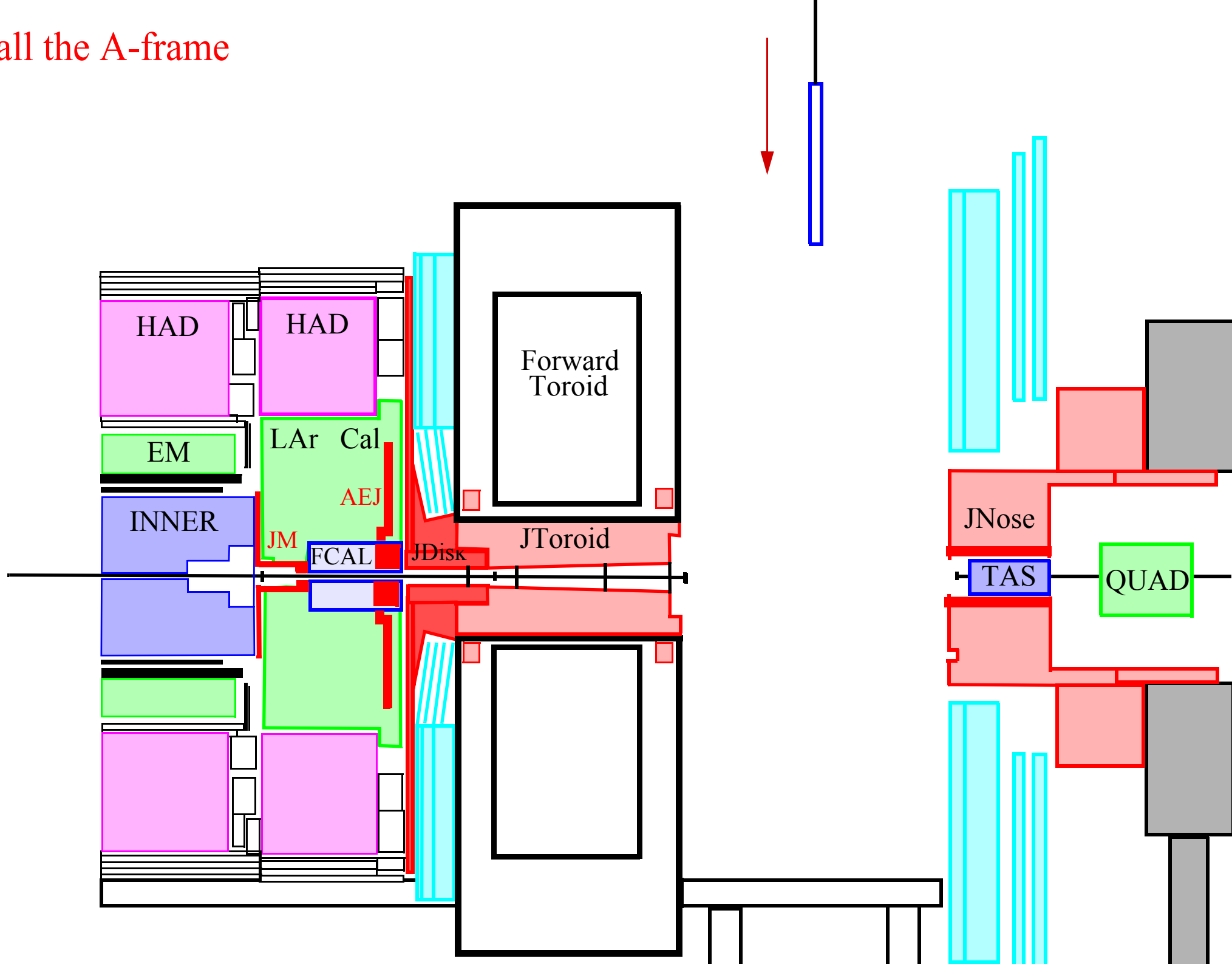


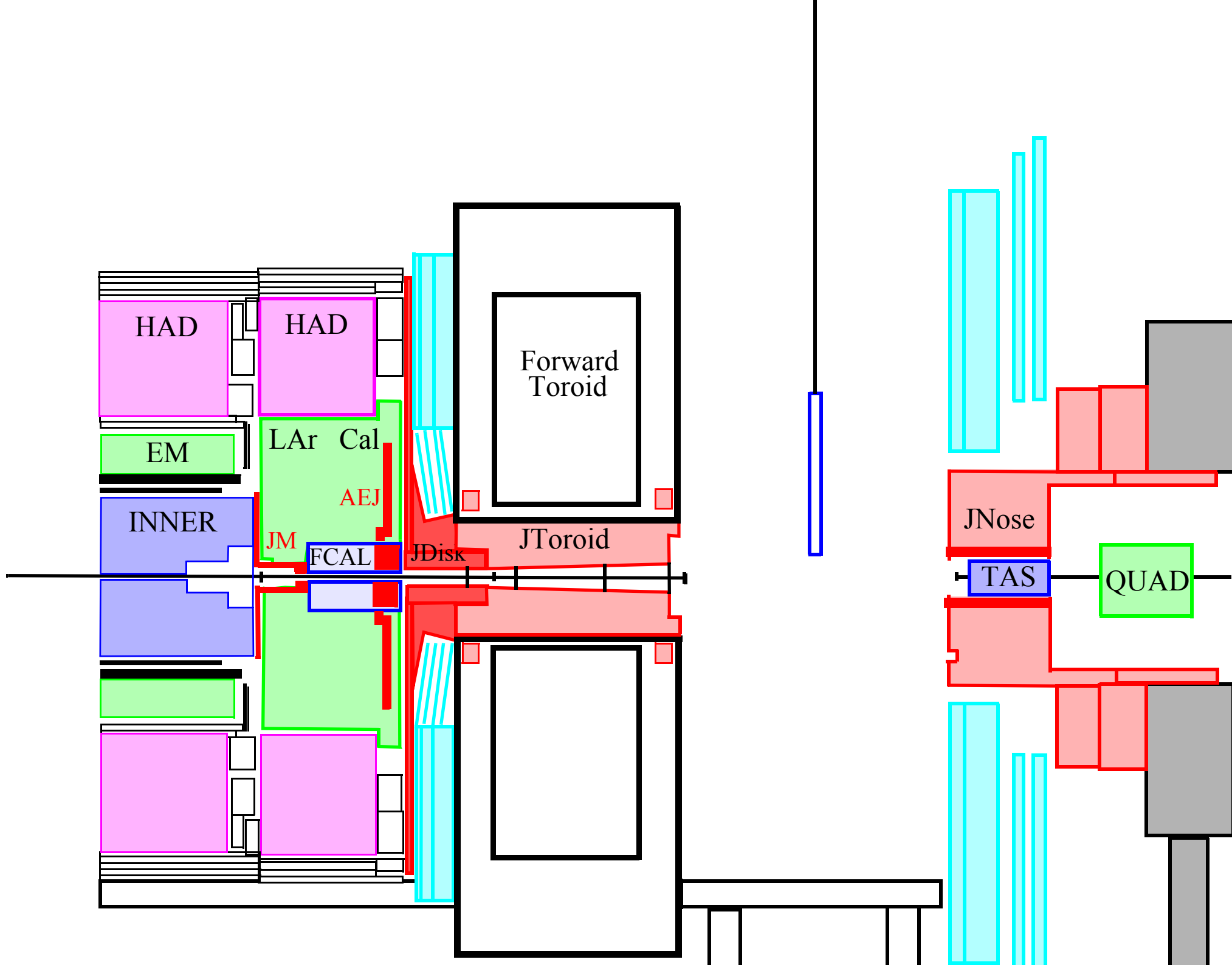
# Install the HF truck

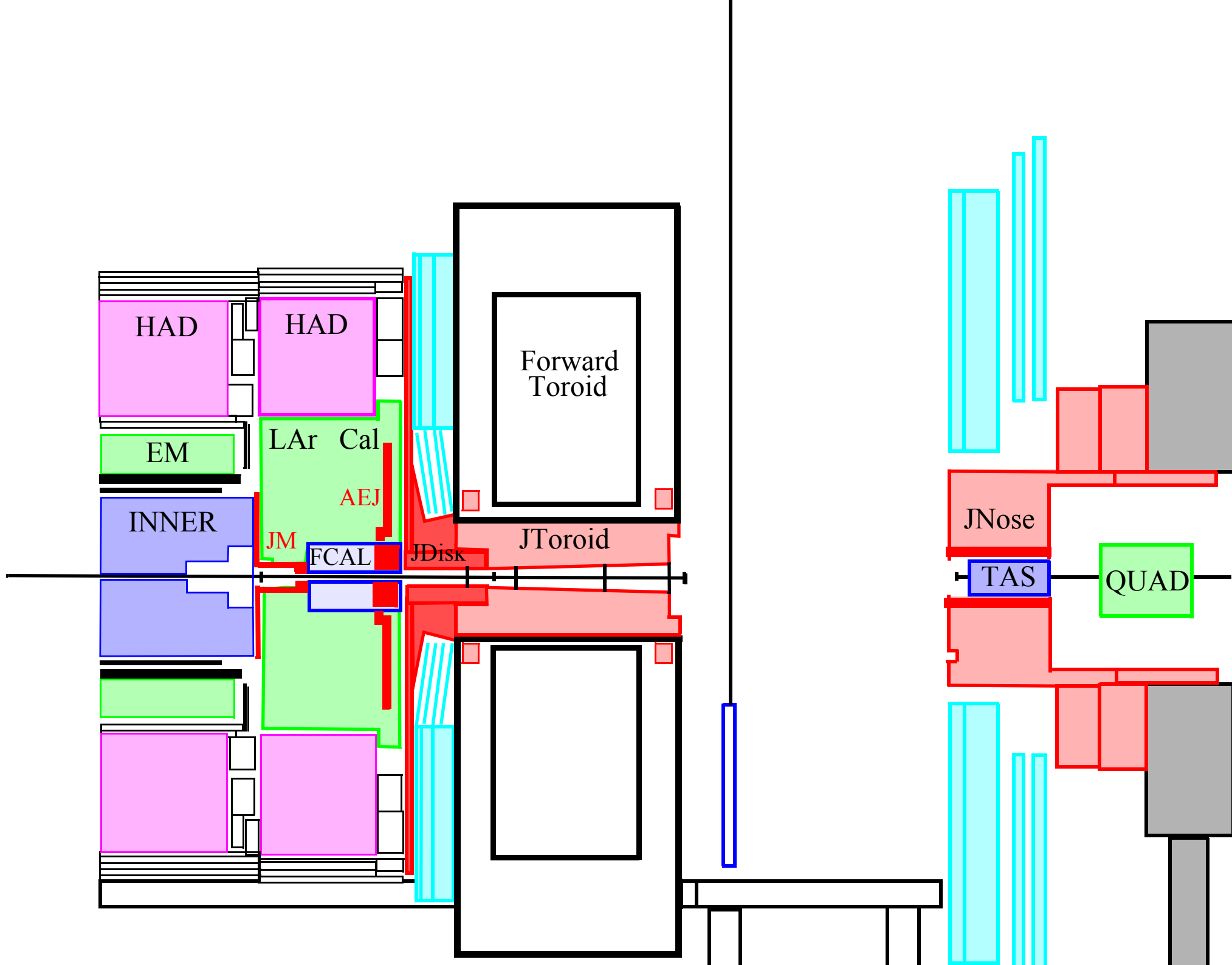


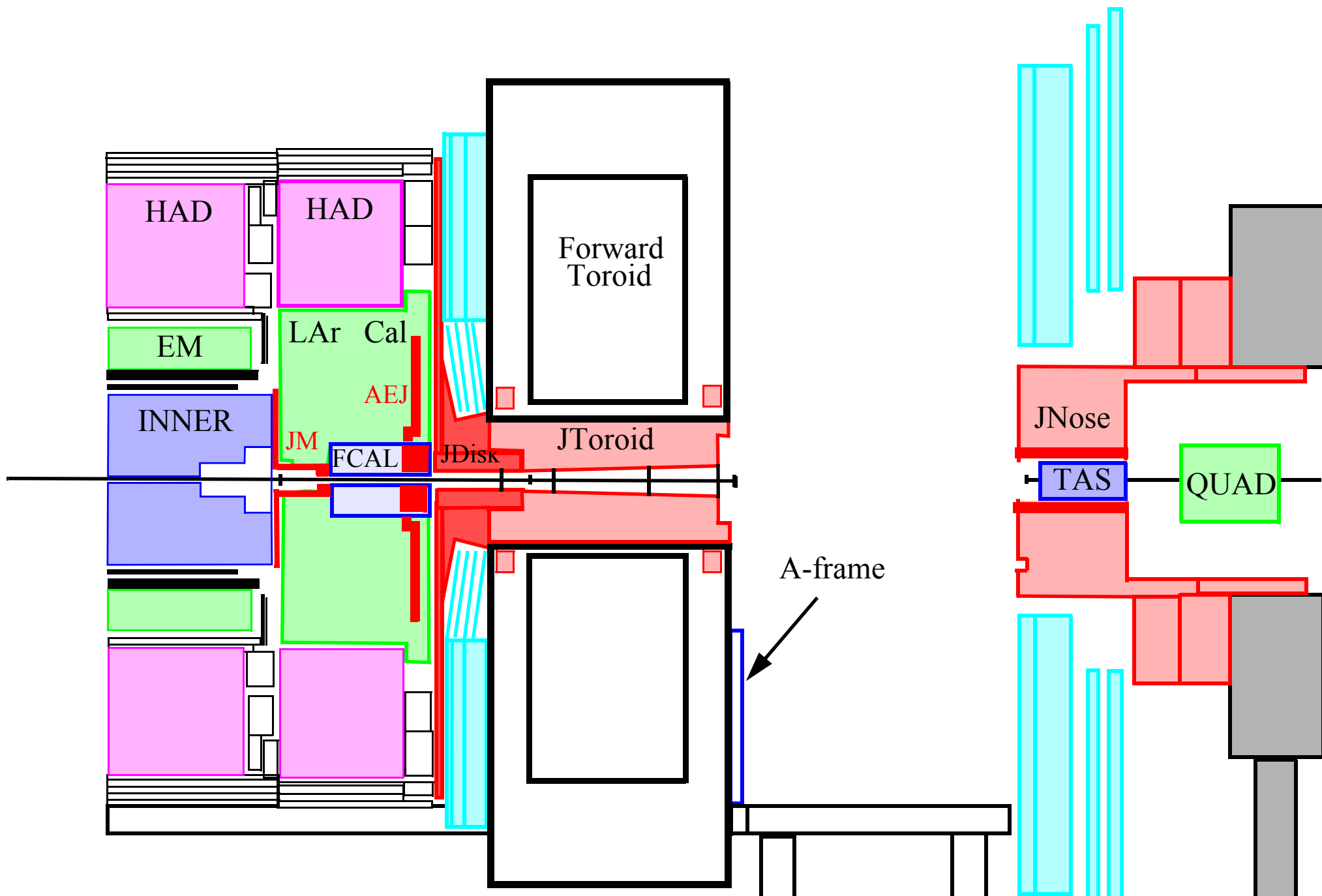


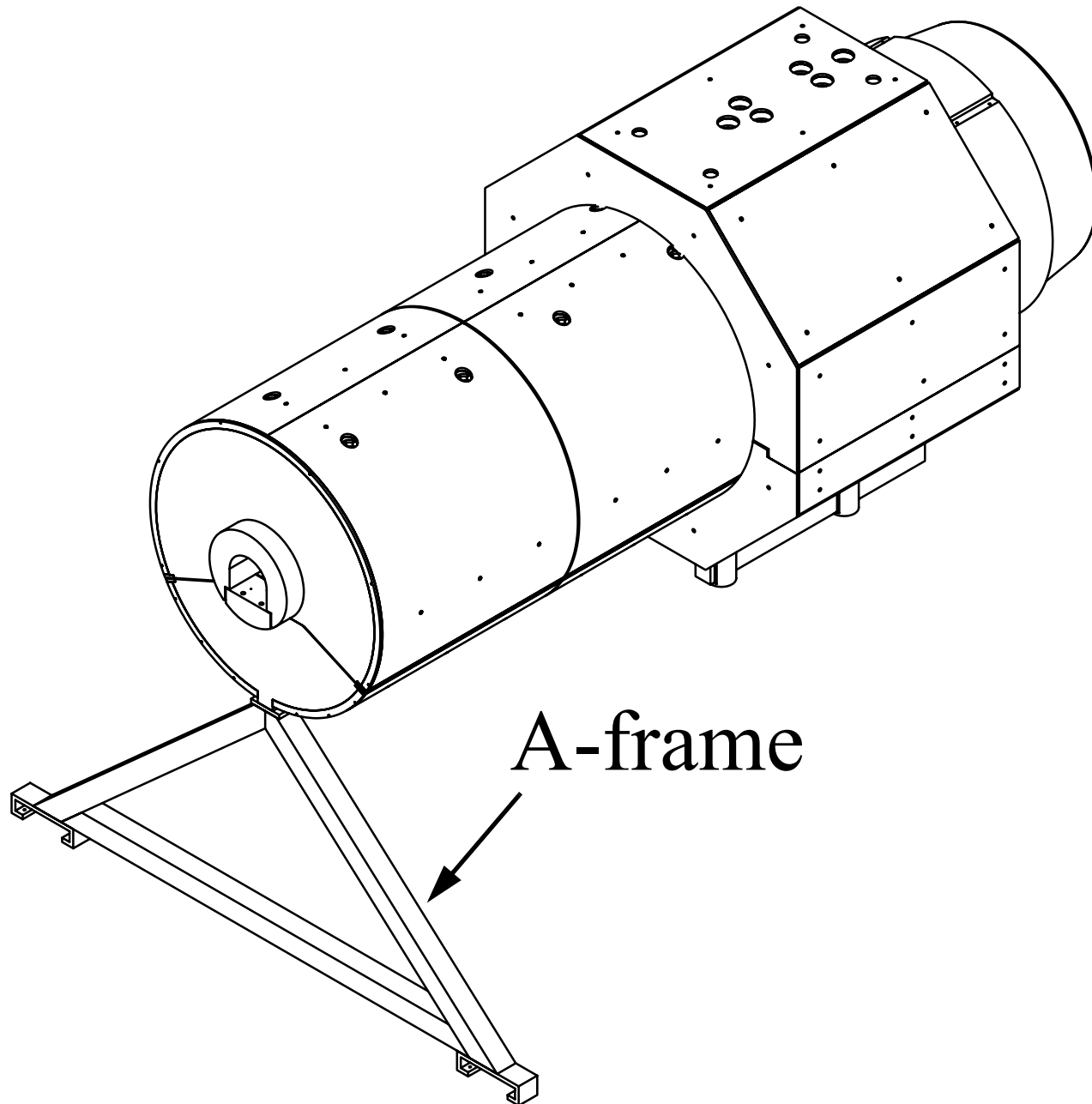
# Install the A-frame







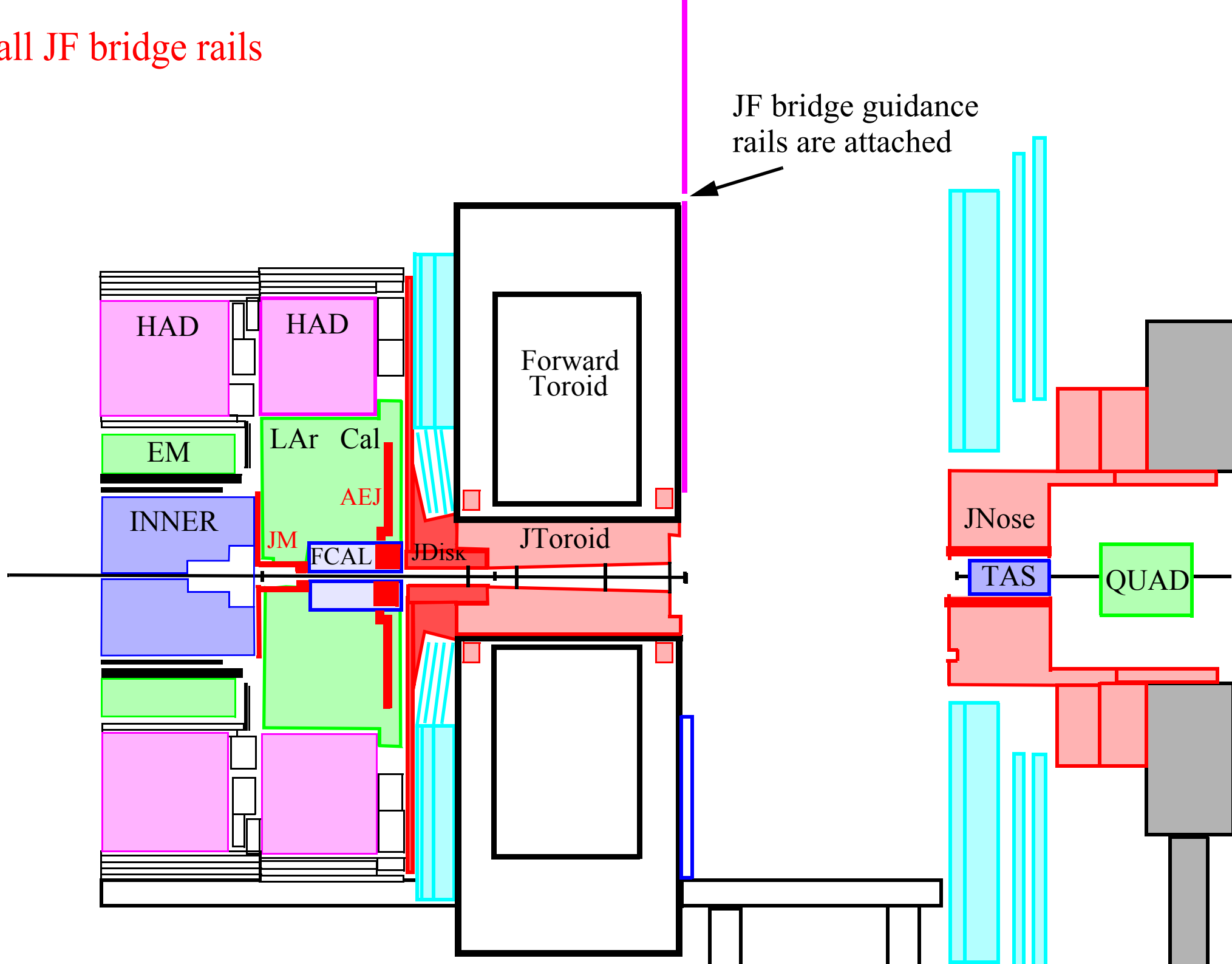




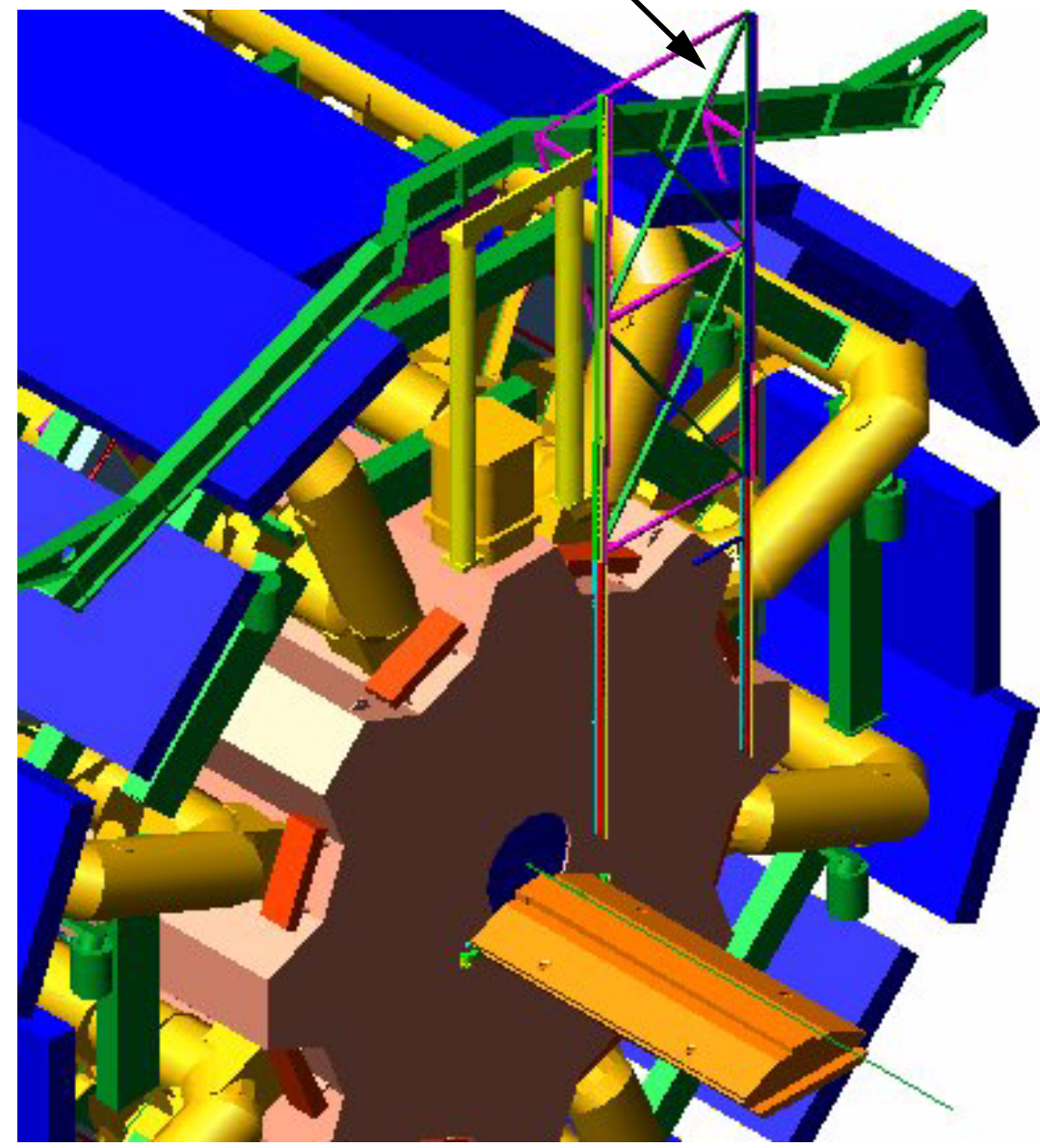
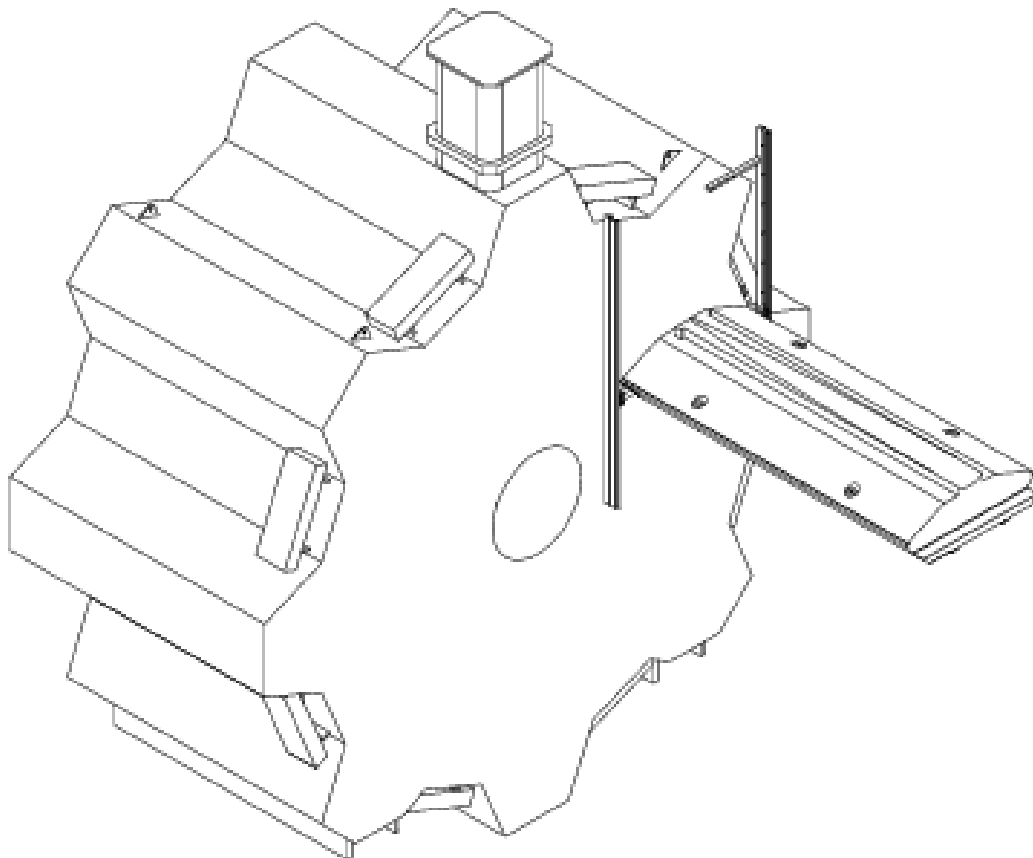
A-frame



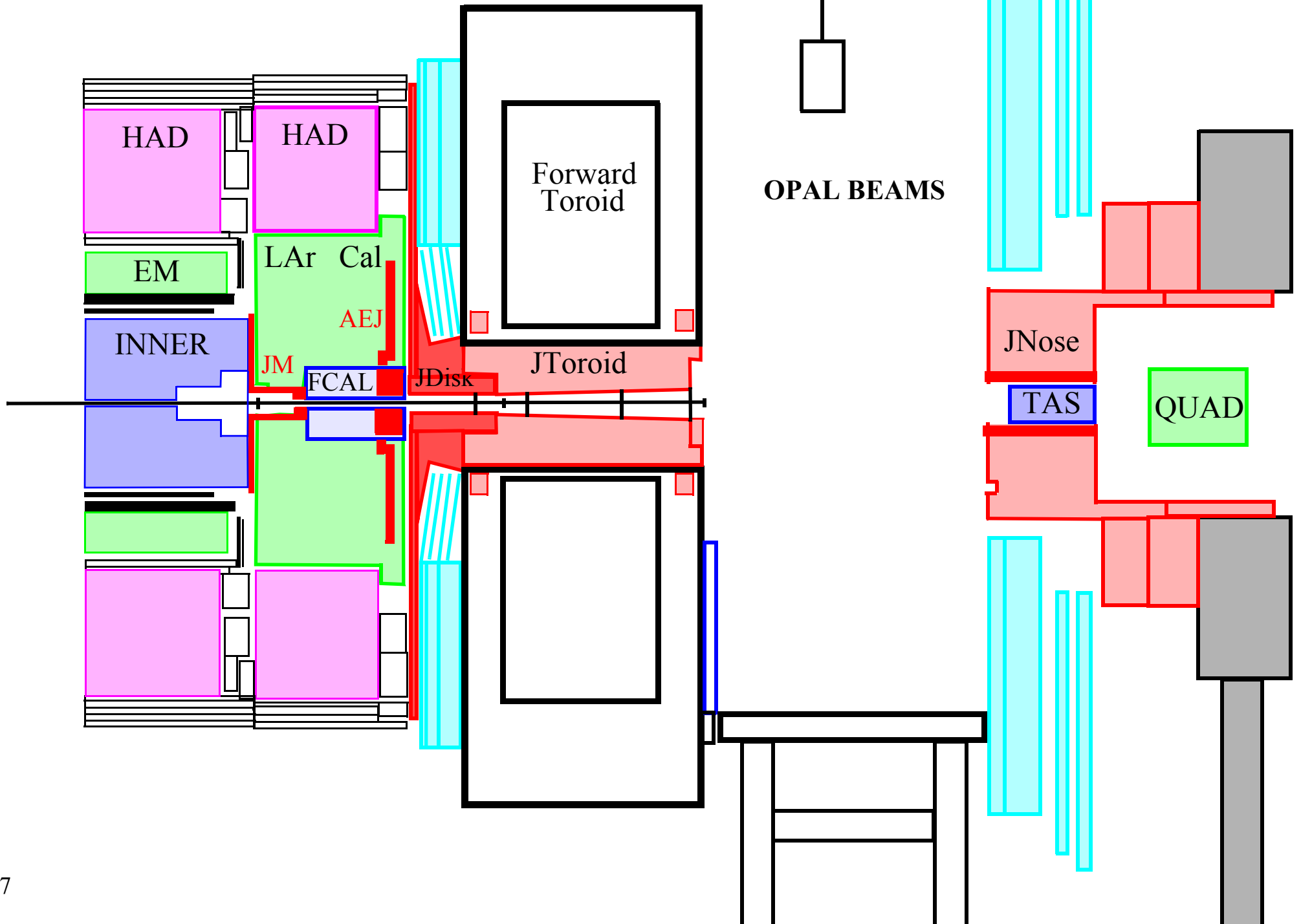
# Install JF bridge rails

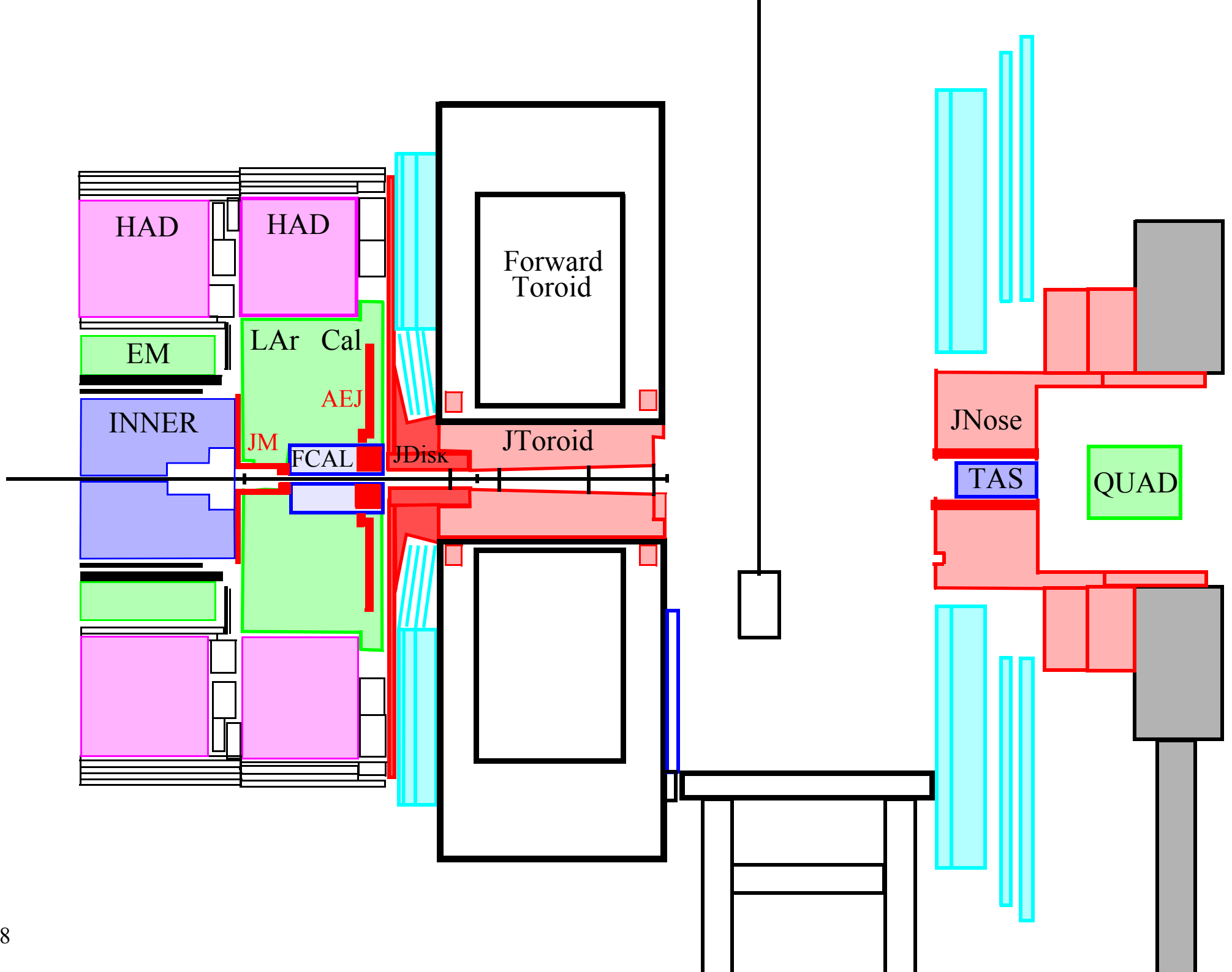


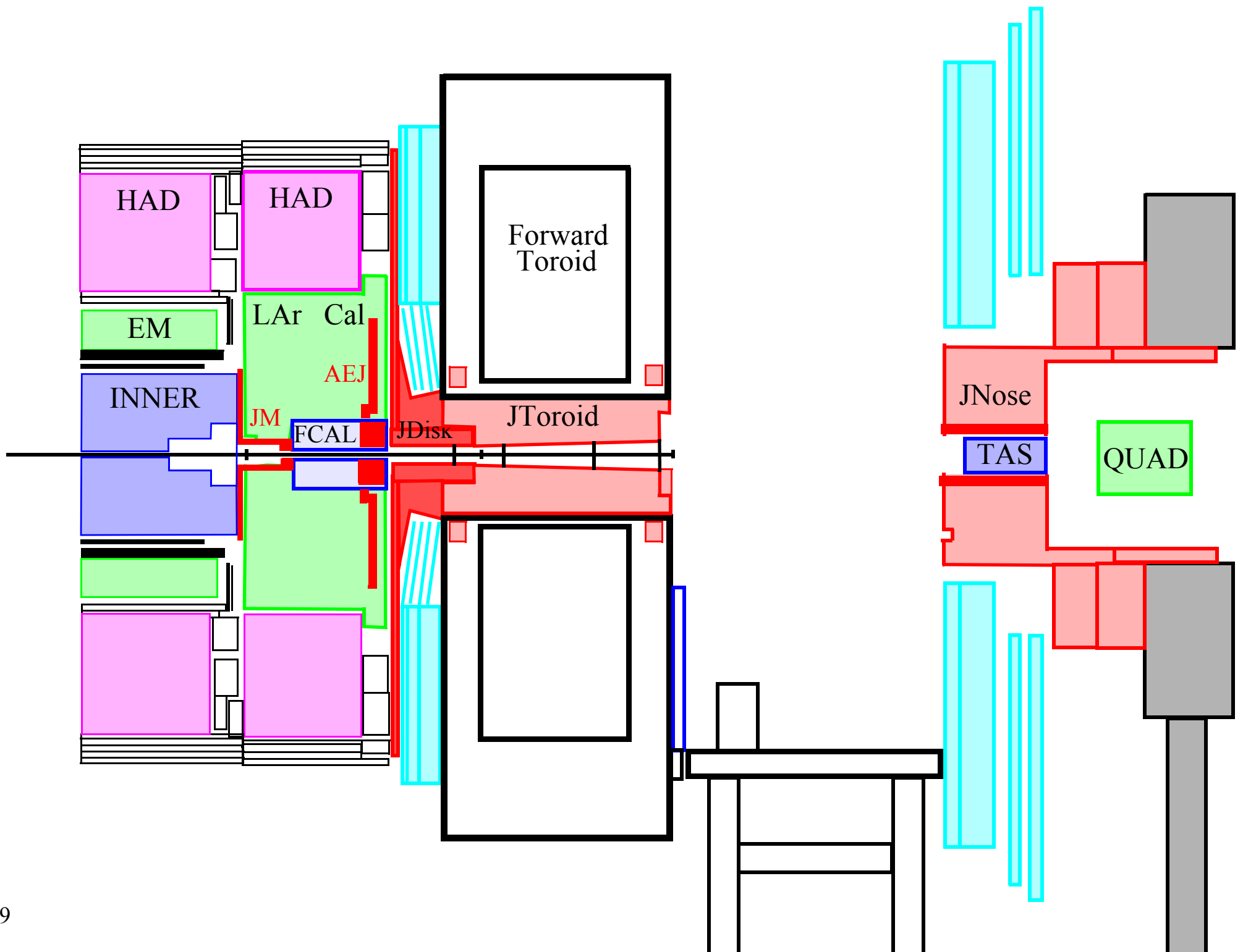
JF bridge guidance rails are attached to the rails above the toroid.

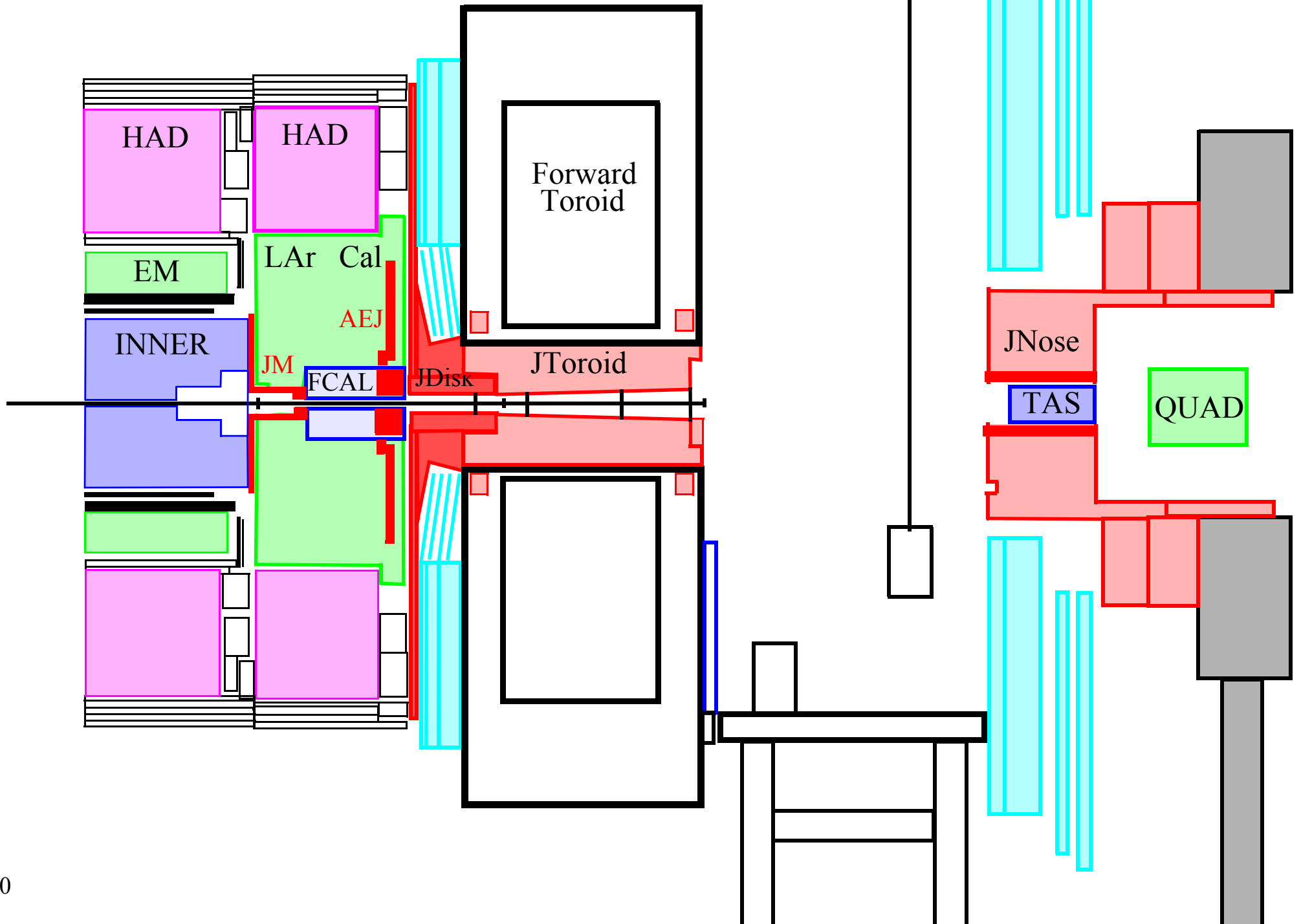


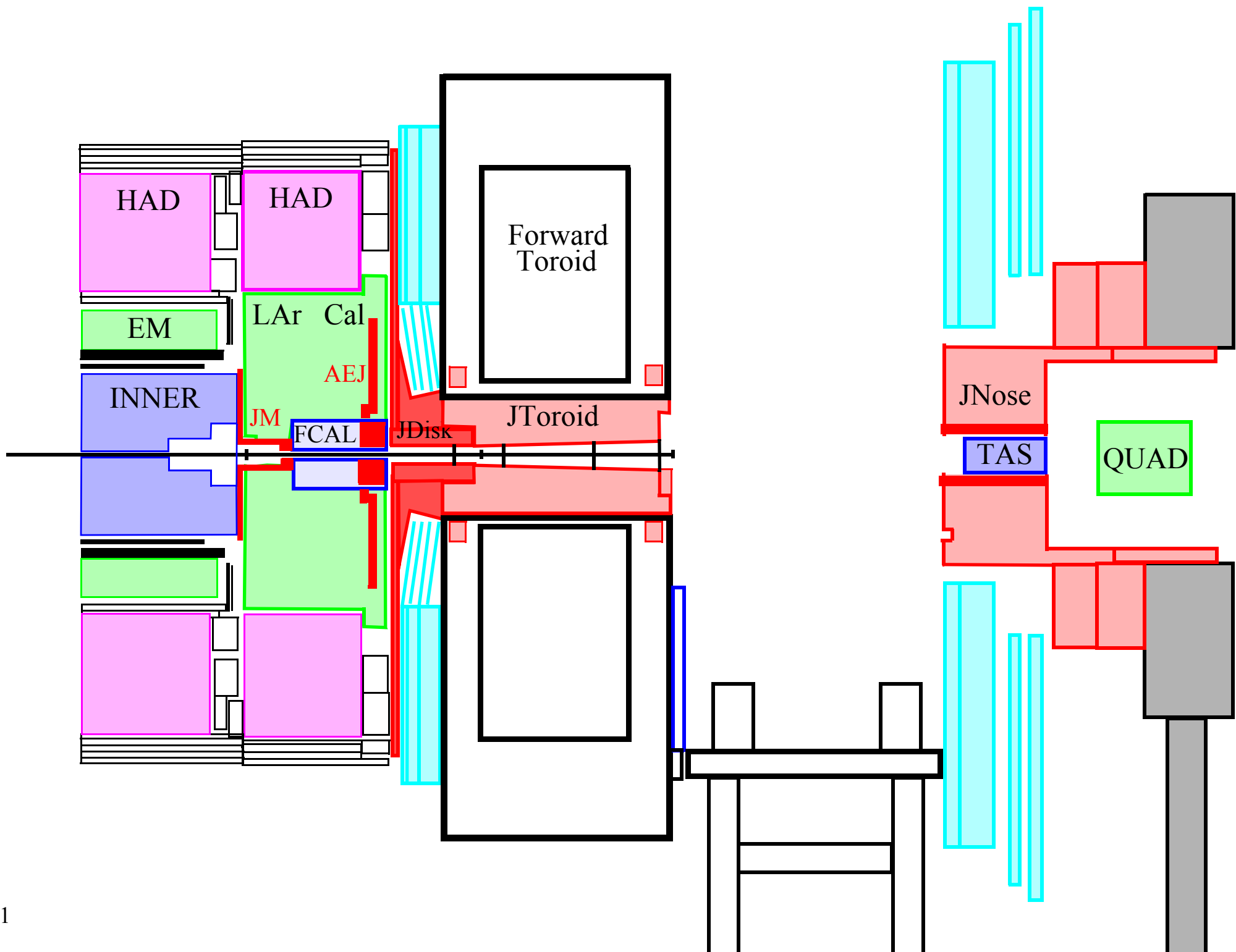
# Installation of OPAL beams



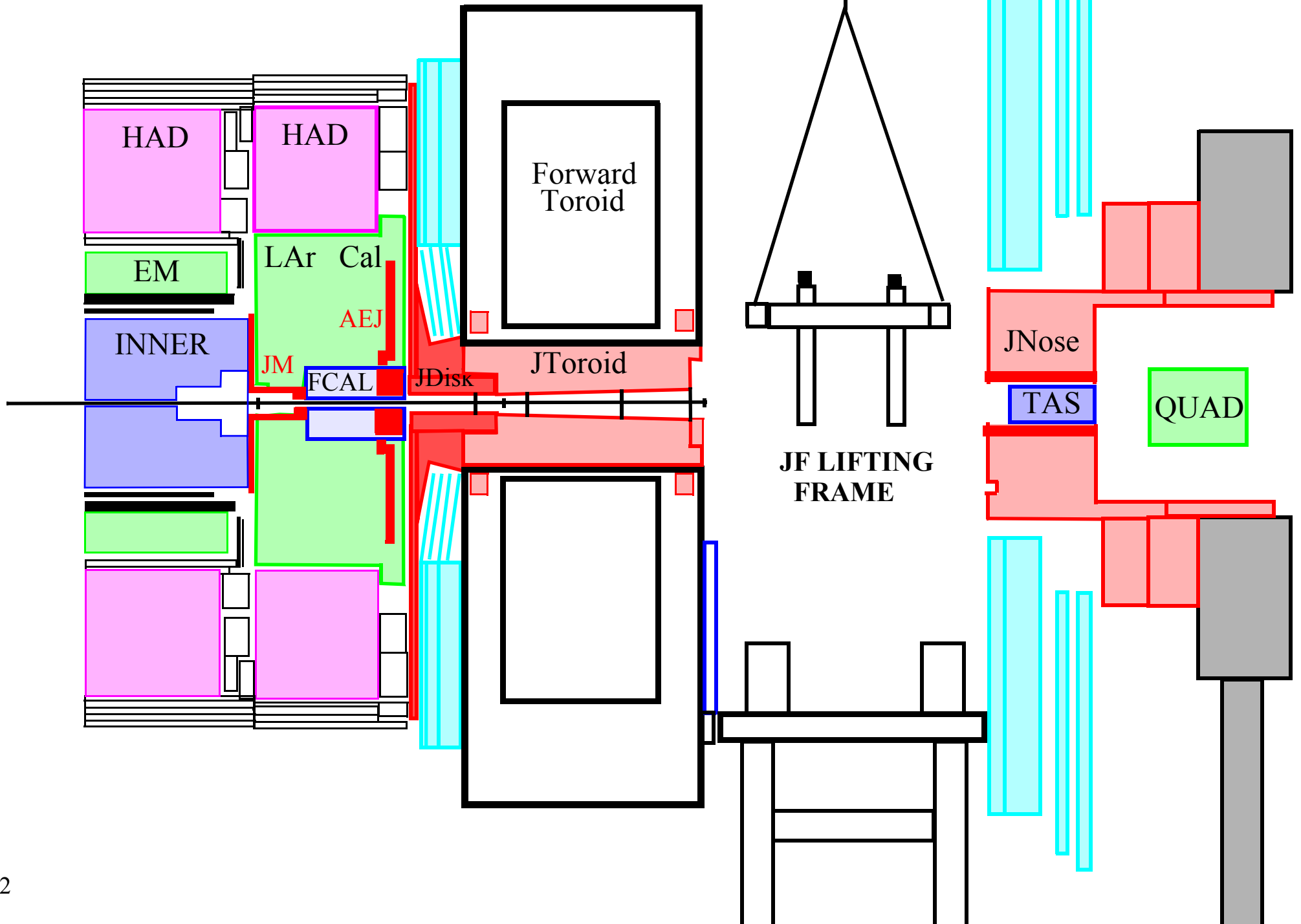




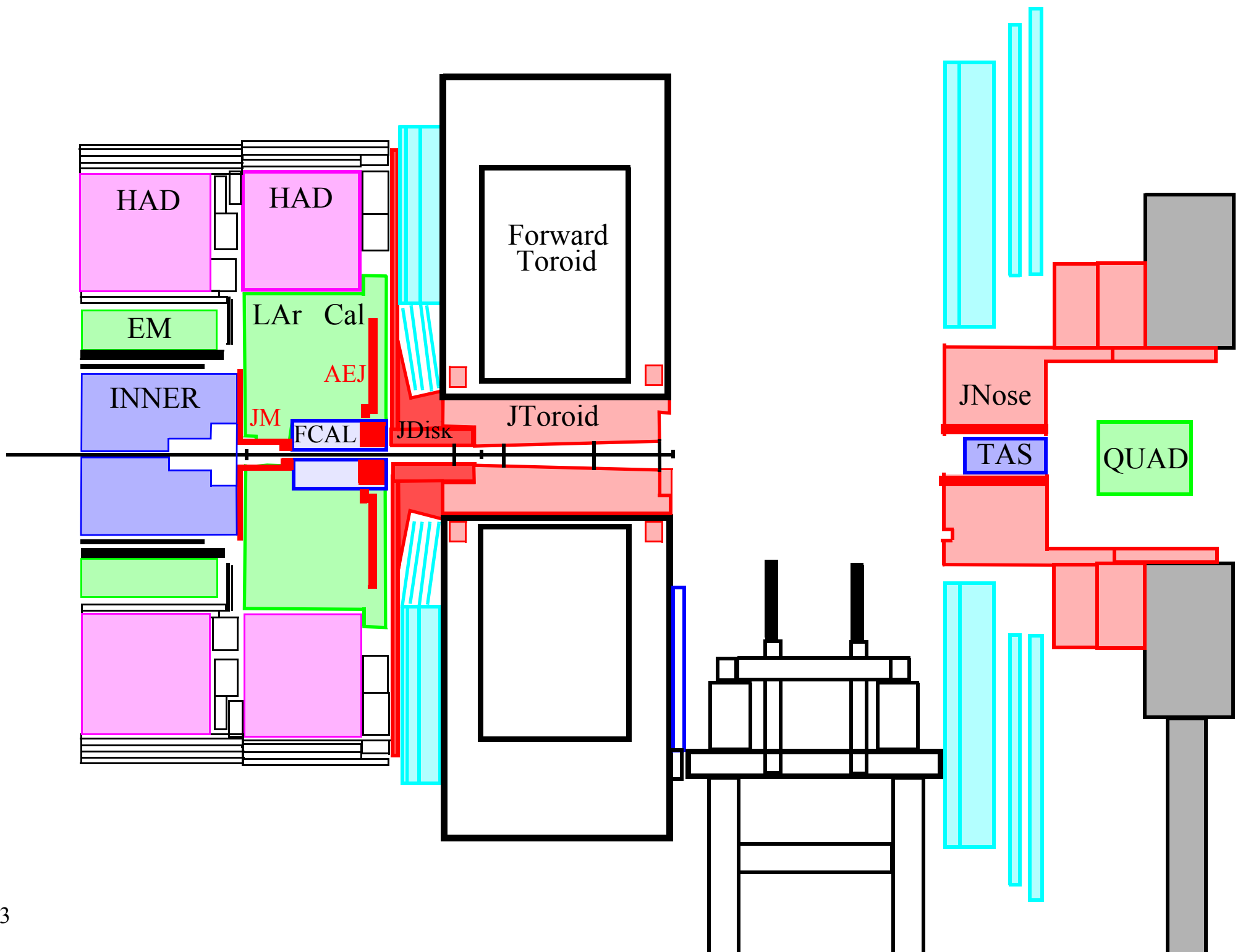




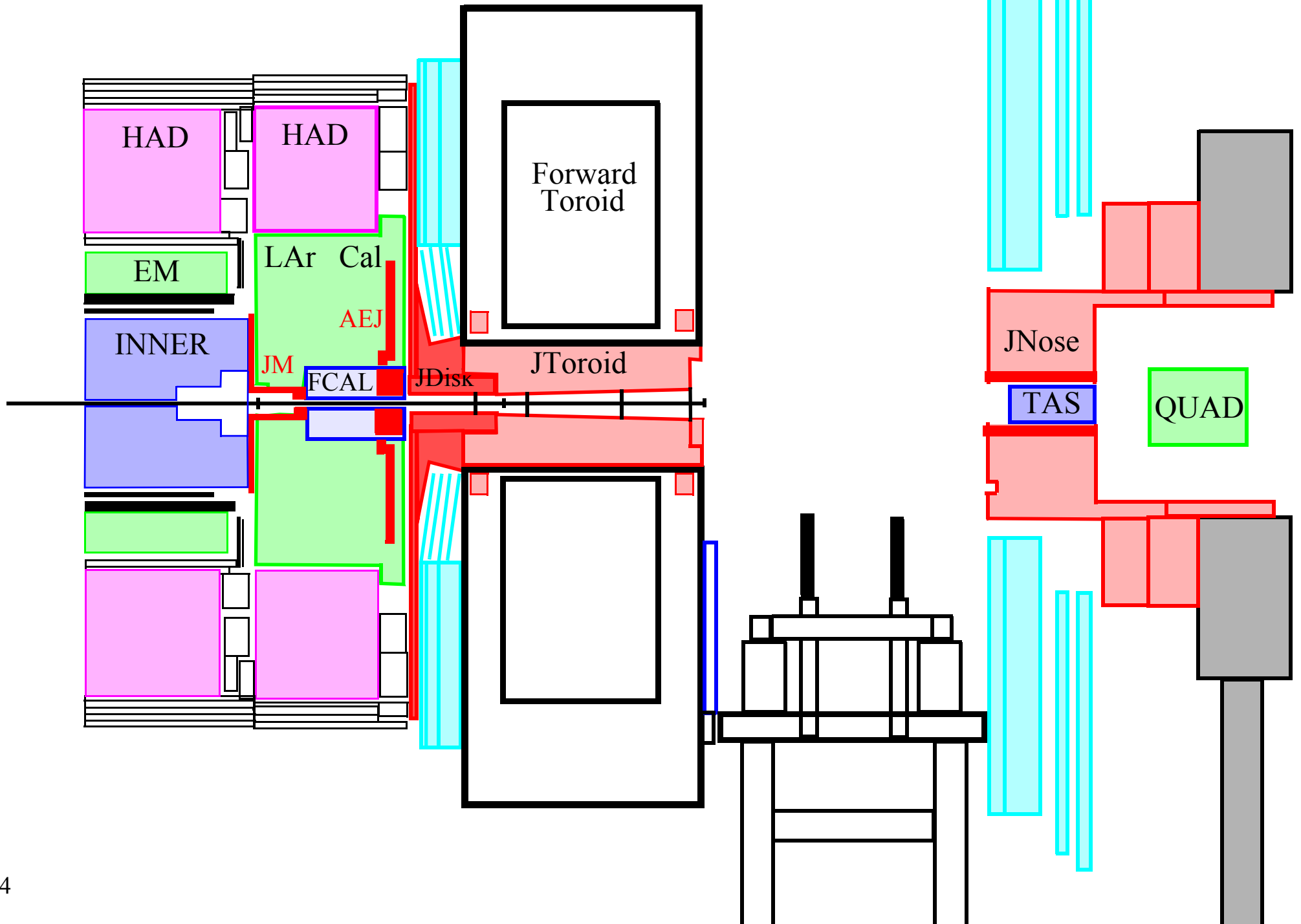
# Installation of the lifting frame



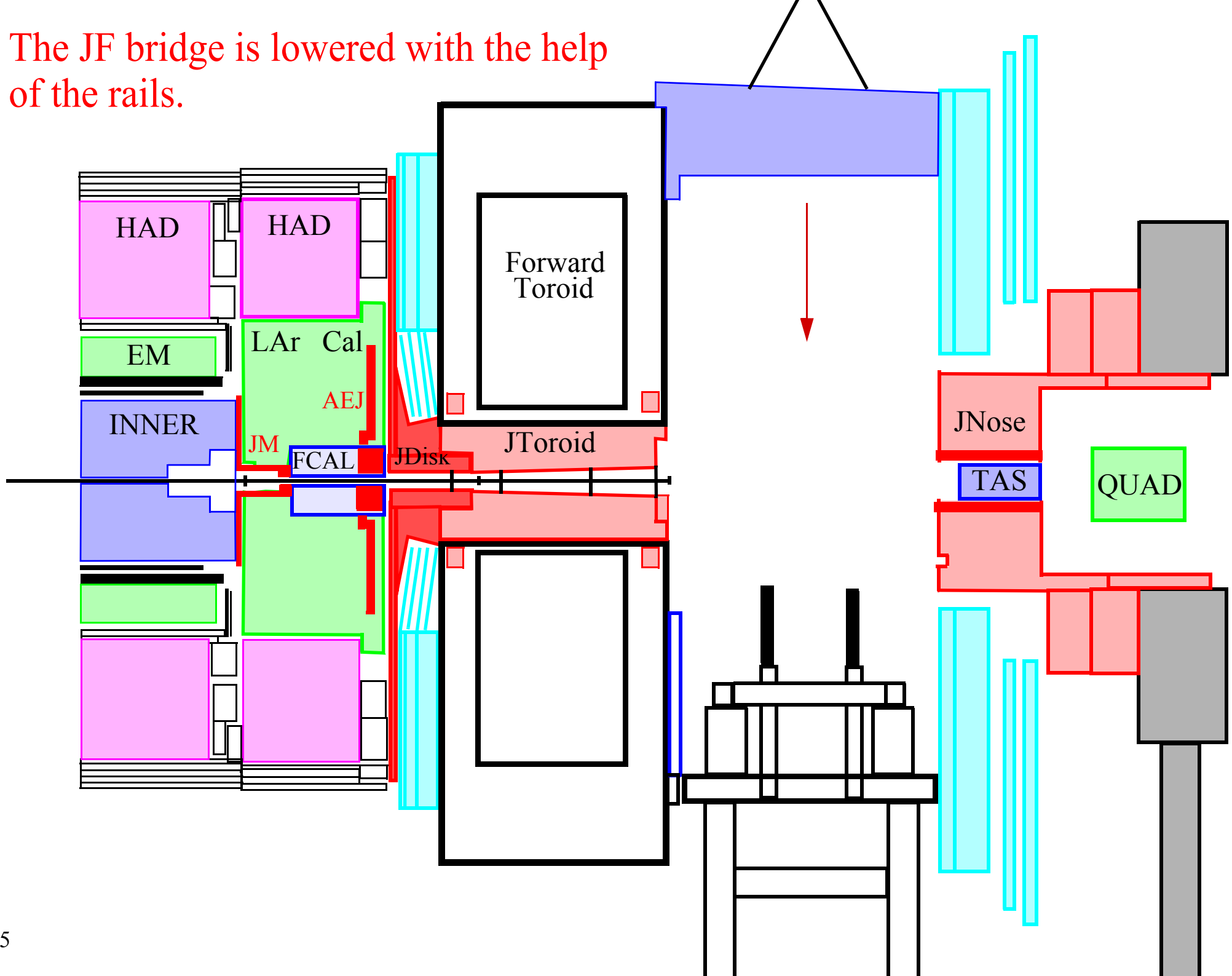


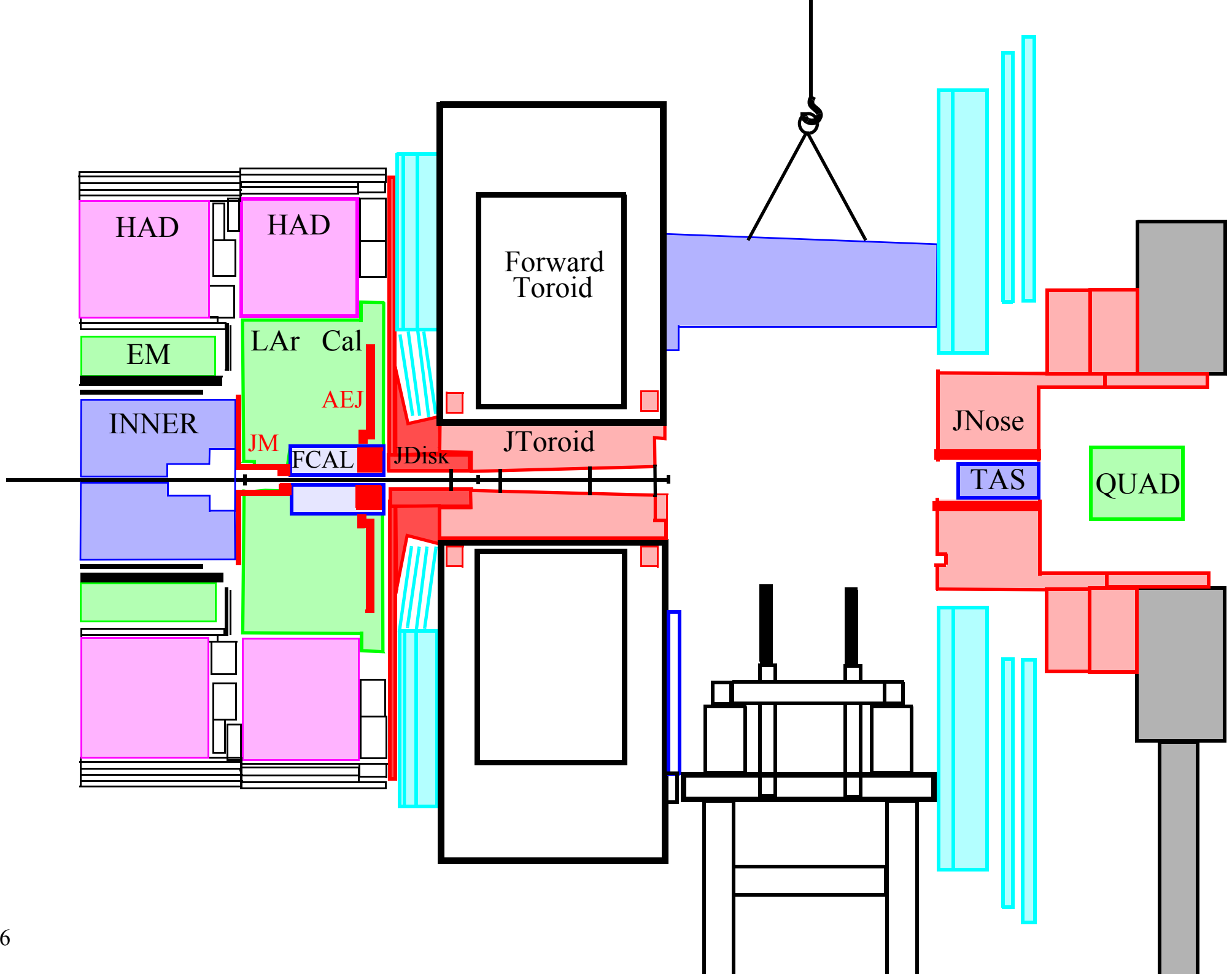


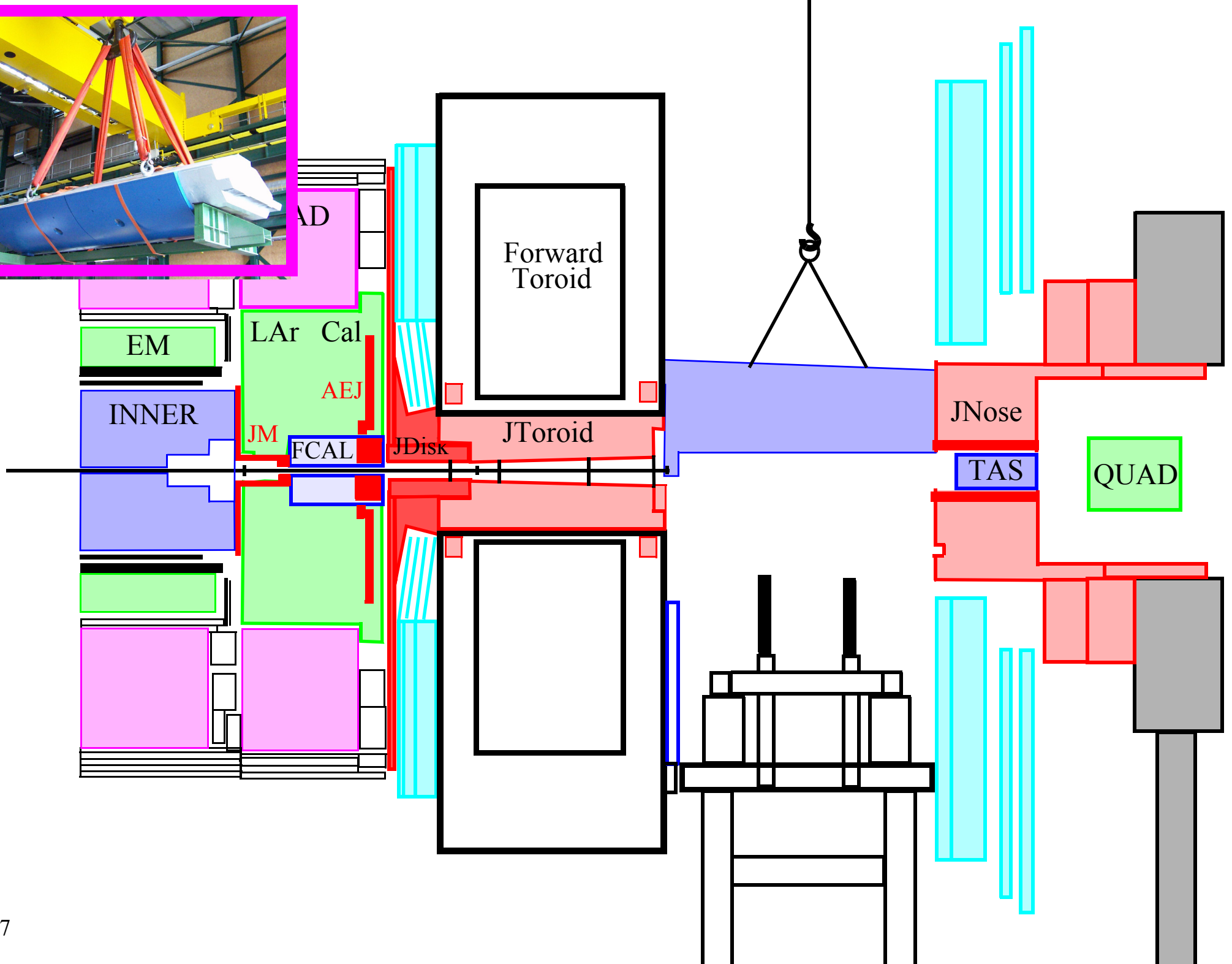
# Move HF truck sideways



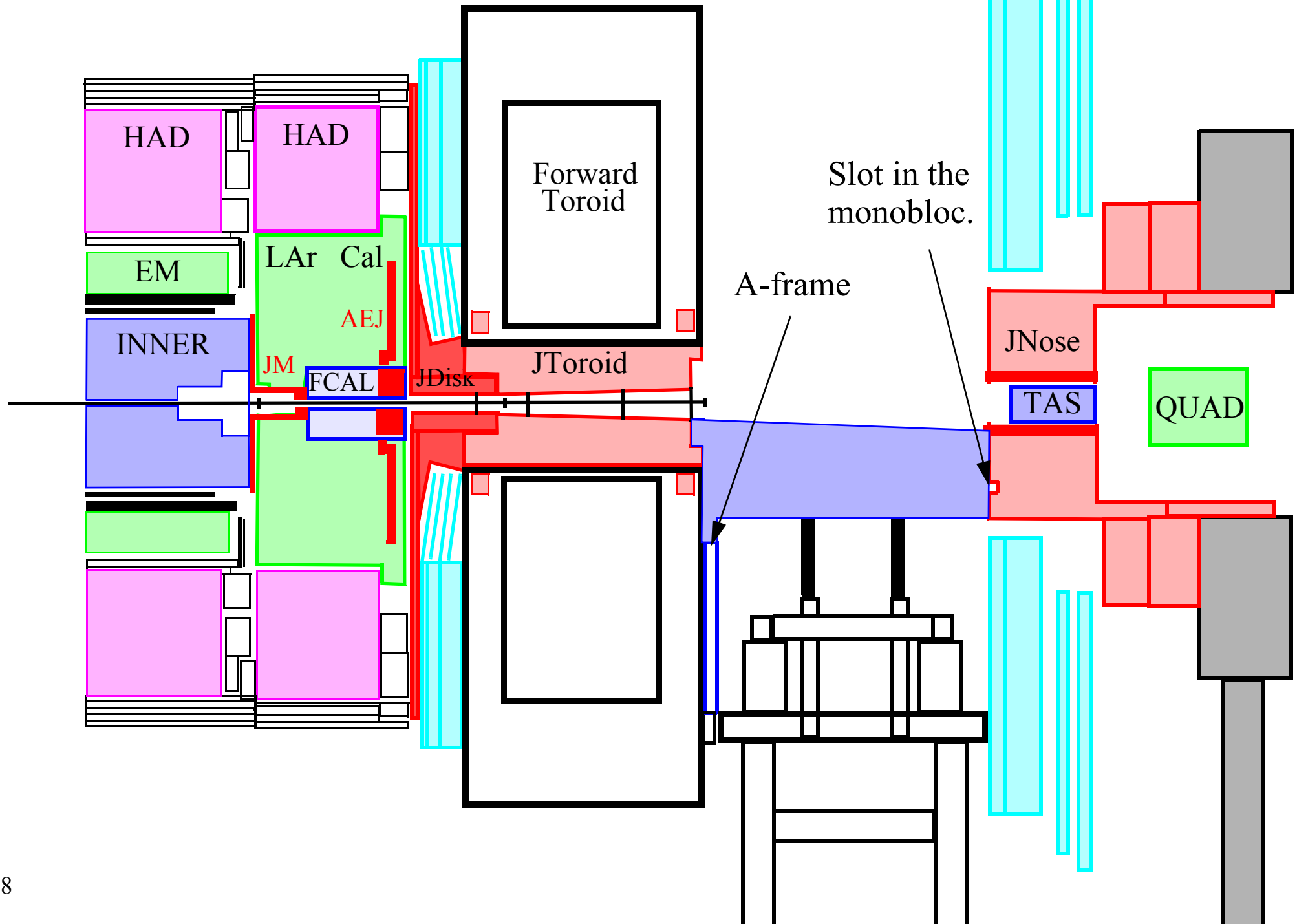
The JF bridge is lowered with the help of the rails.



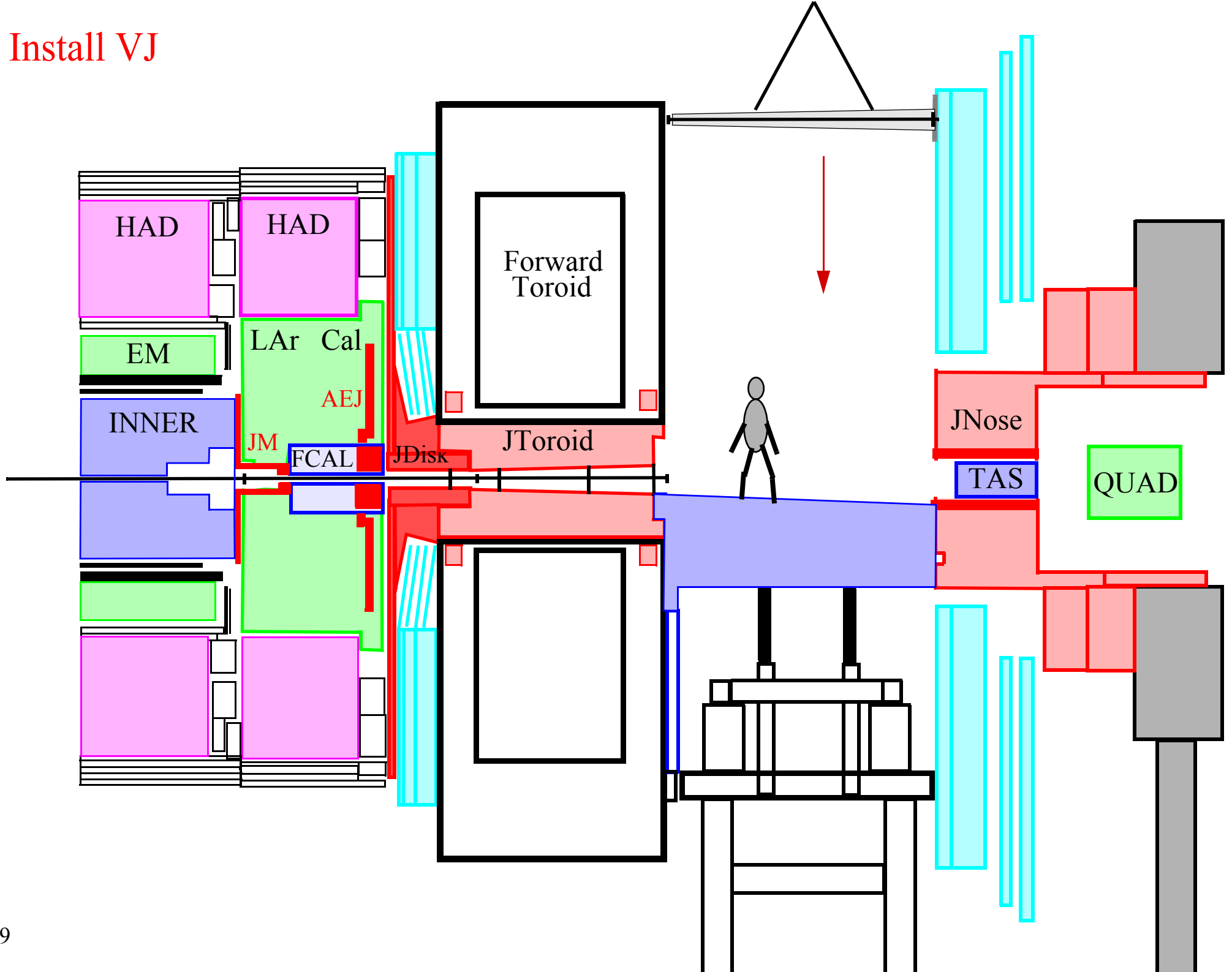


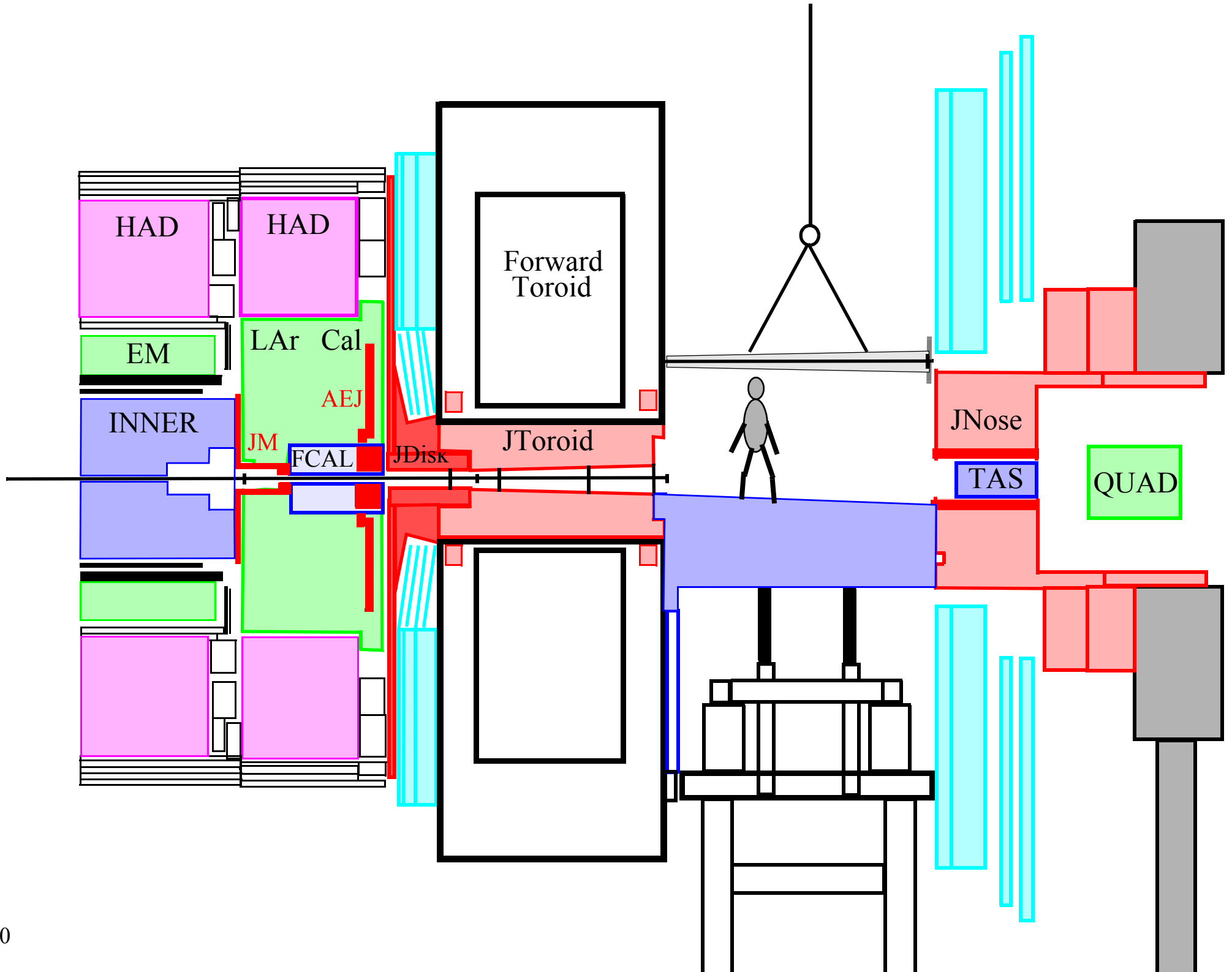


The HF truck is moved sideways until the JF bridge is resting on the A-frame and the slot in the monobloc

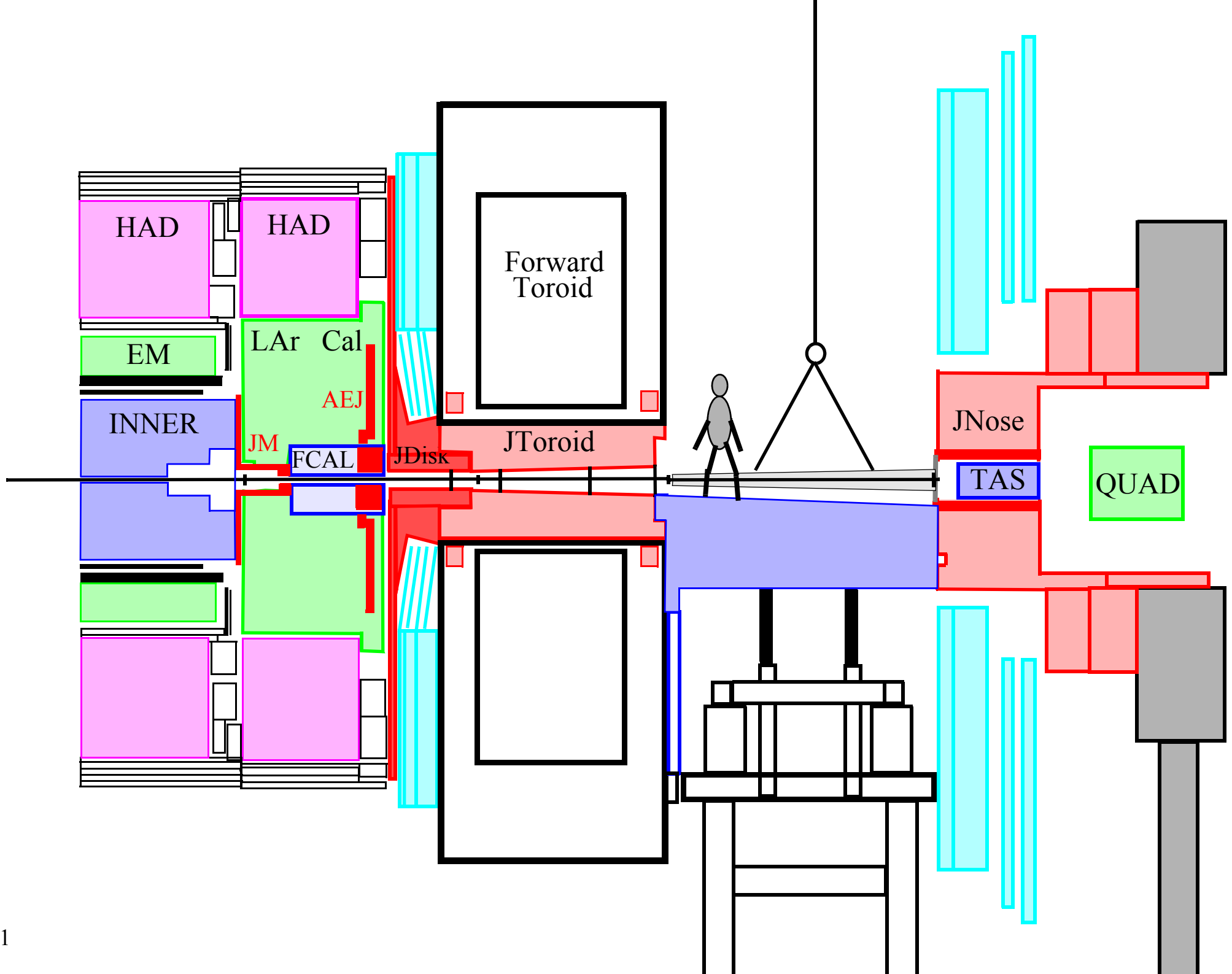


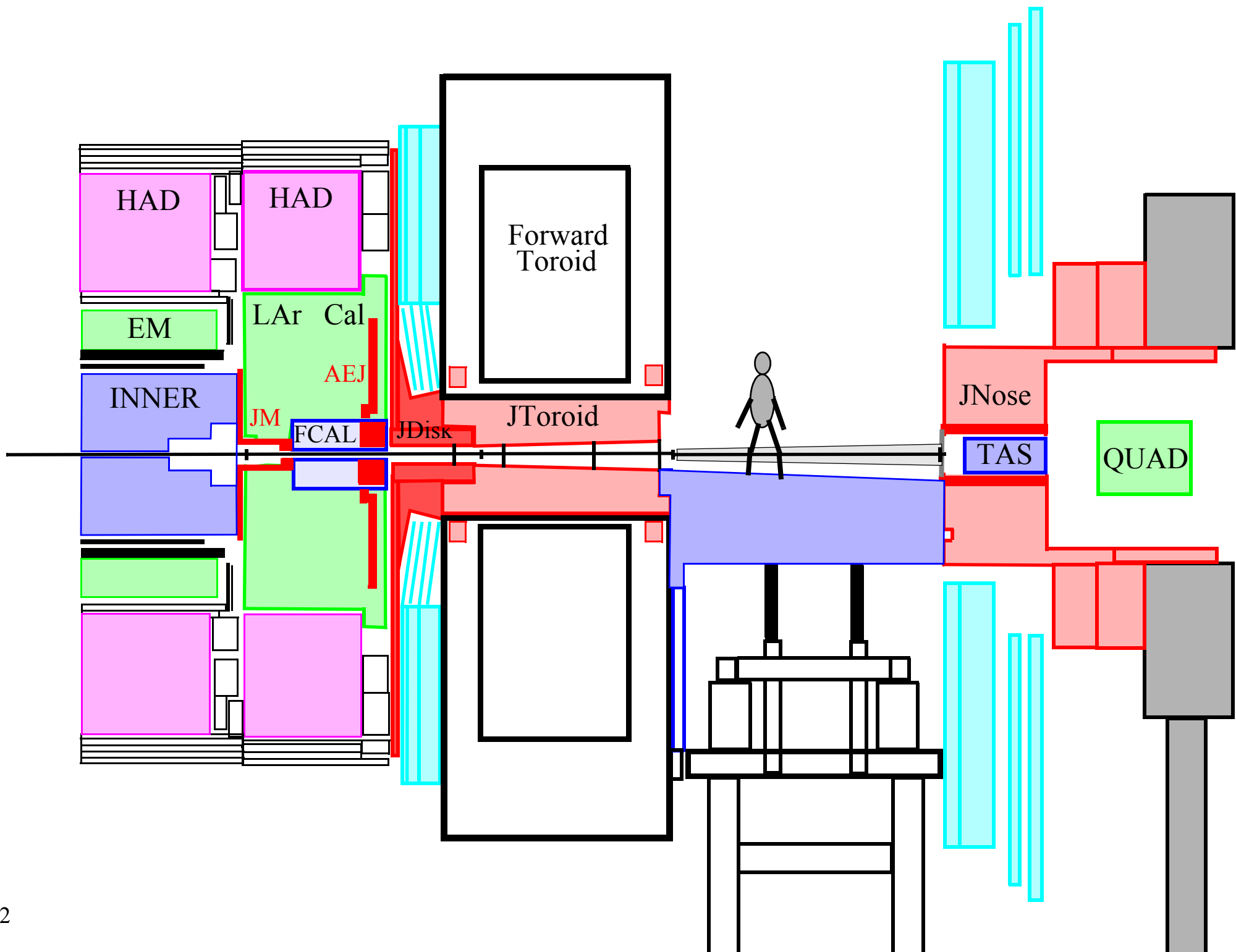
# Install VJ



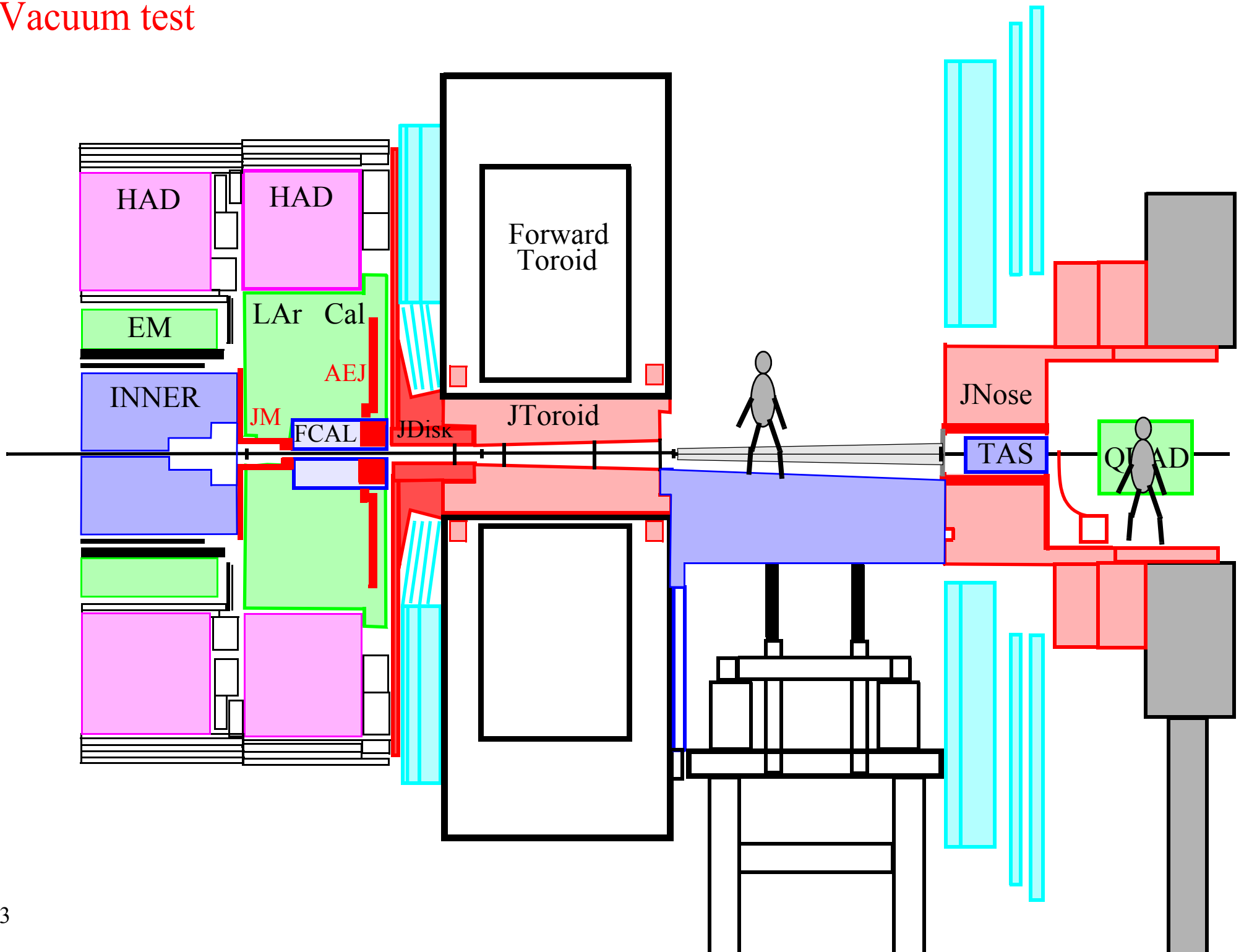


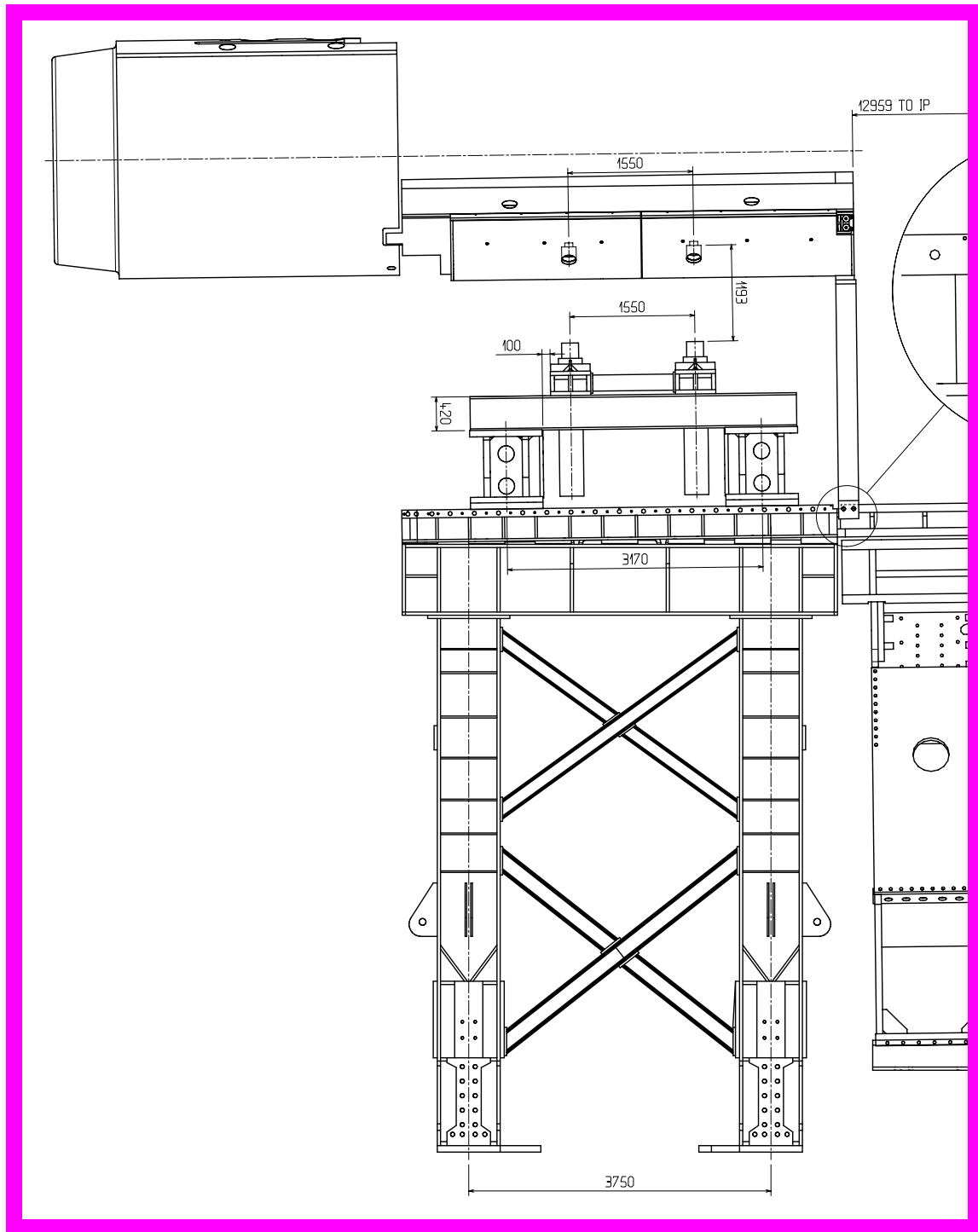
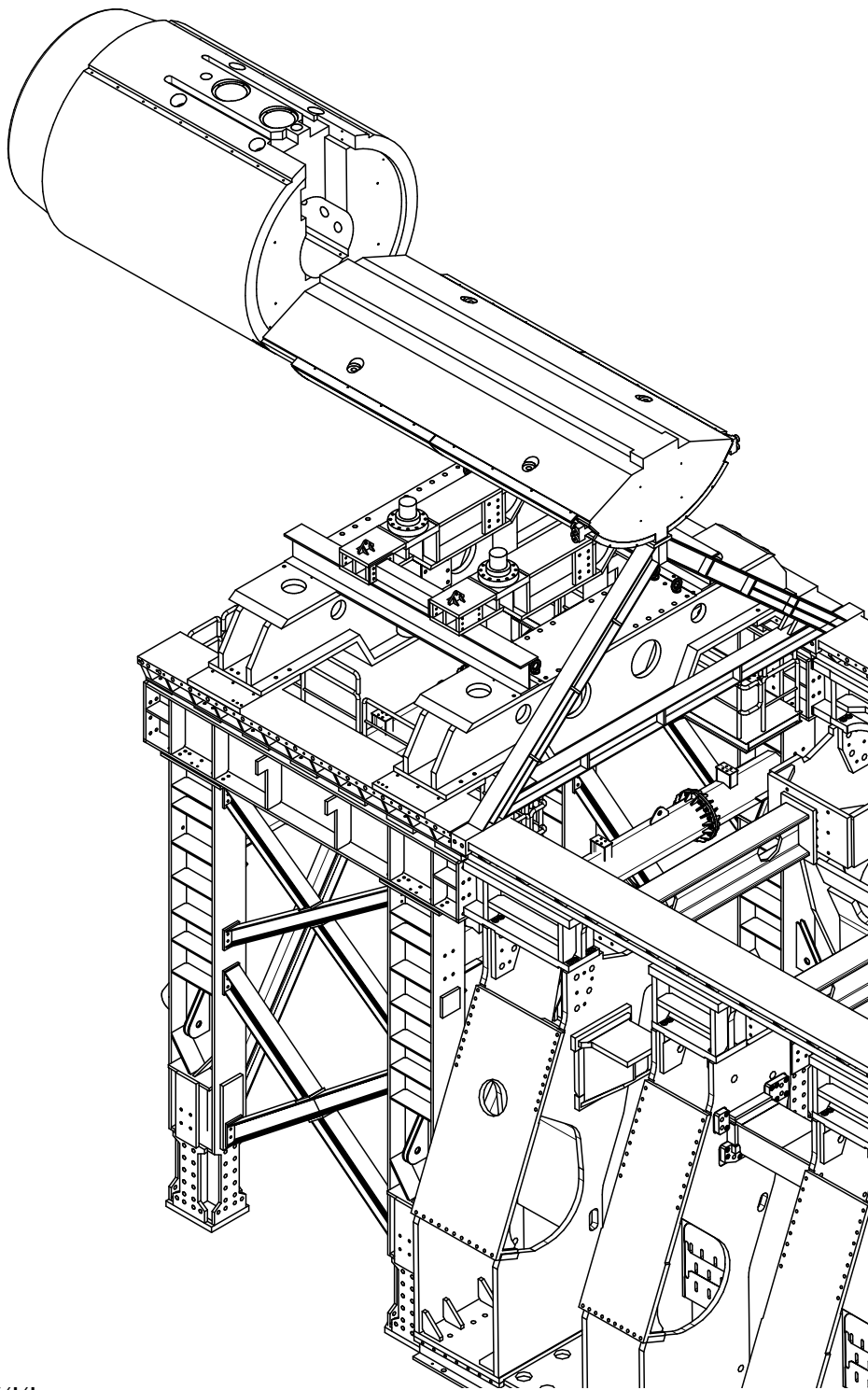




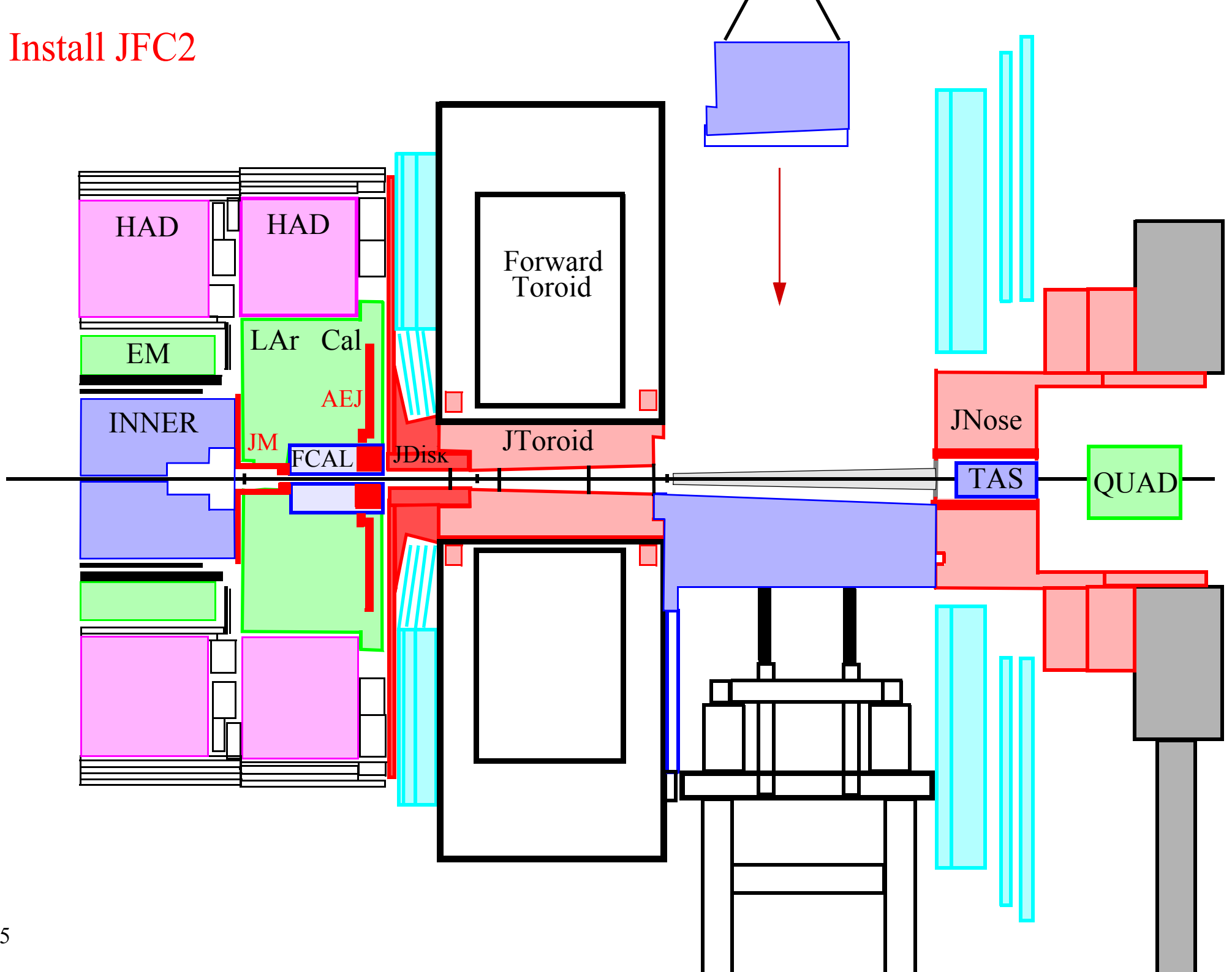


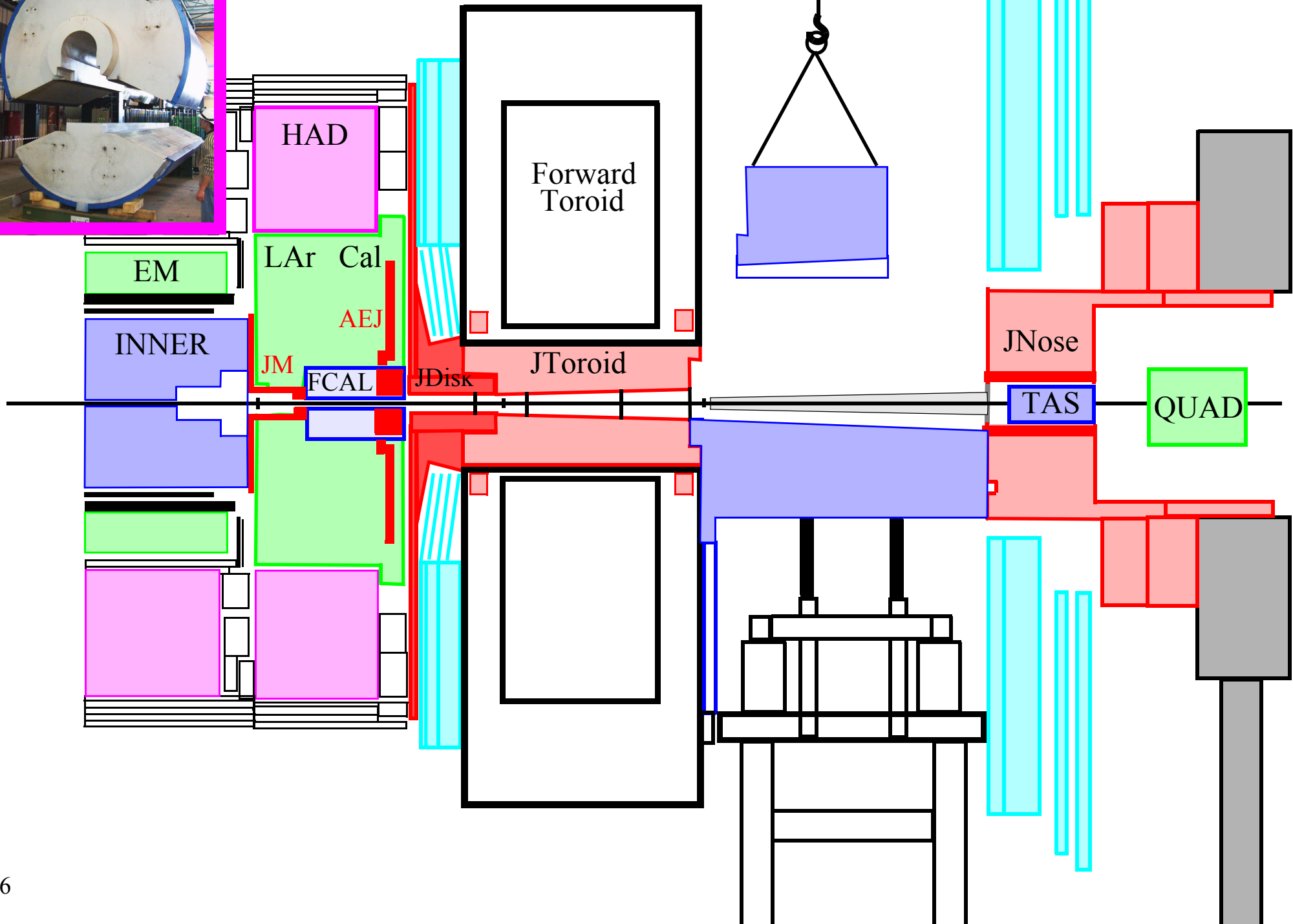
# Vacuum test

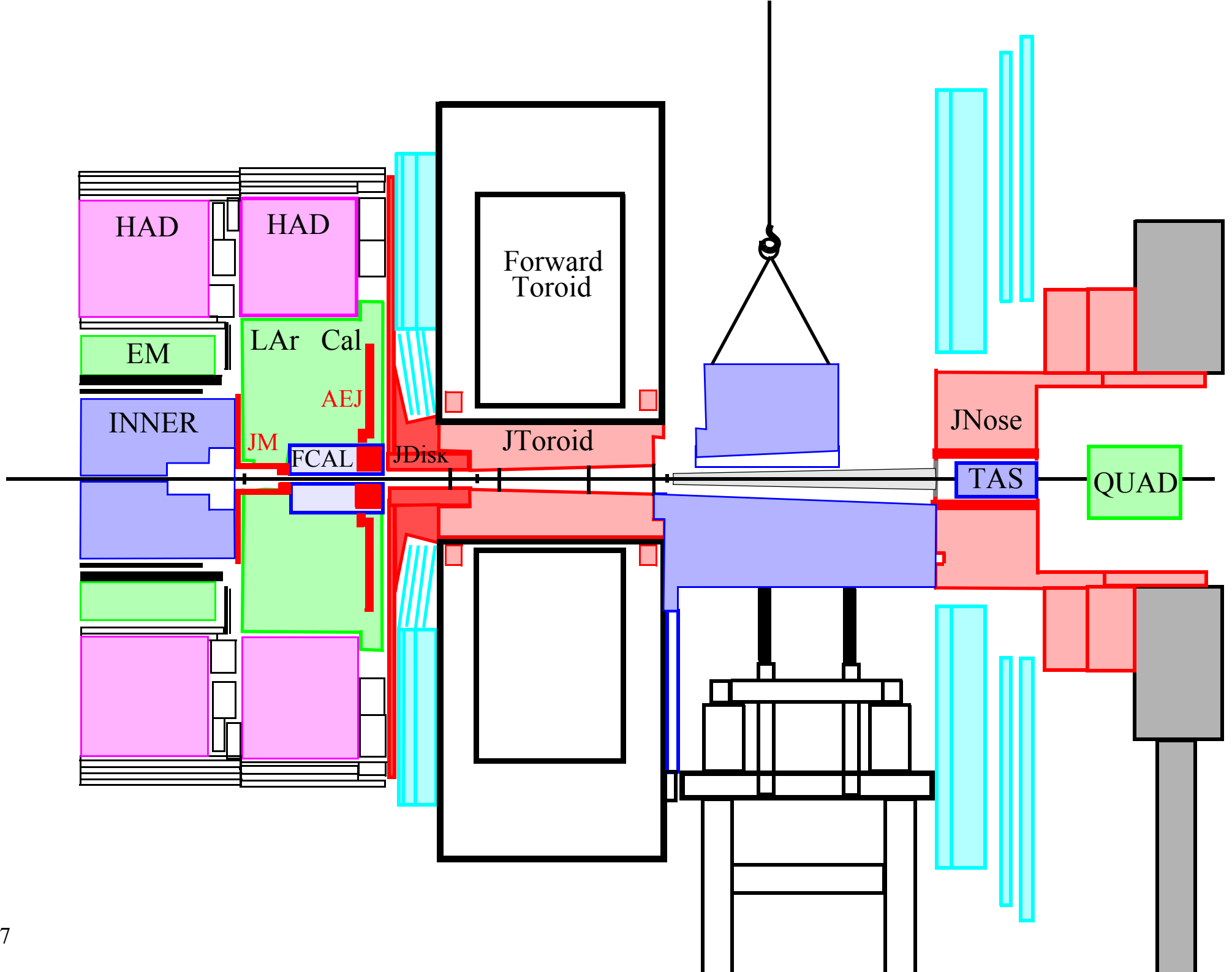


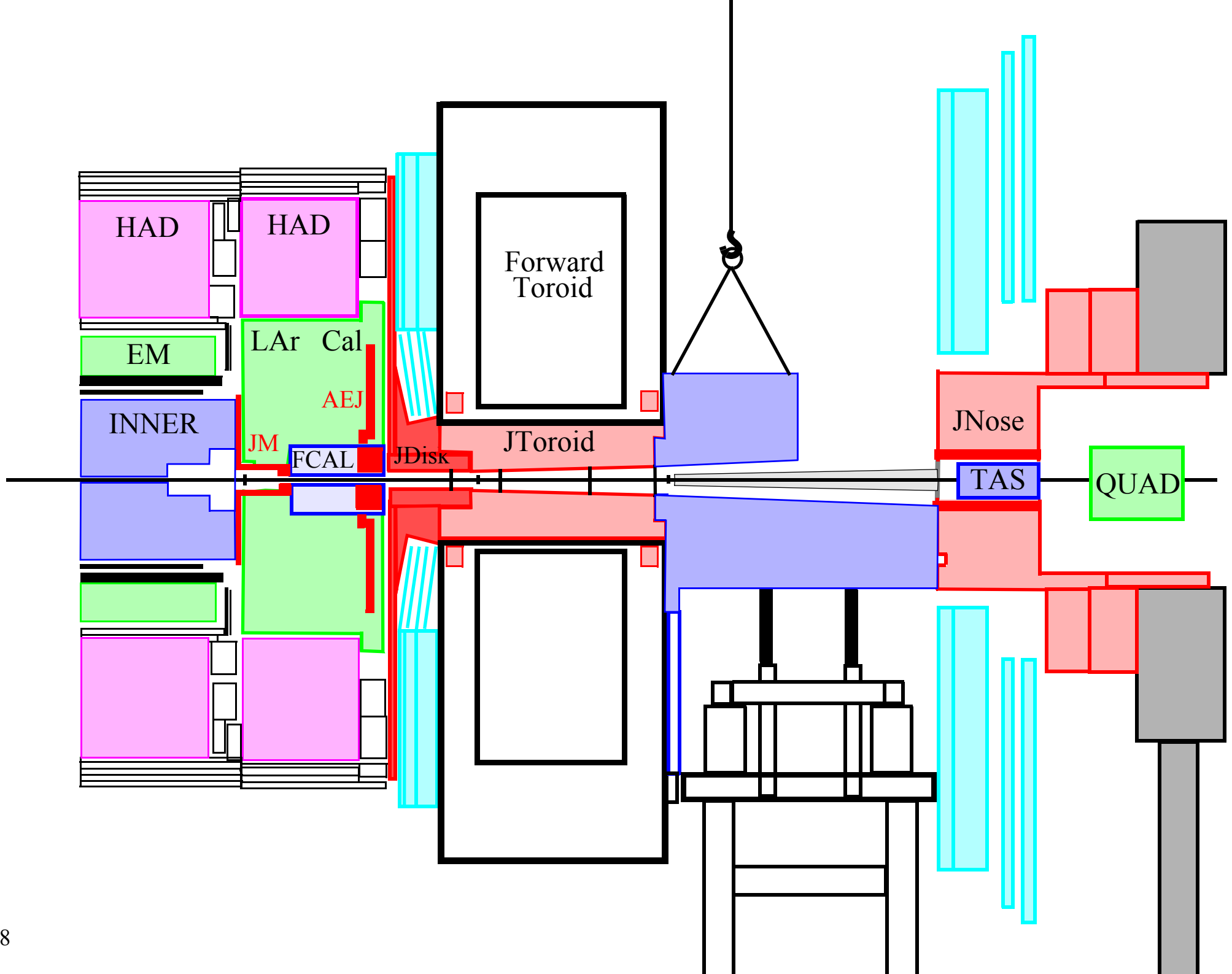


# Install JFC2

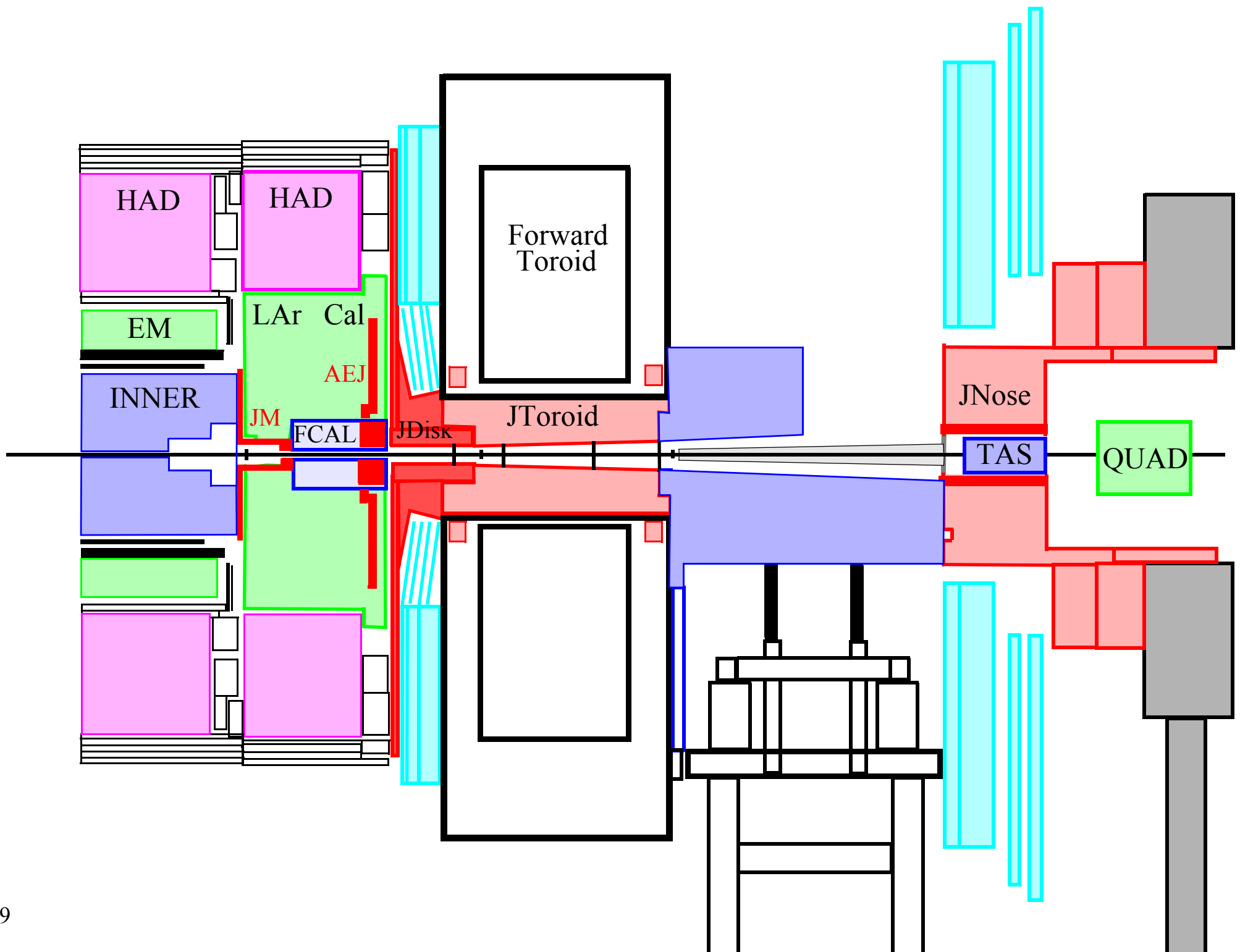




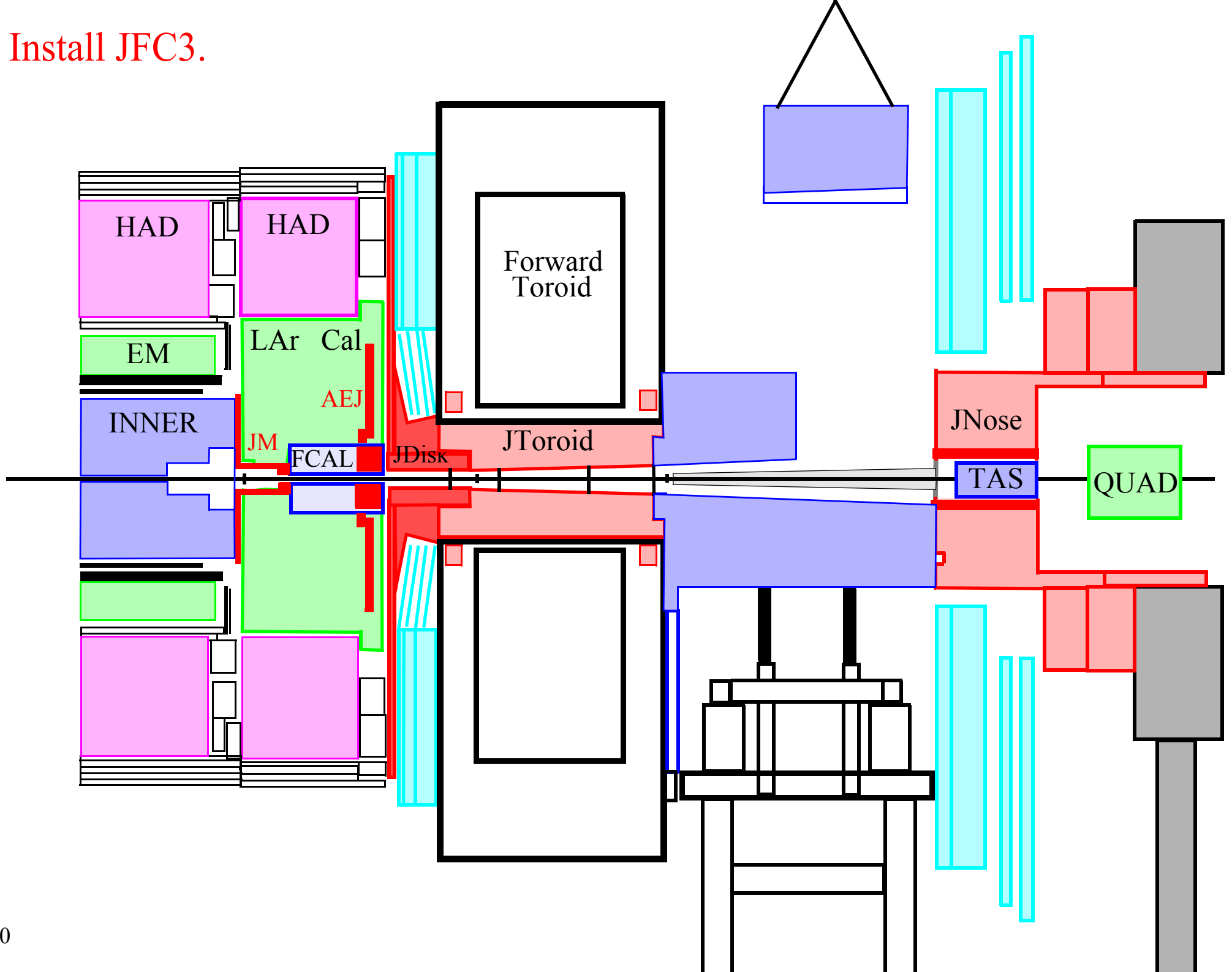


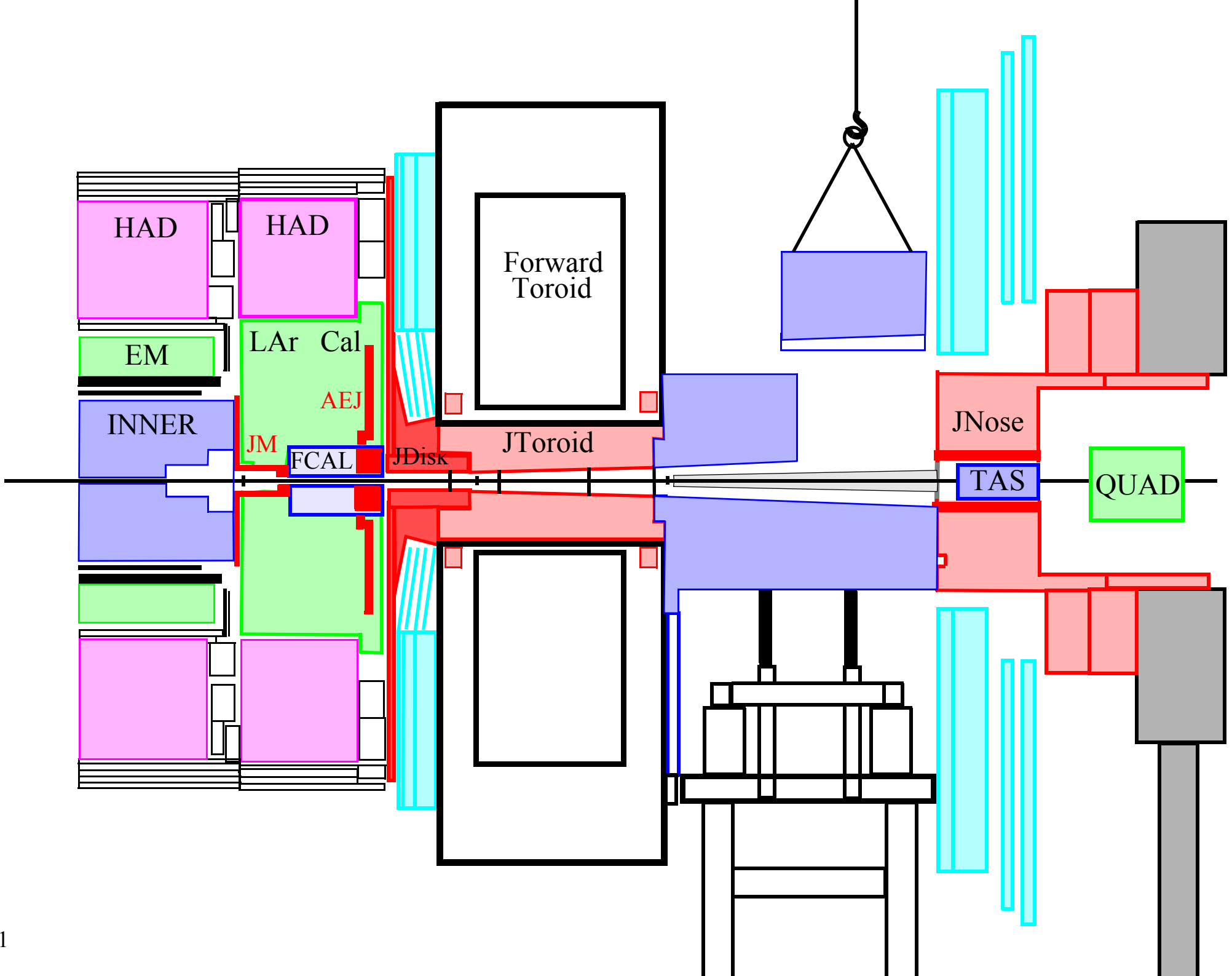


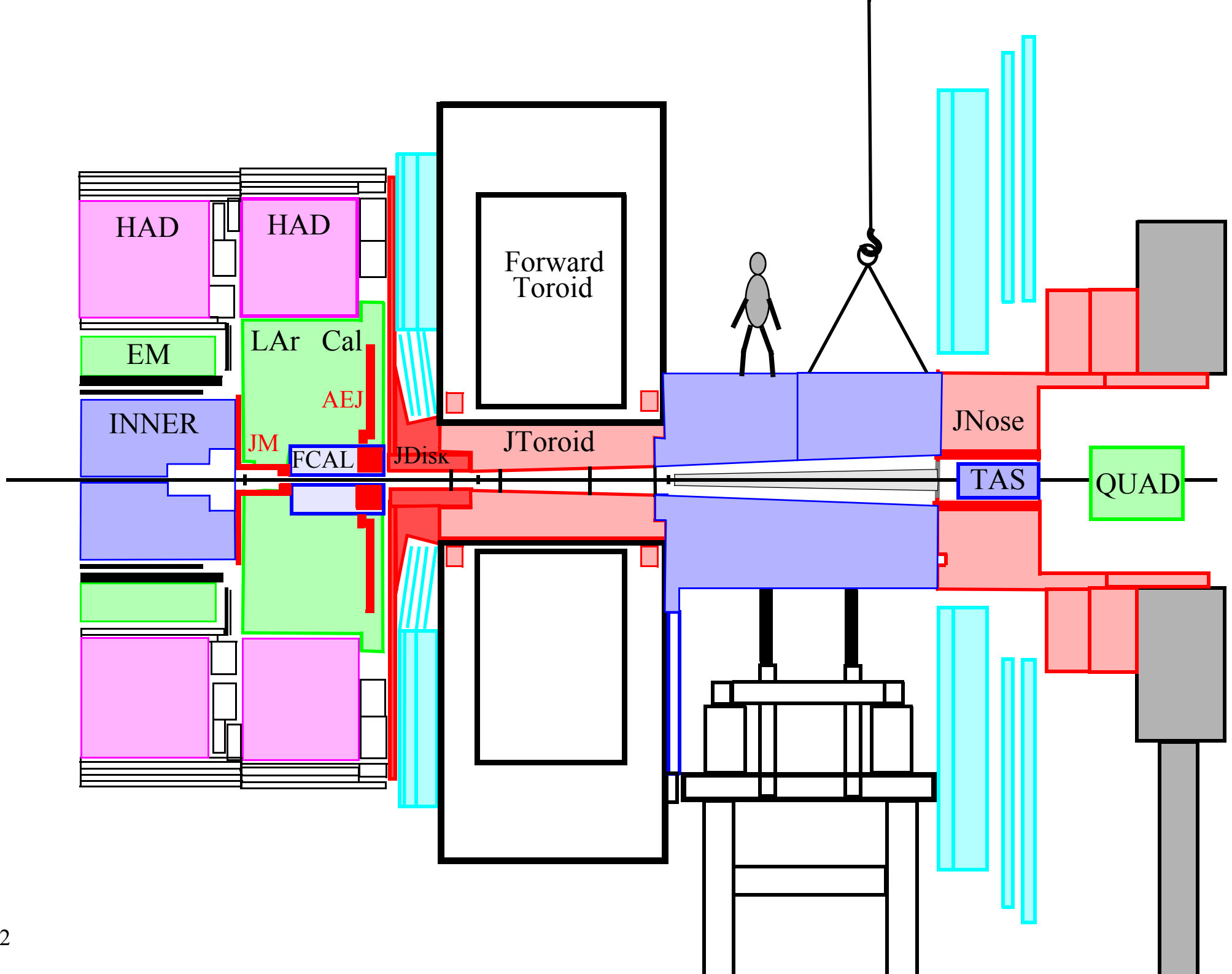


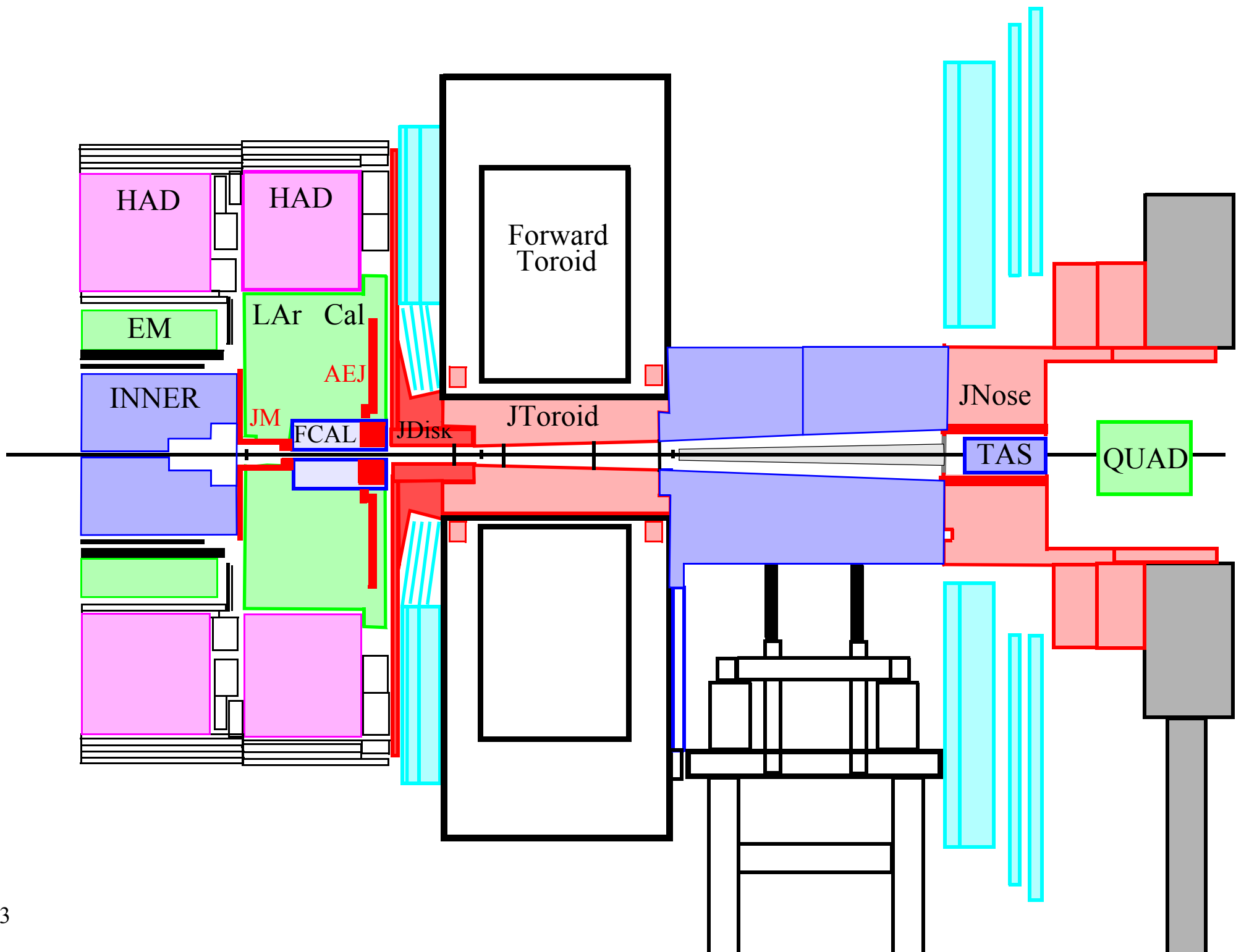


# Install JFC3.

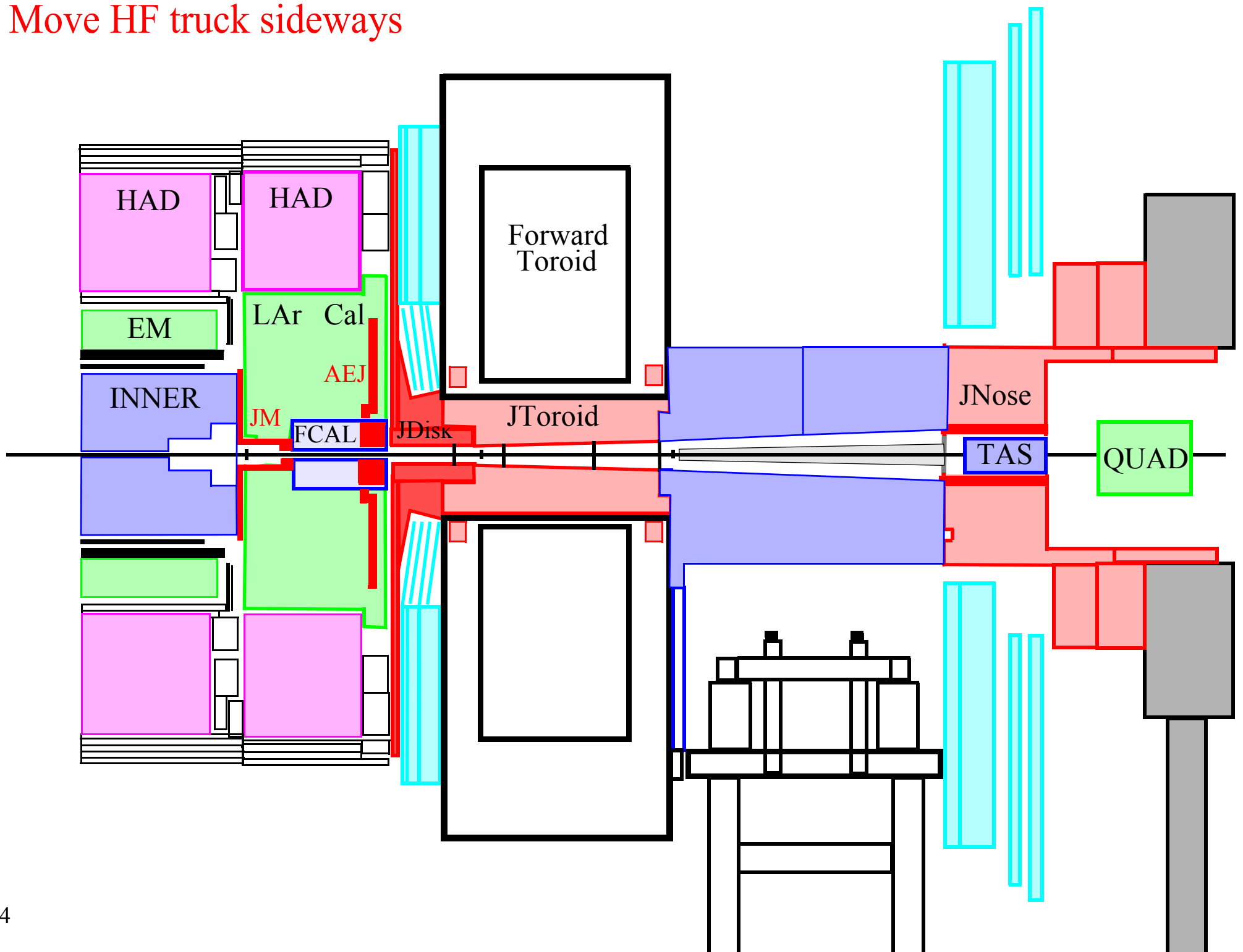




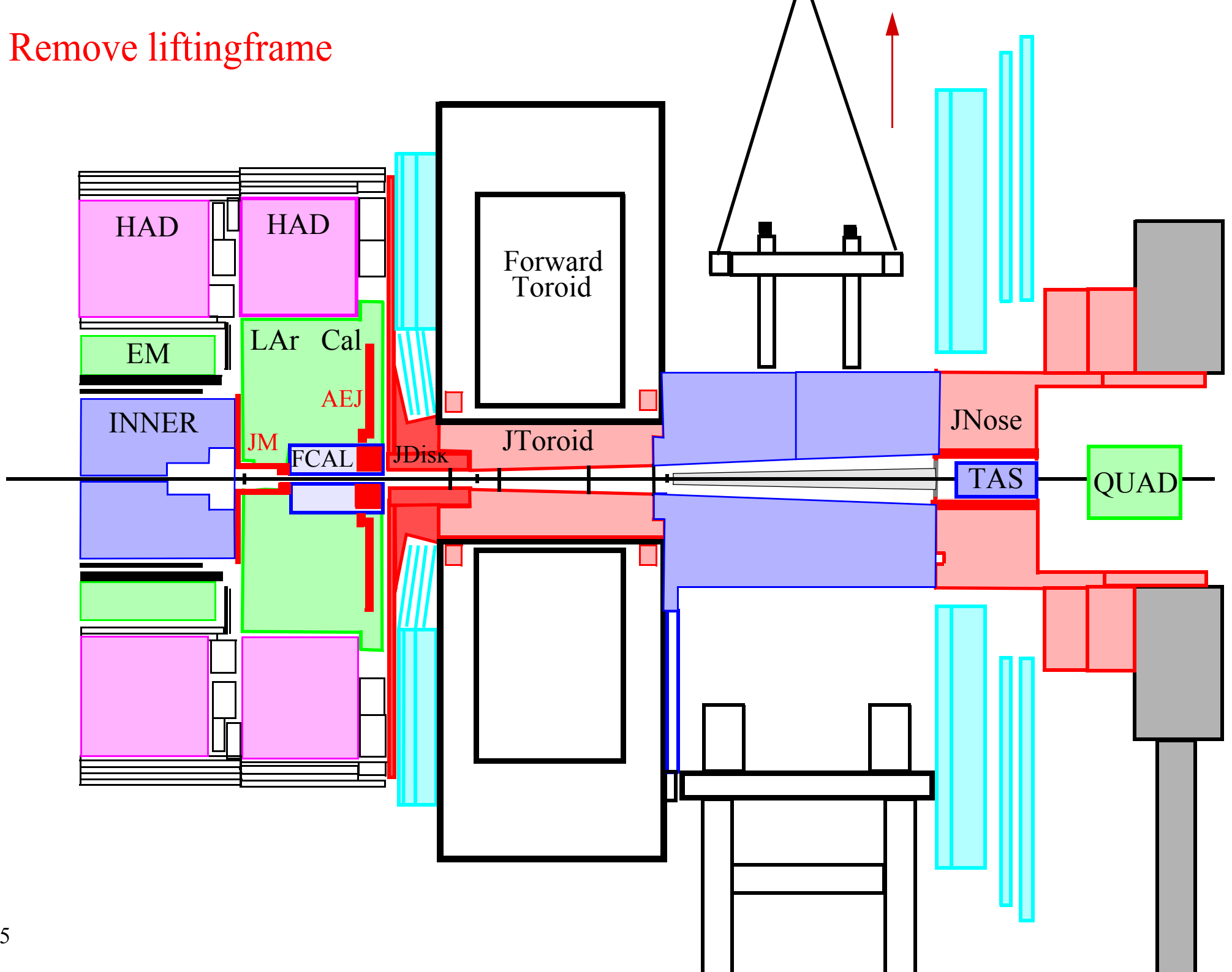




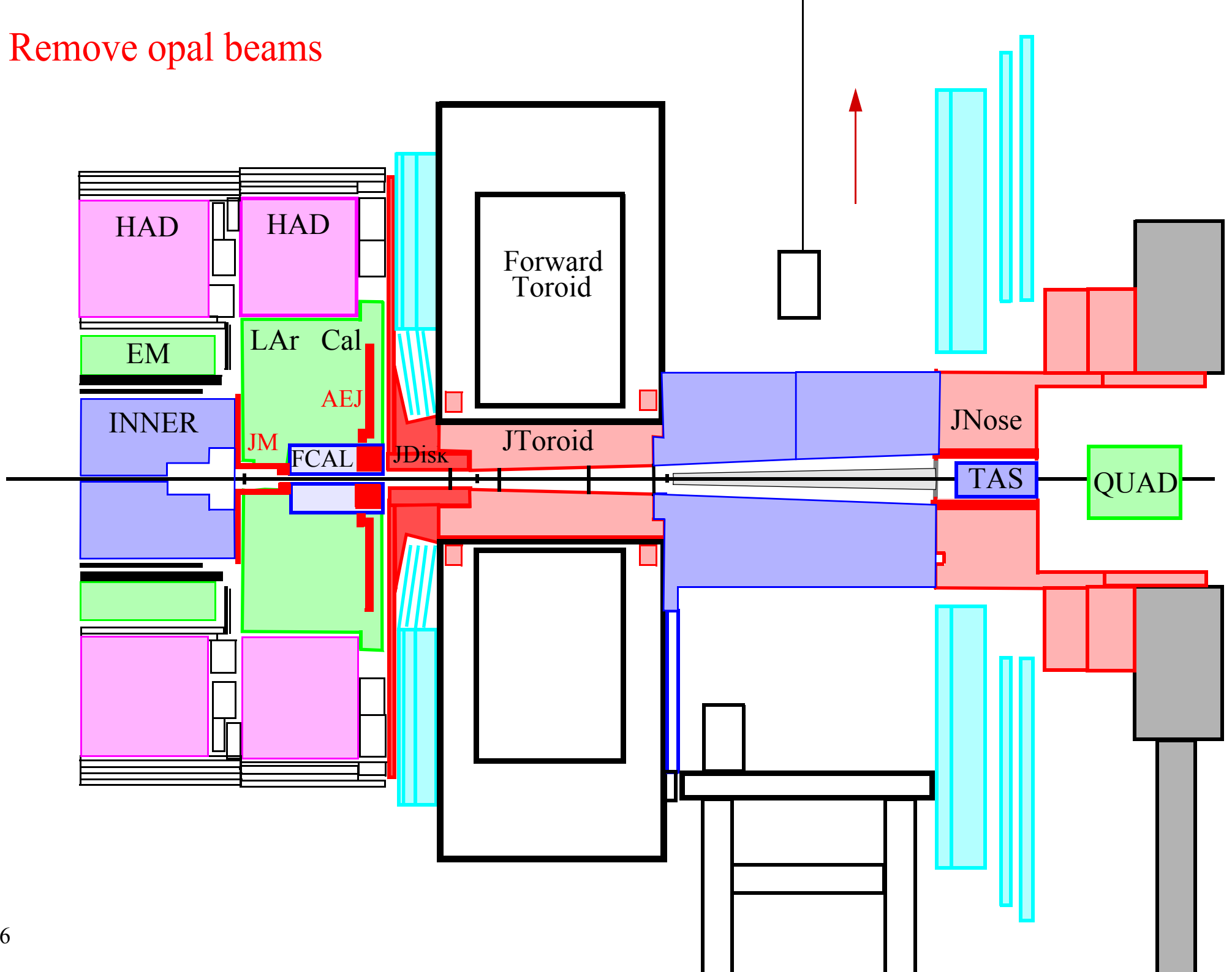
# Move HF truck sideways



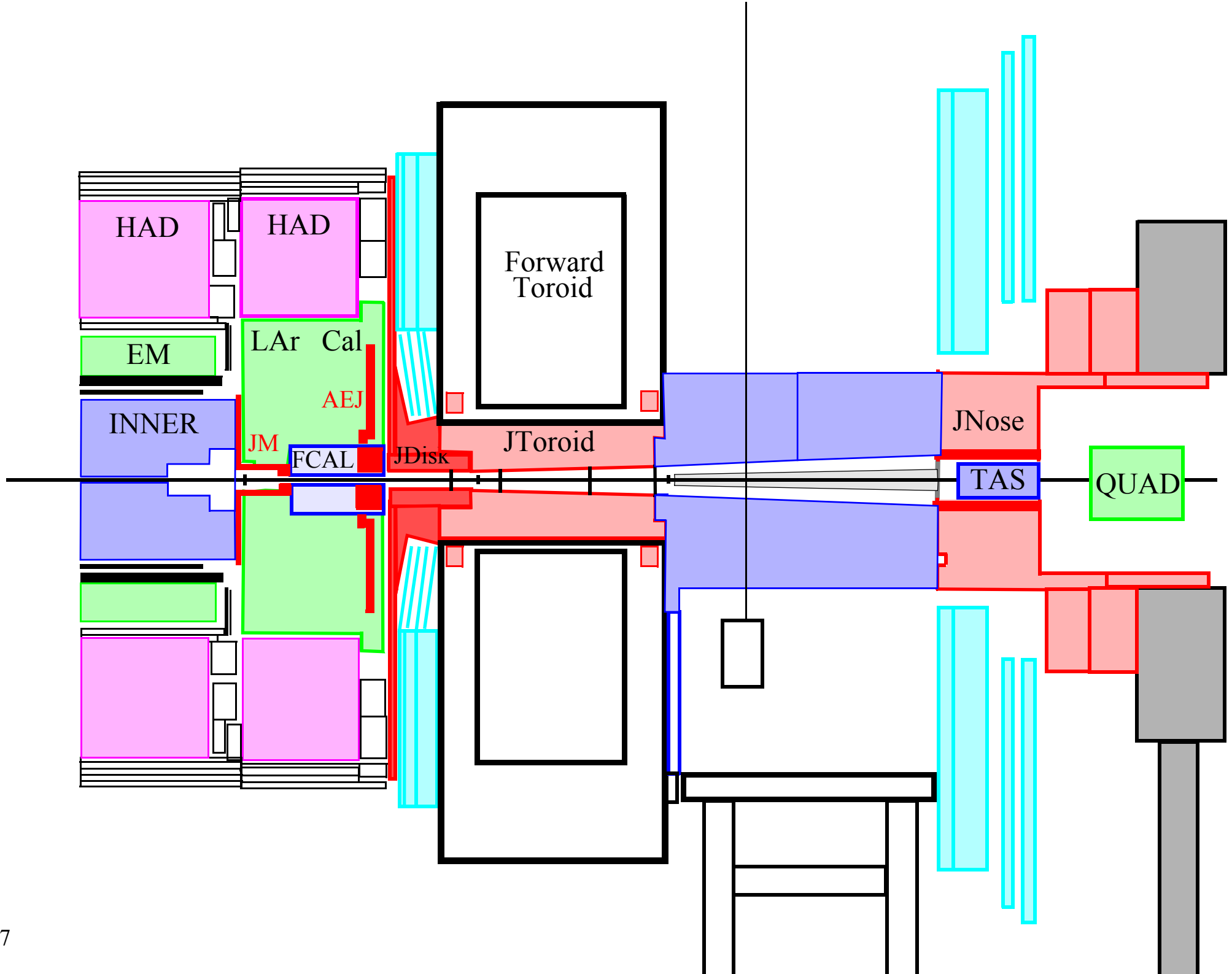
Remove liftingframe

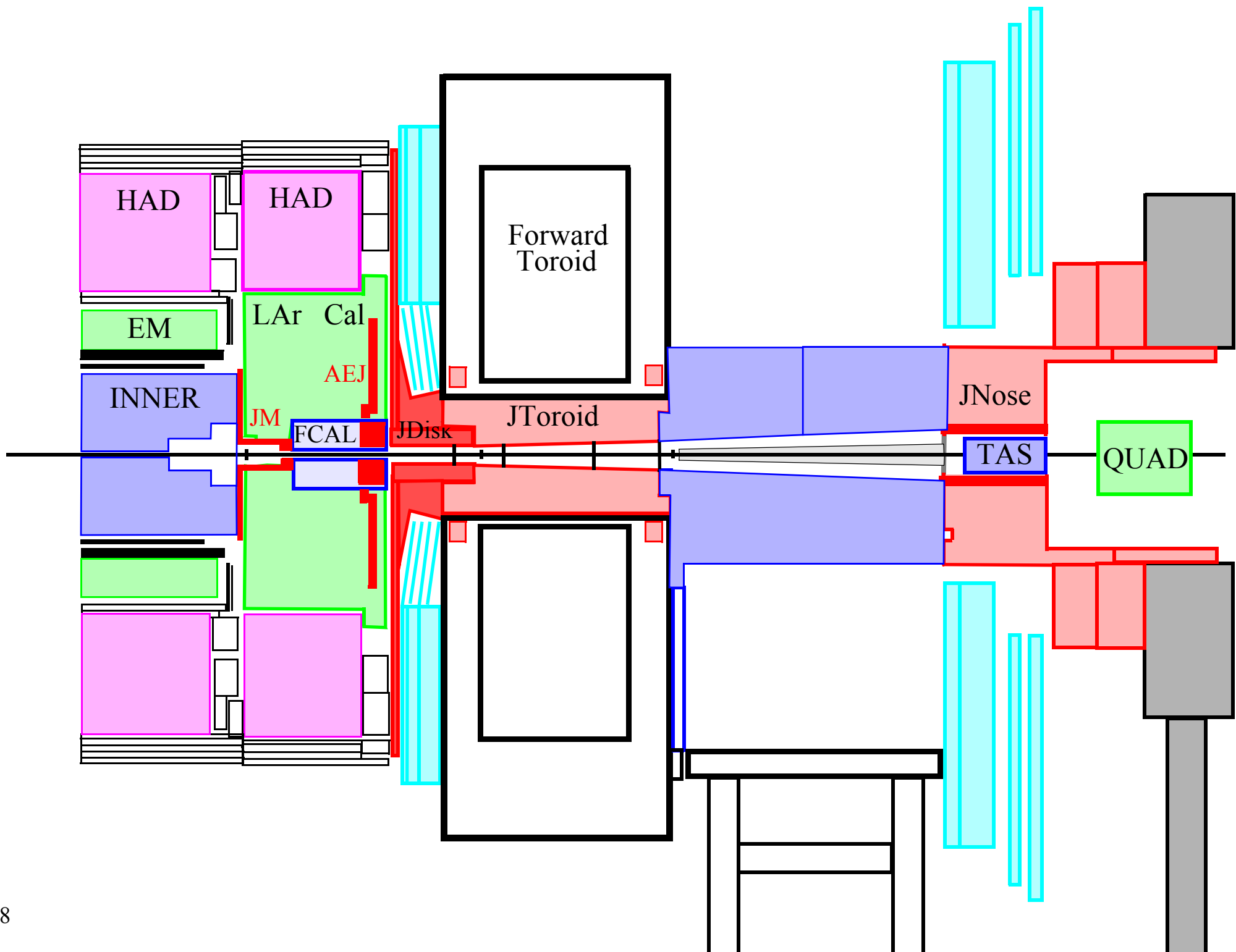


# Remove opal beams

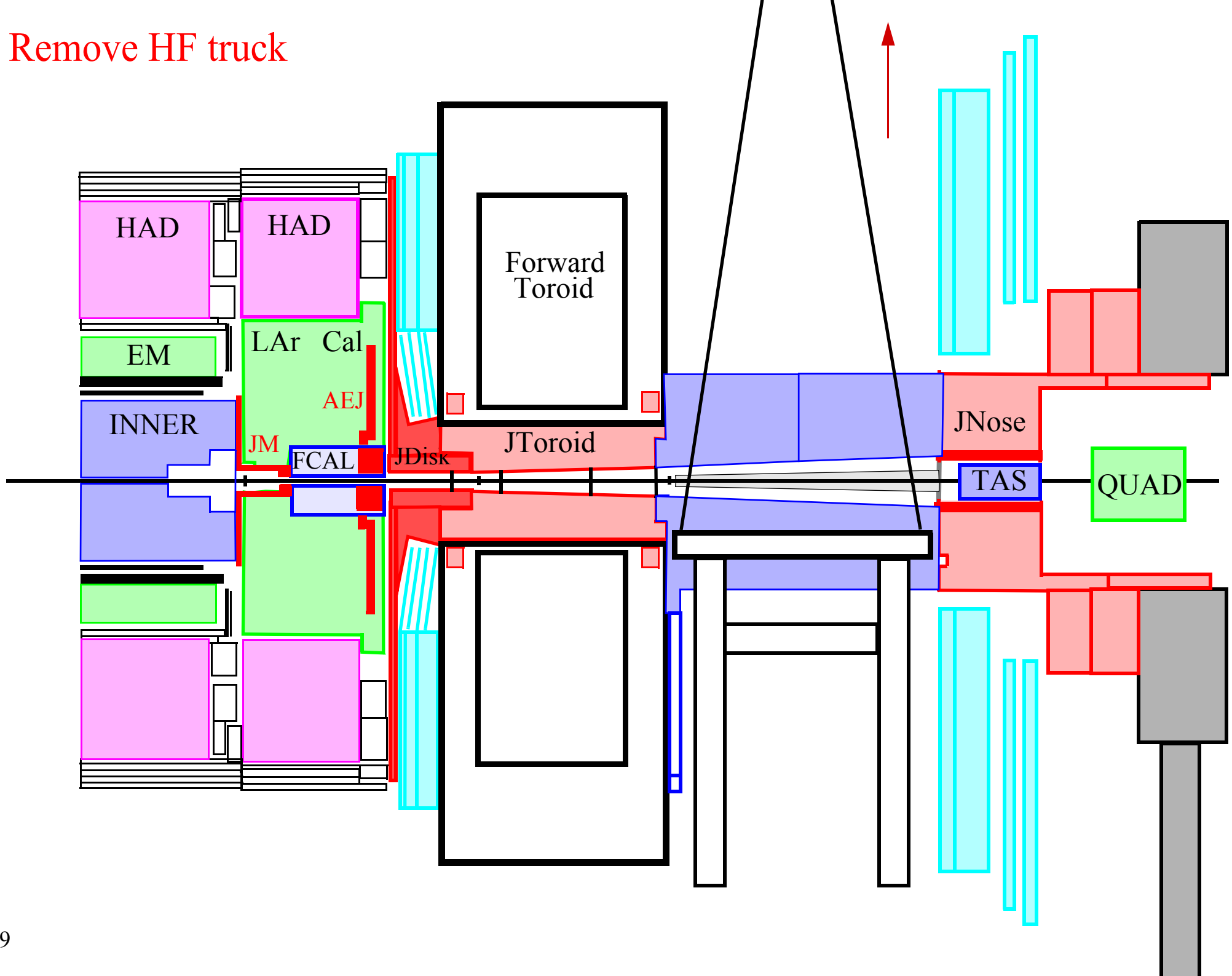




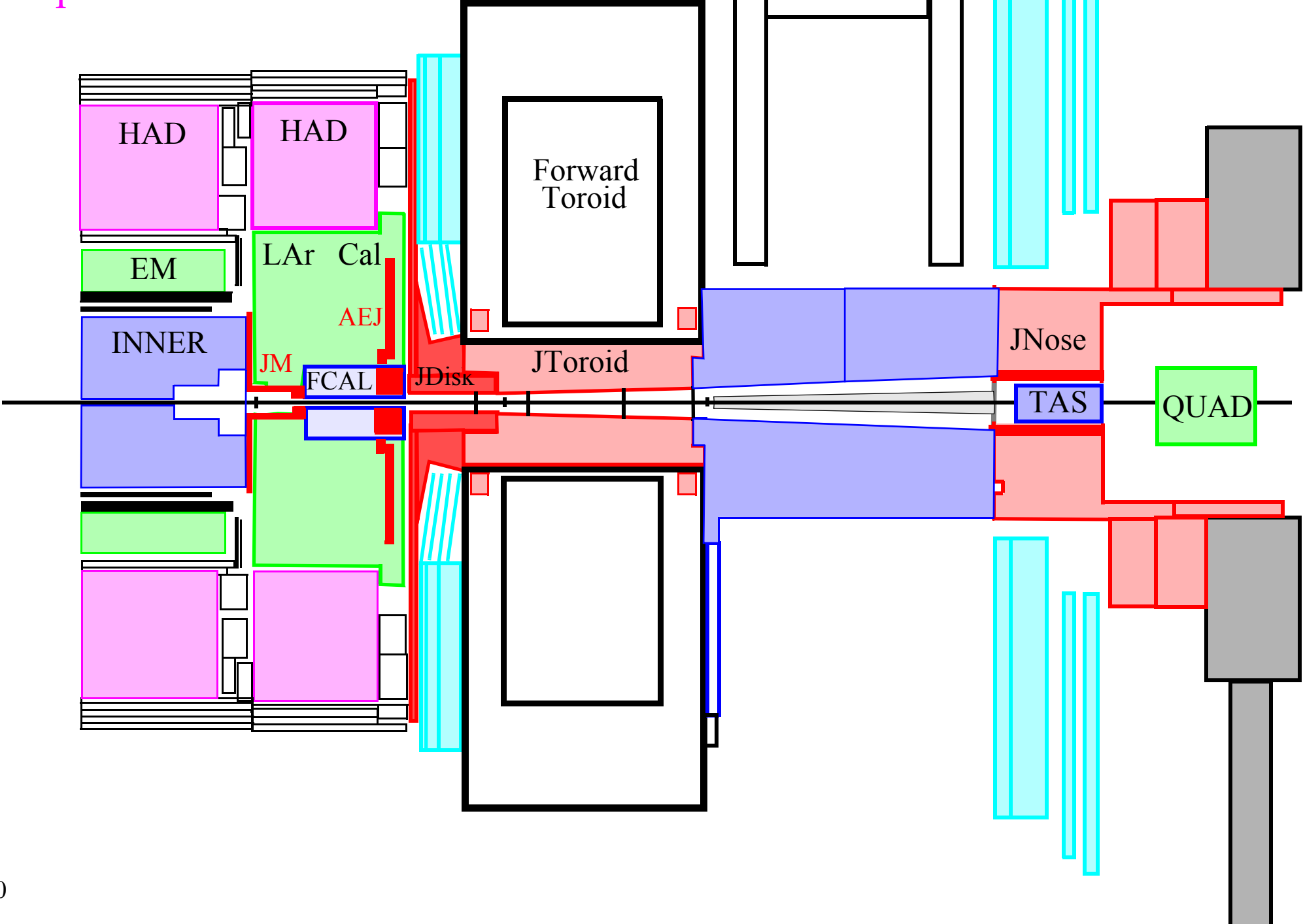




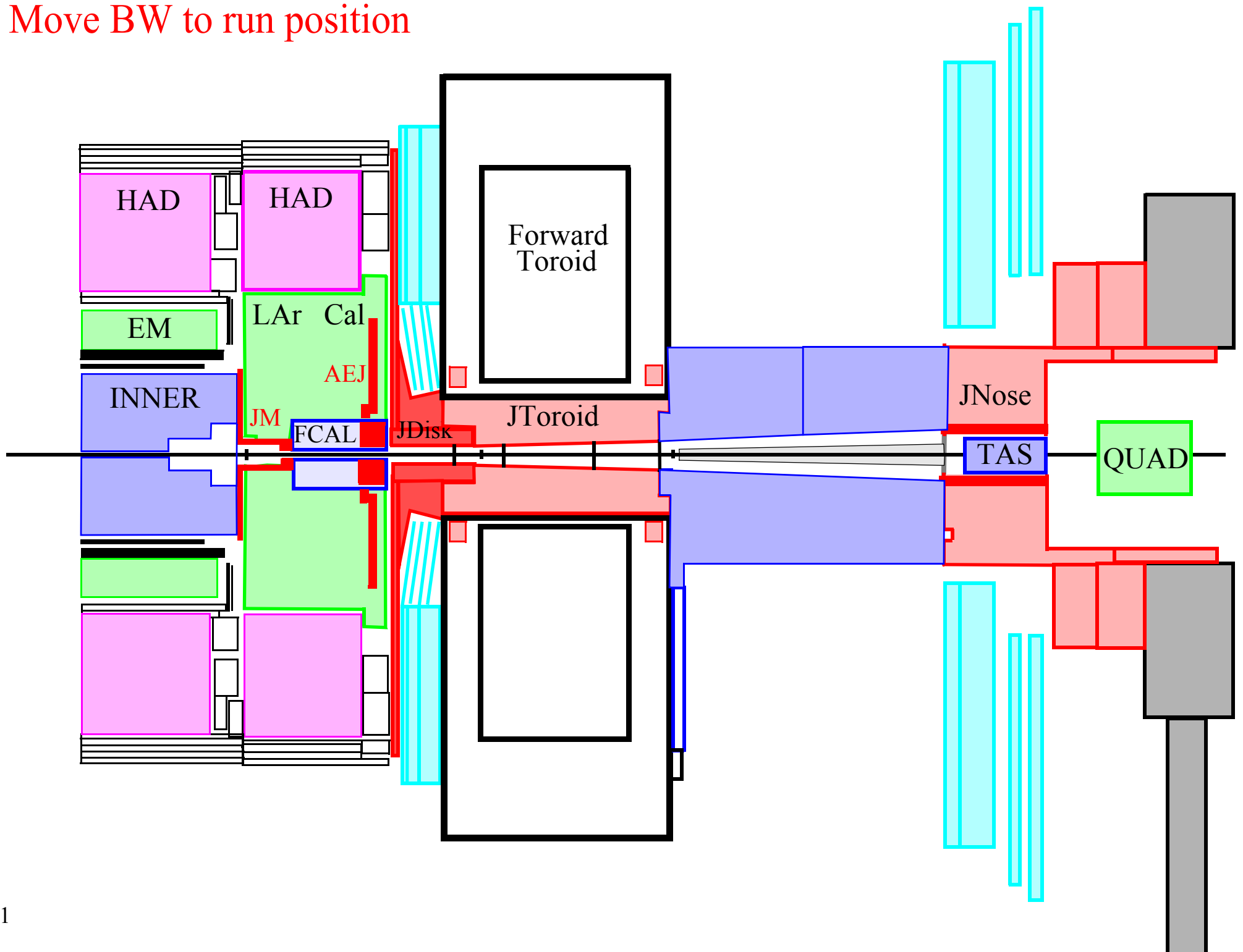
Remove HF truck

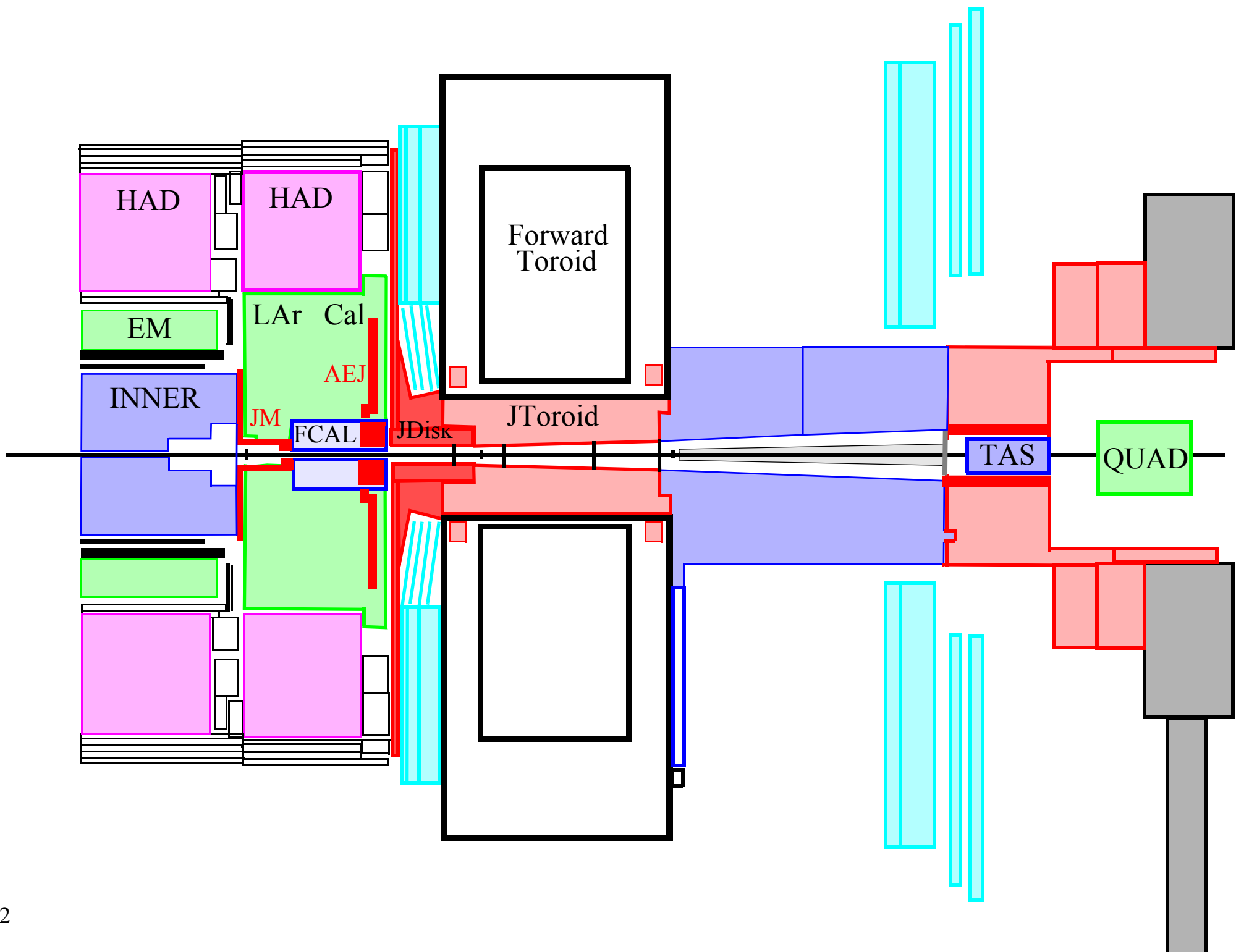


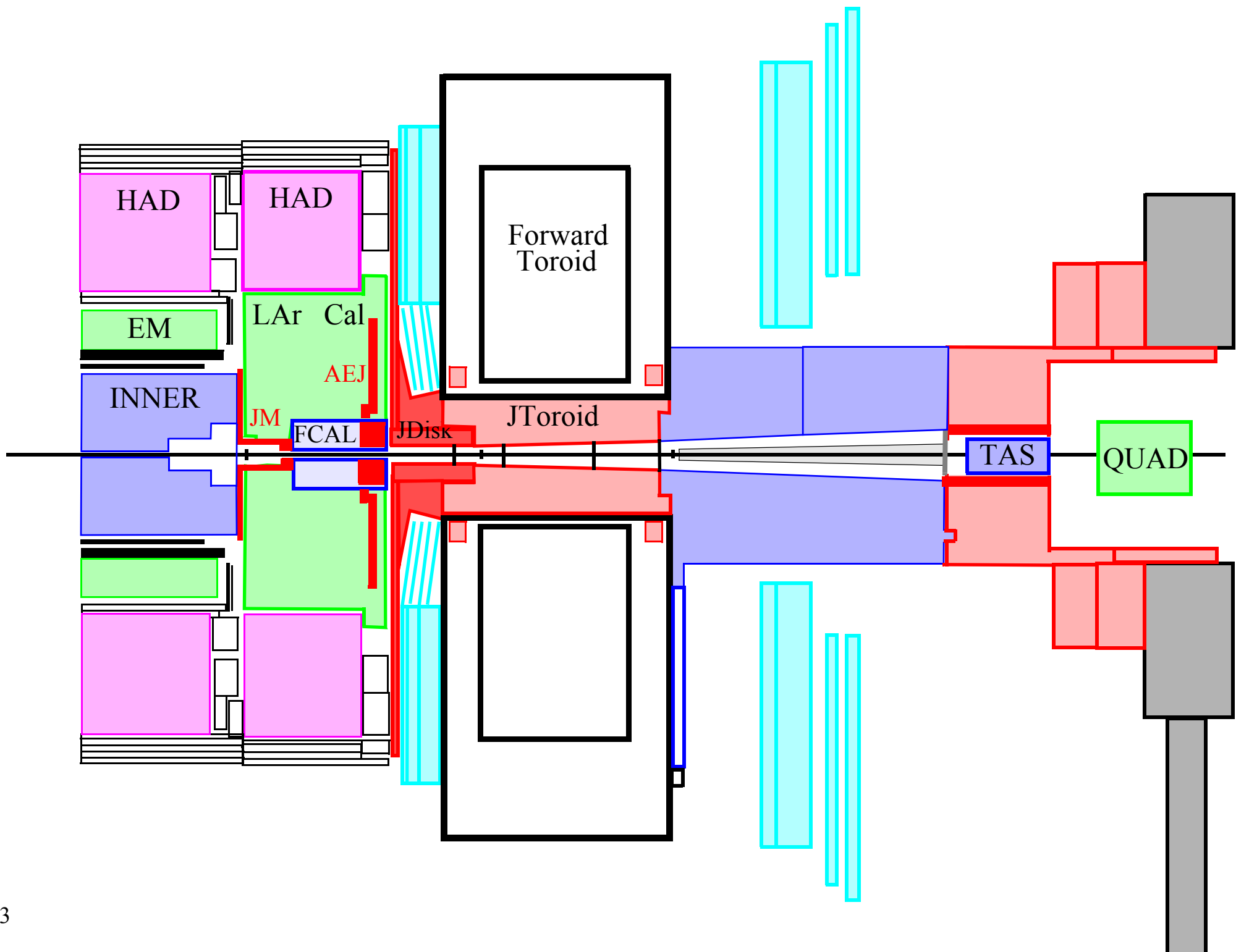
Is there enough crane reach for this operation ?

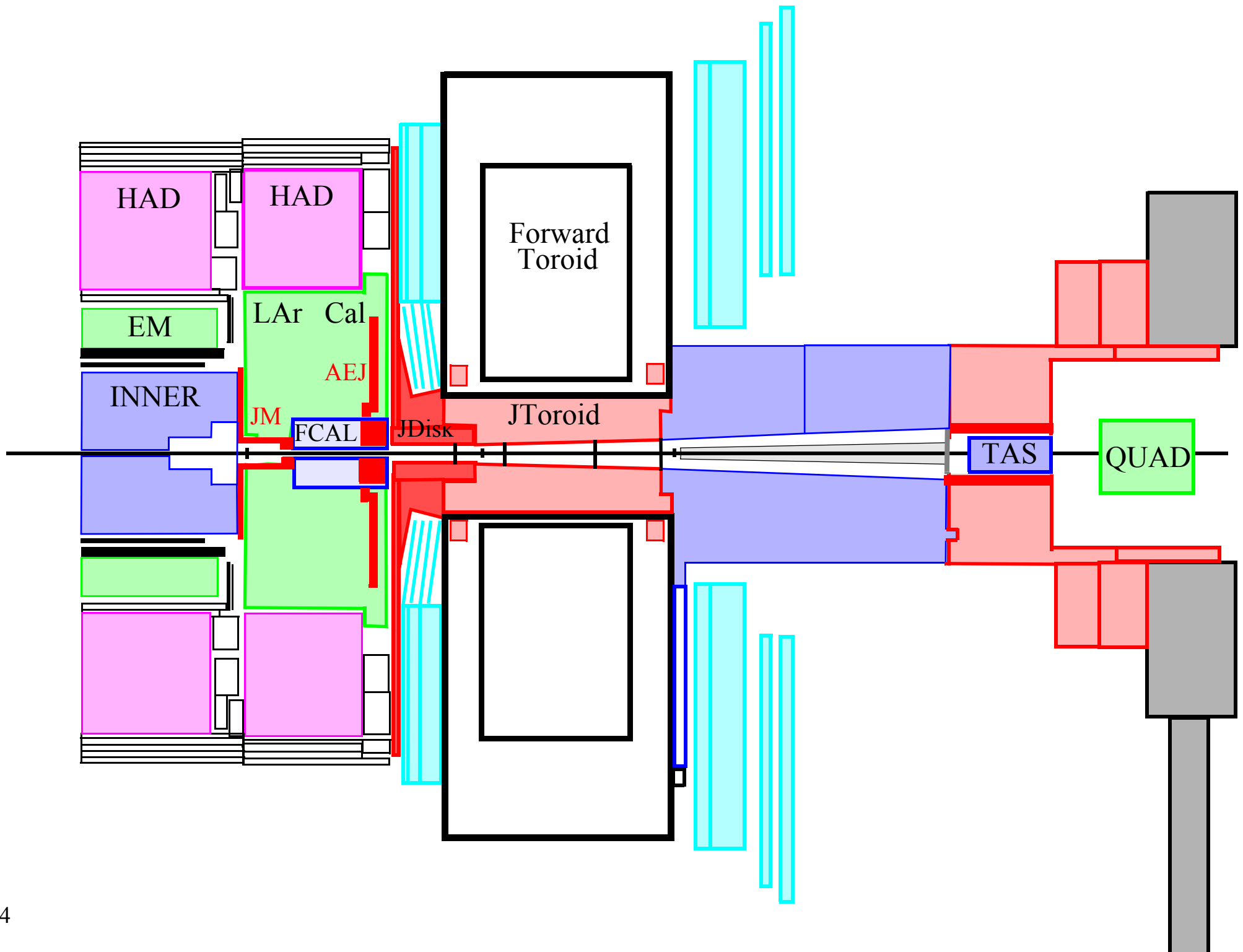


Move BW to run position



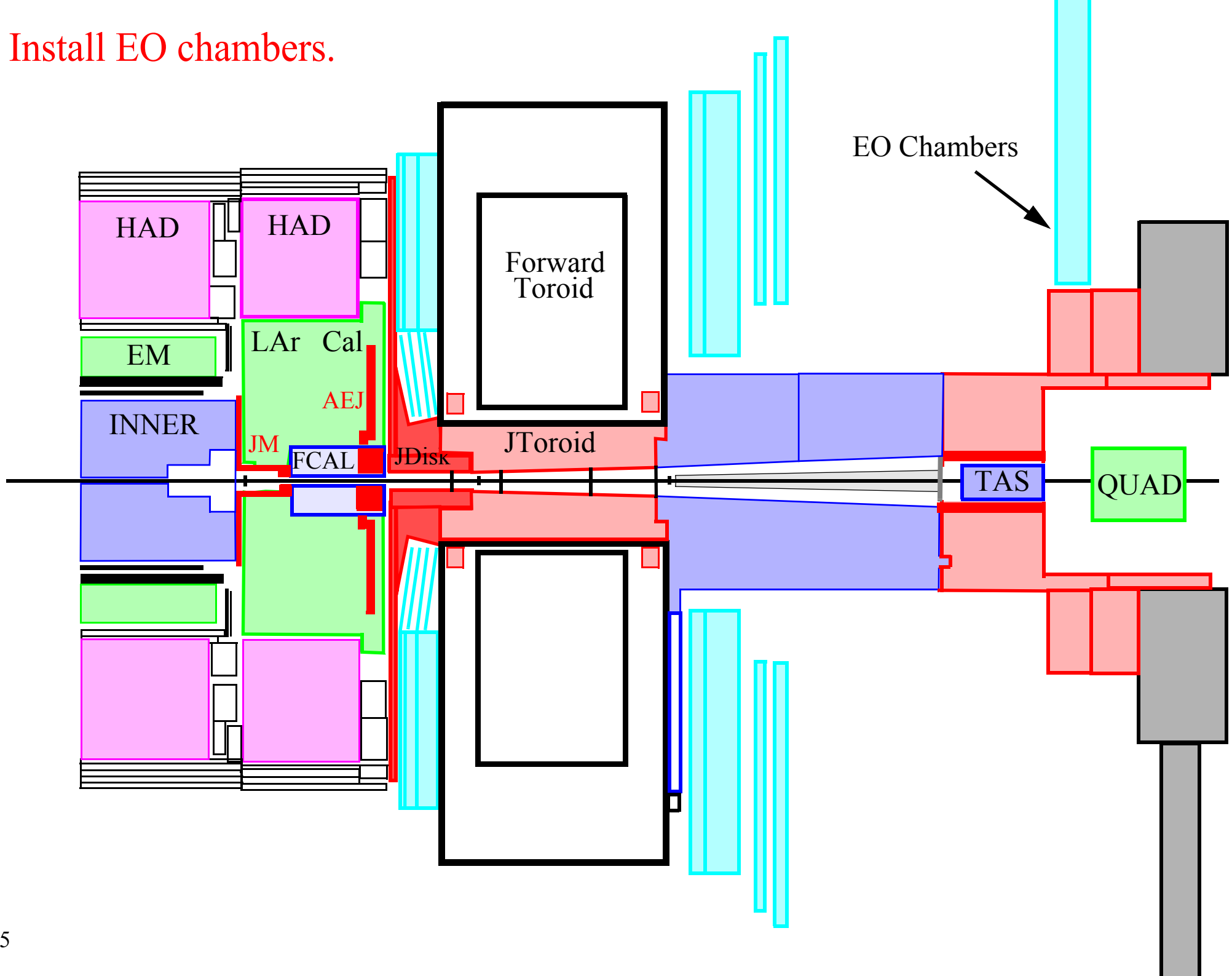


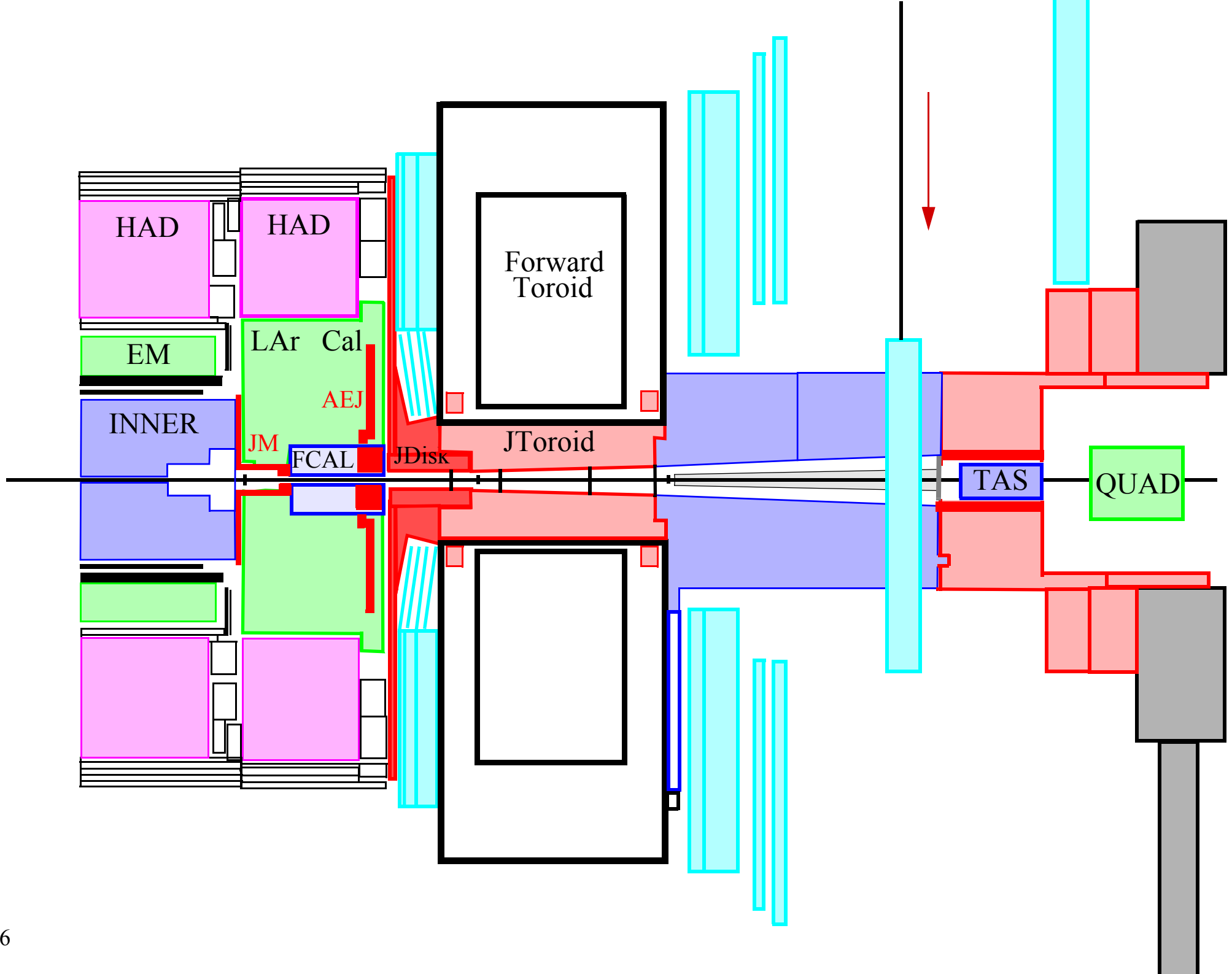


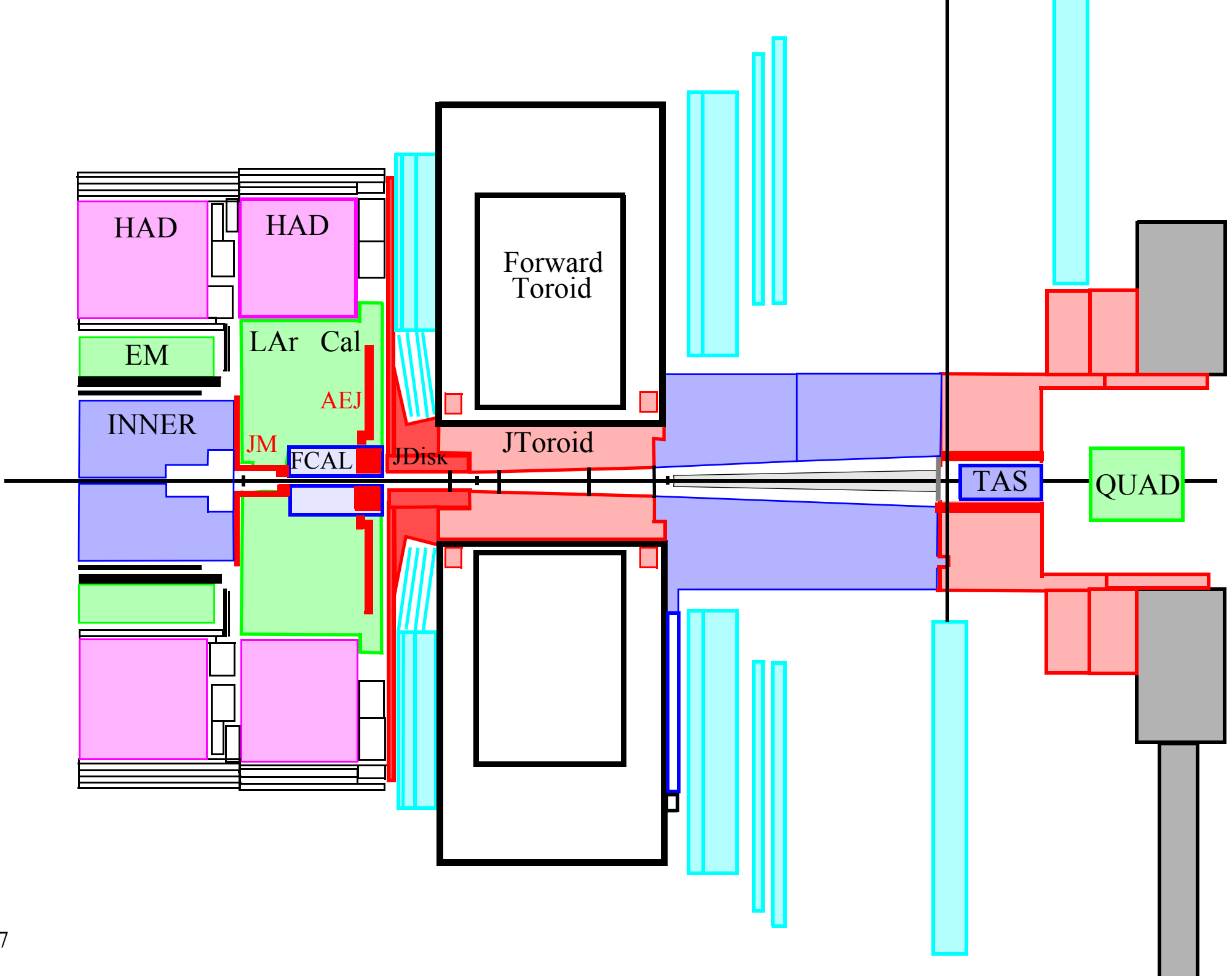


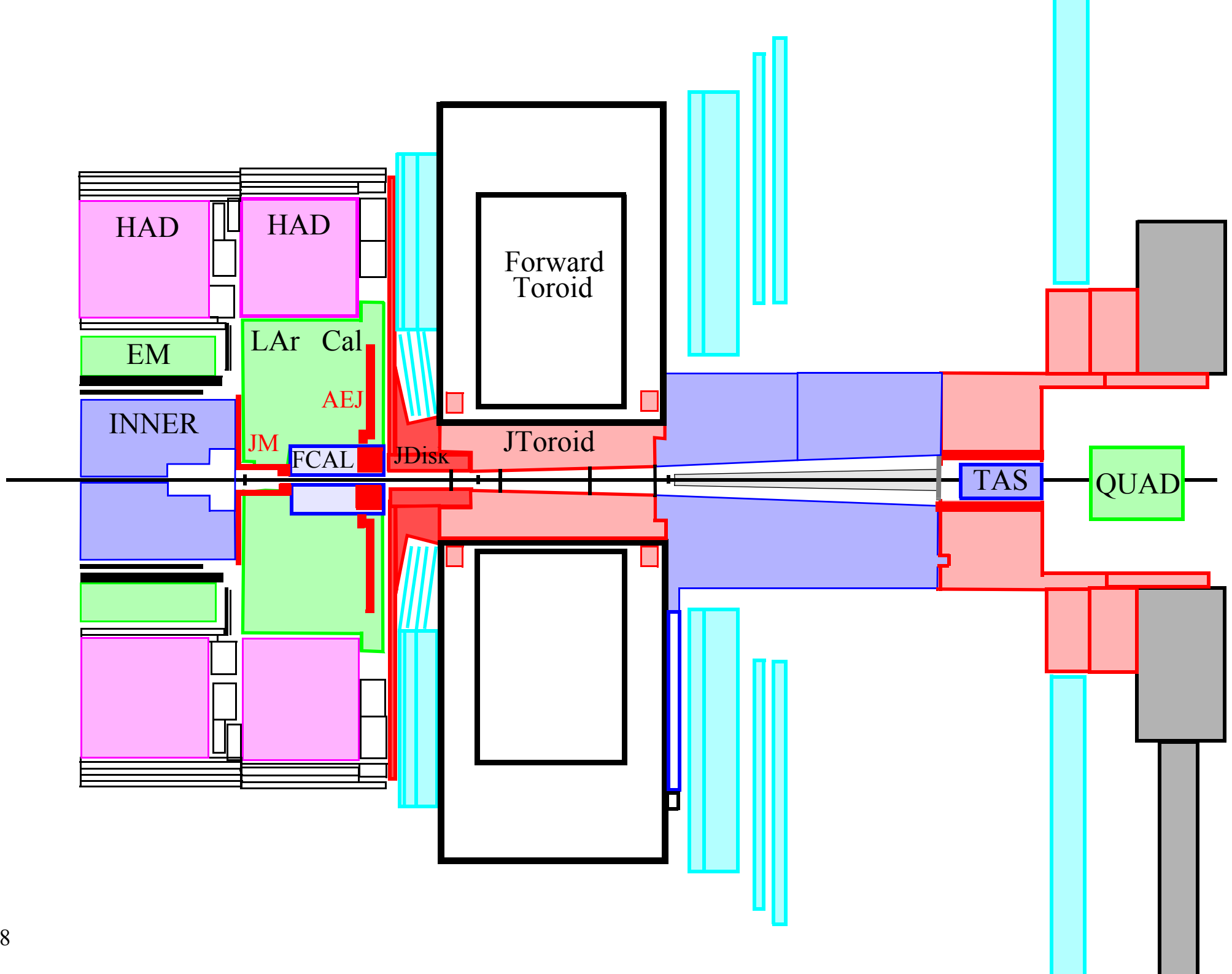


# Install EO chambers.

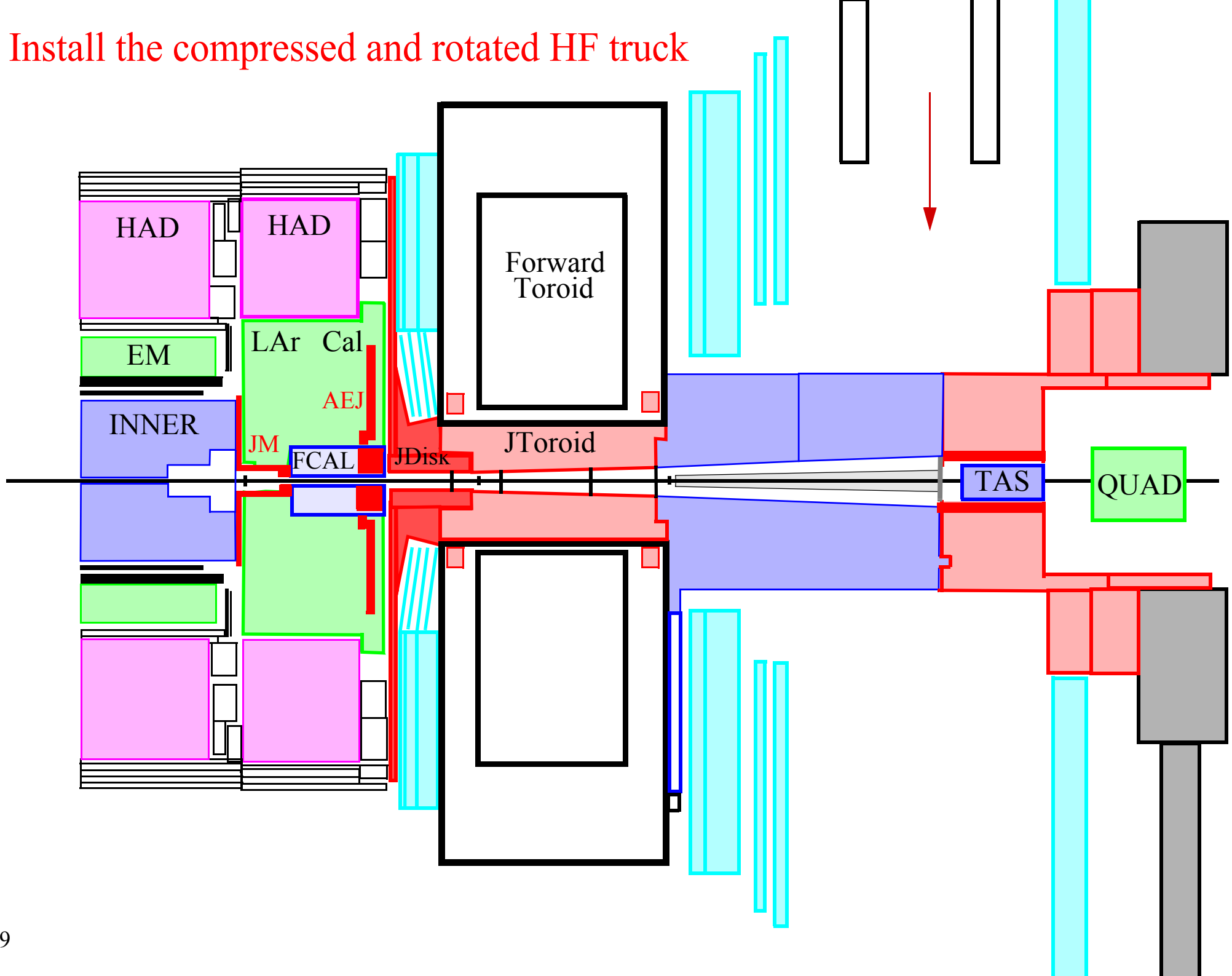




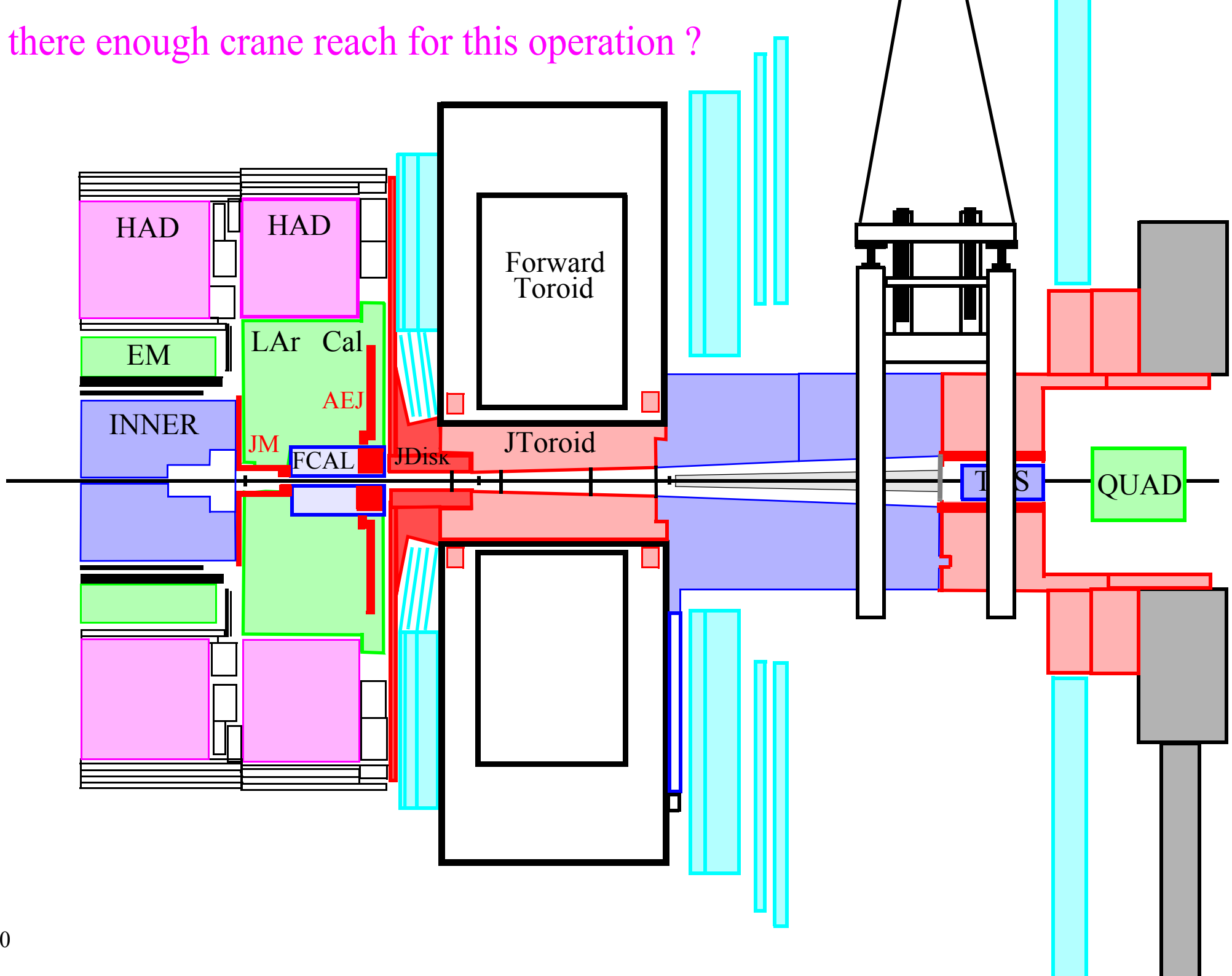


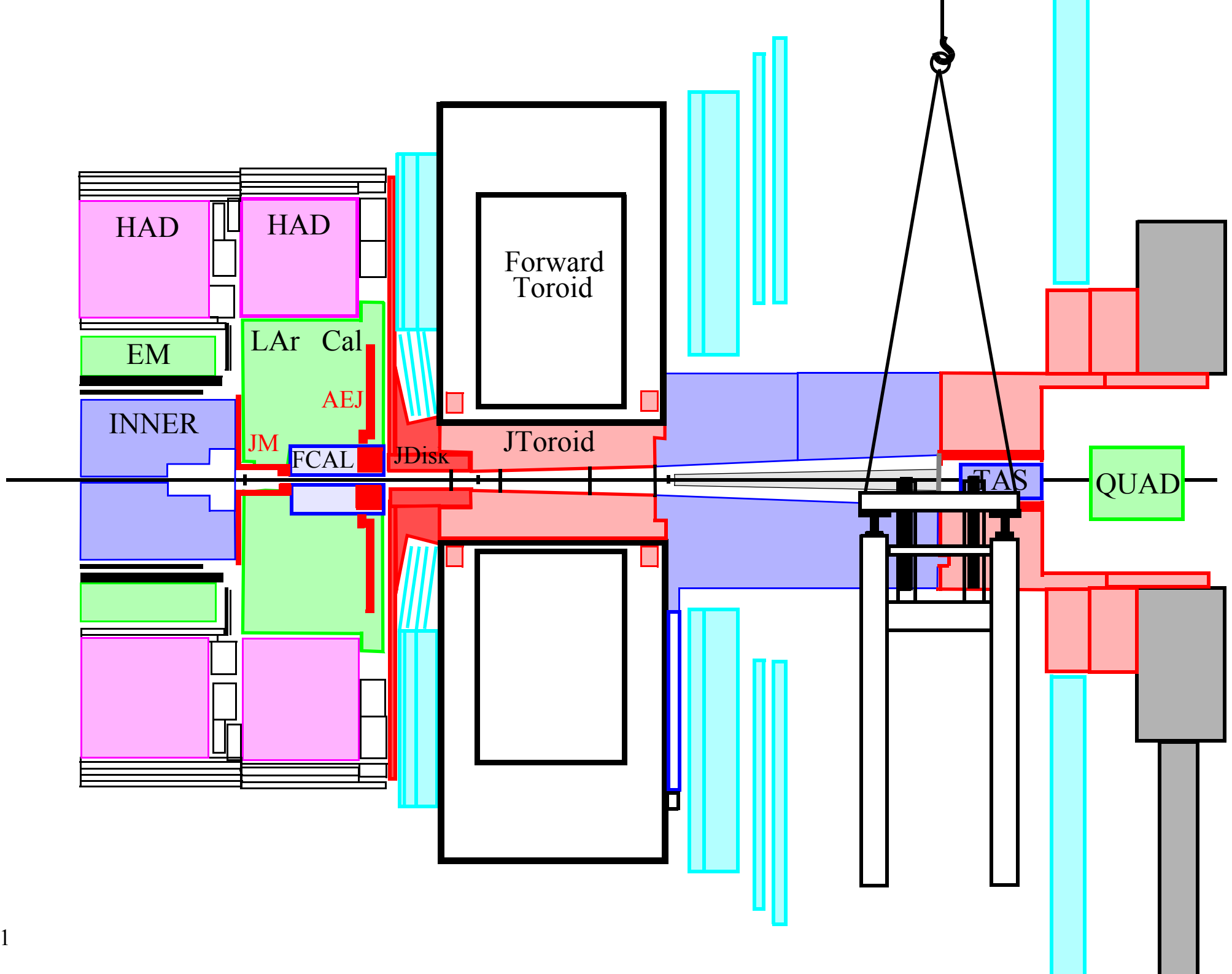


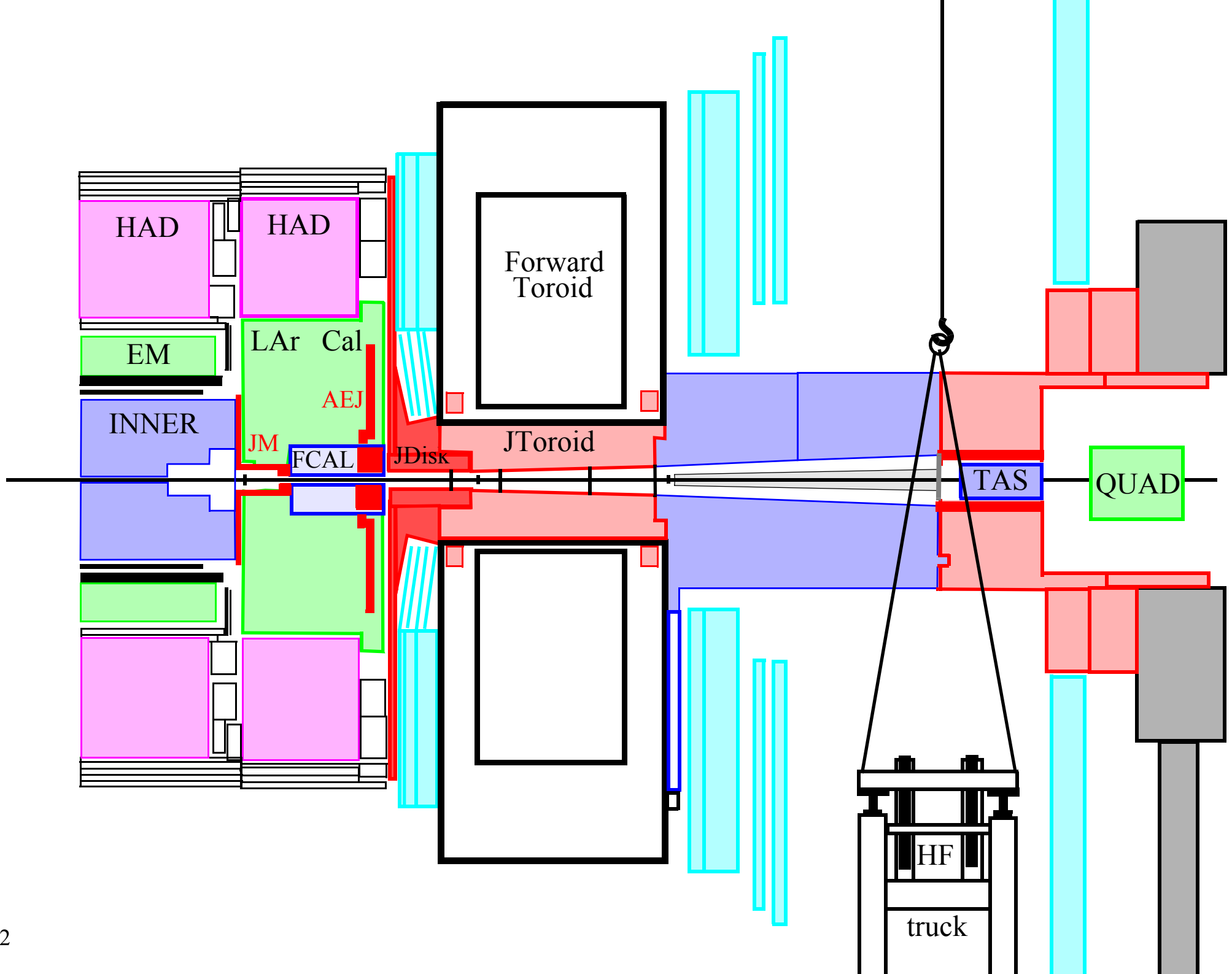
# Install the compressed and rotated HF truck



Is there enough crane reach for this operation ?

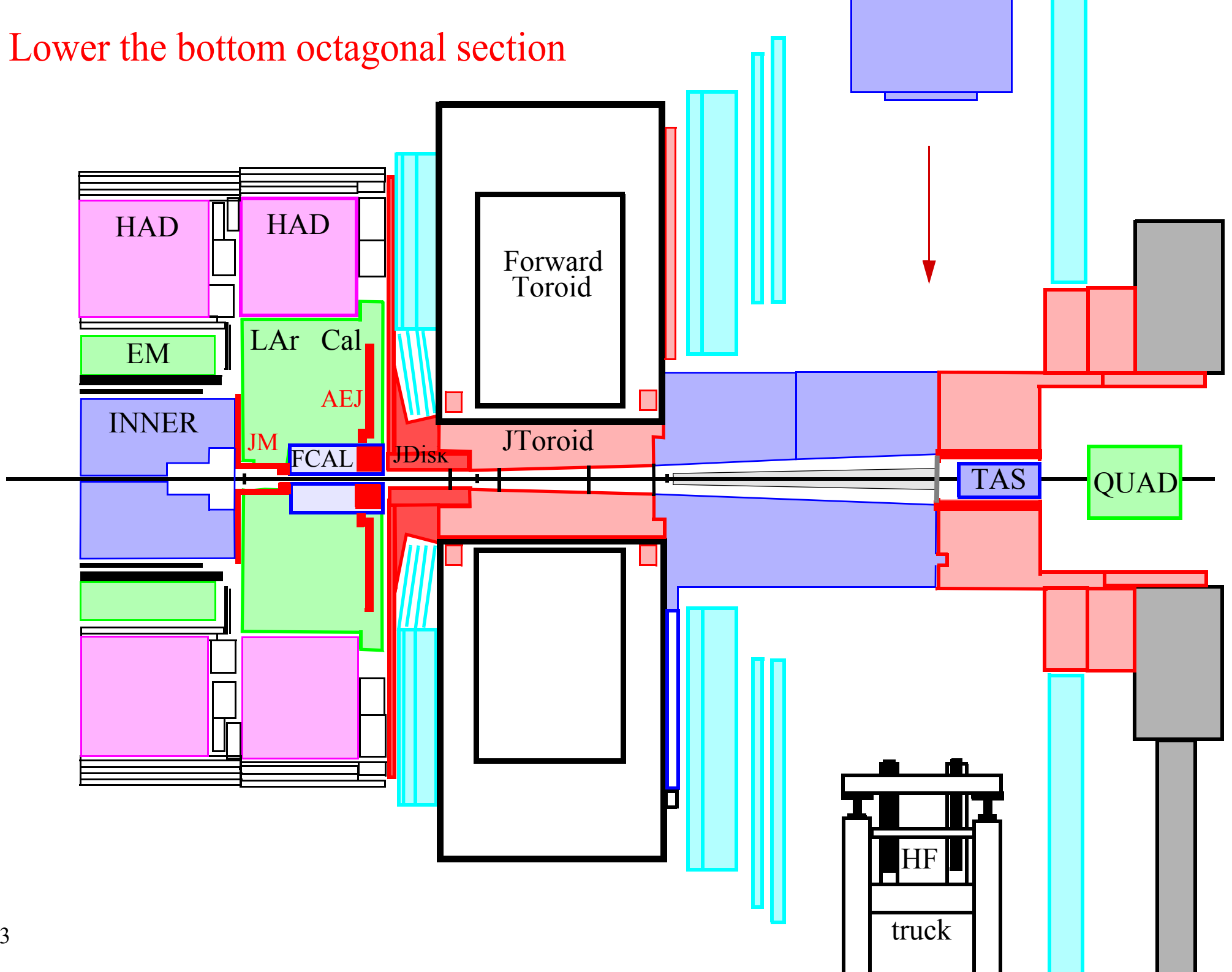


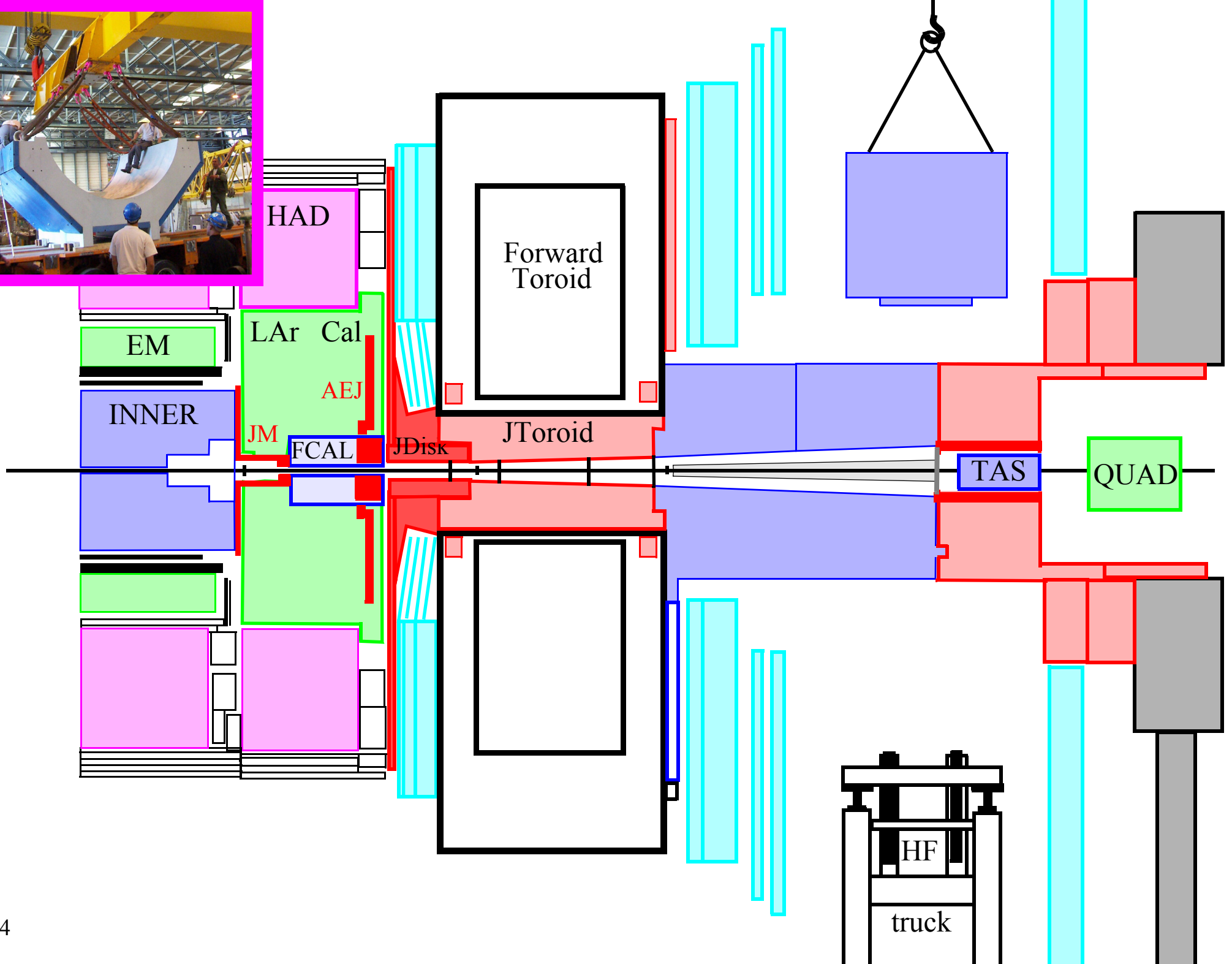


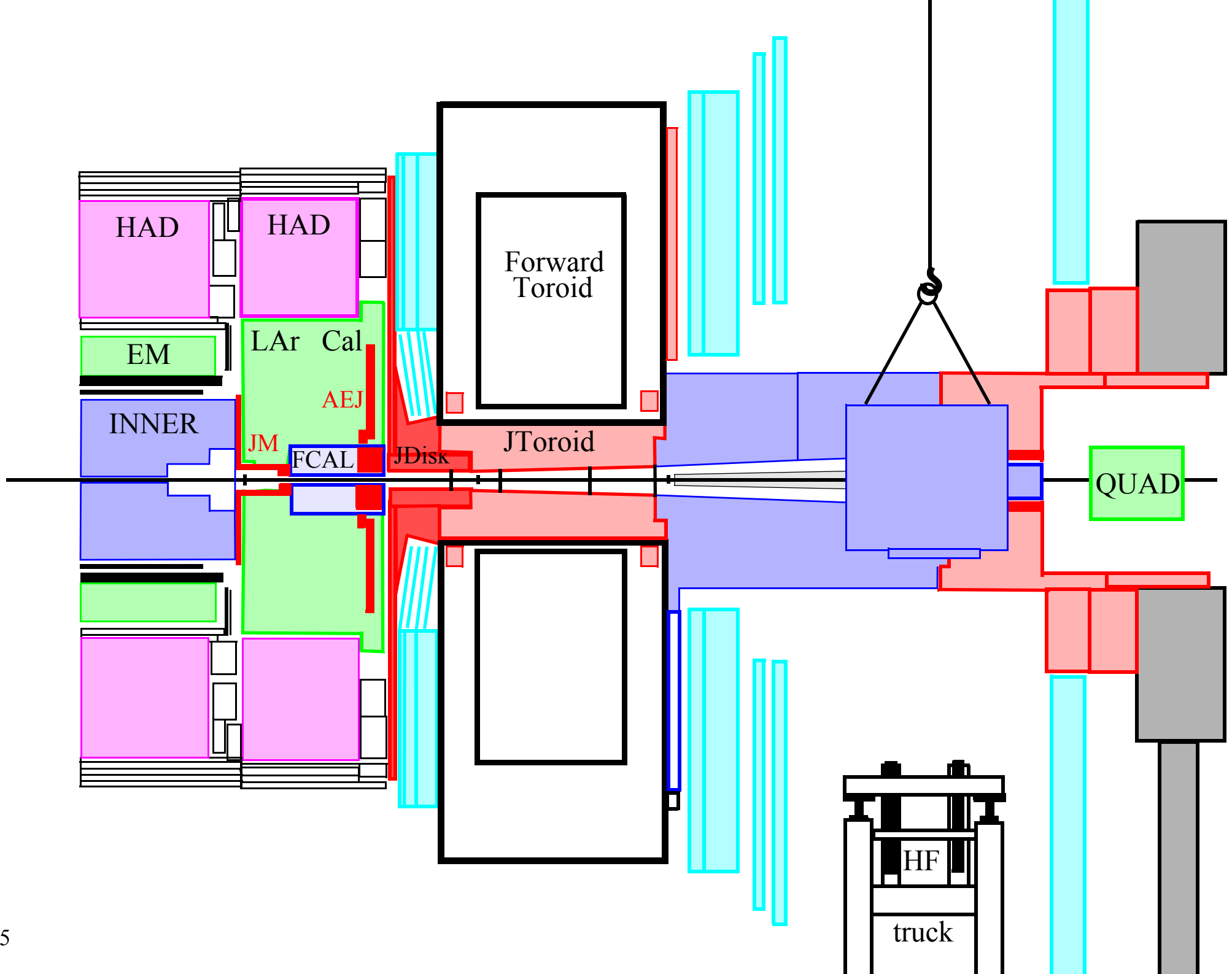


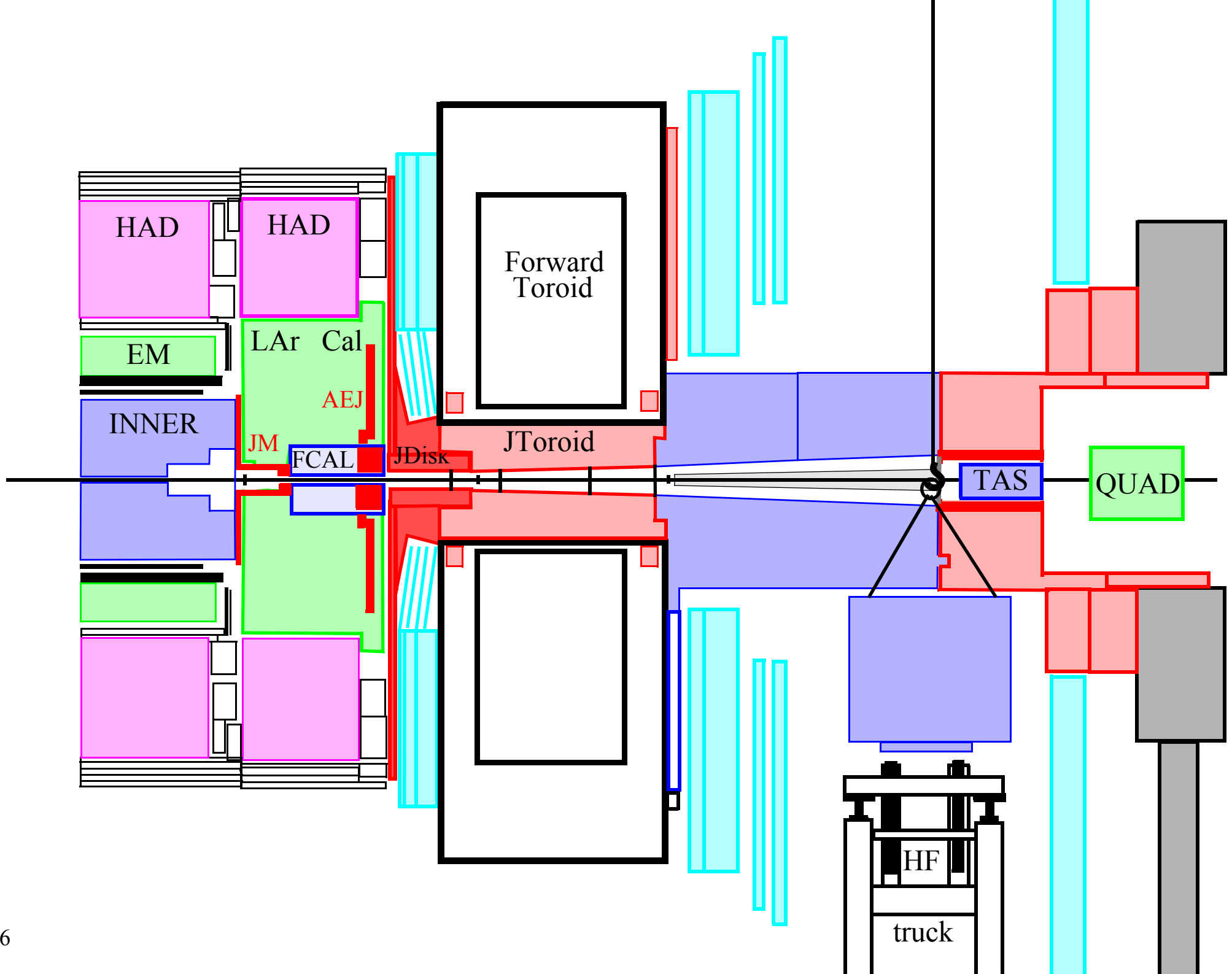


# Lower the bottom octagonal section

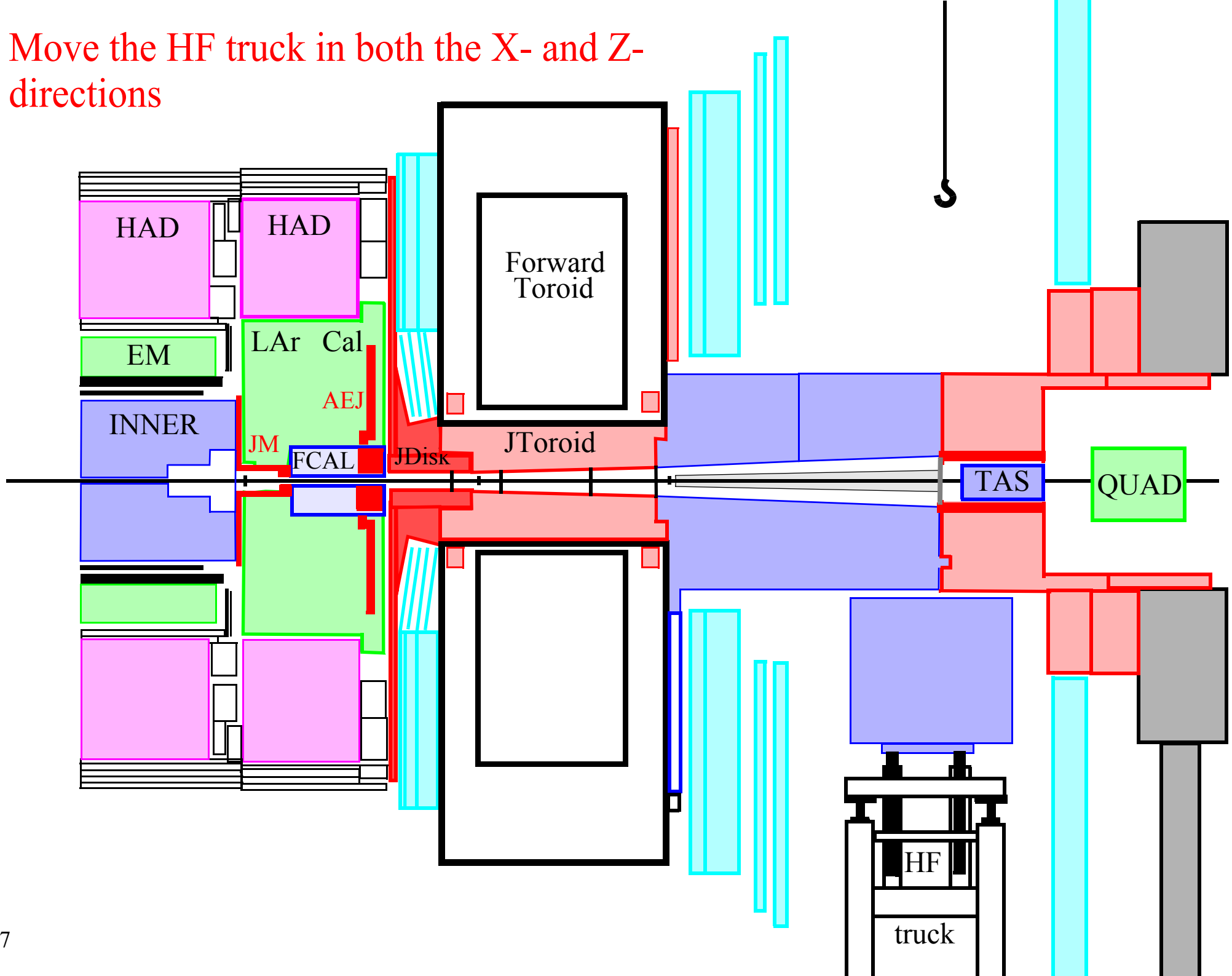


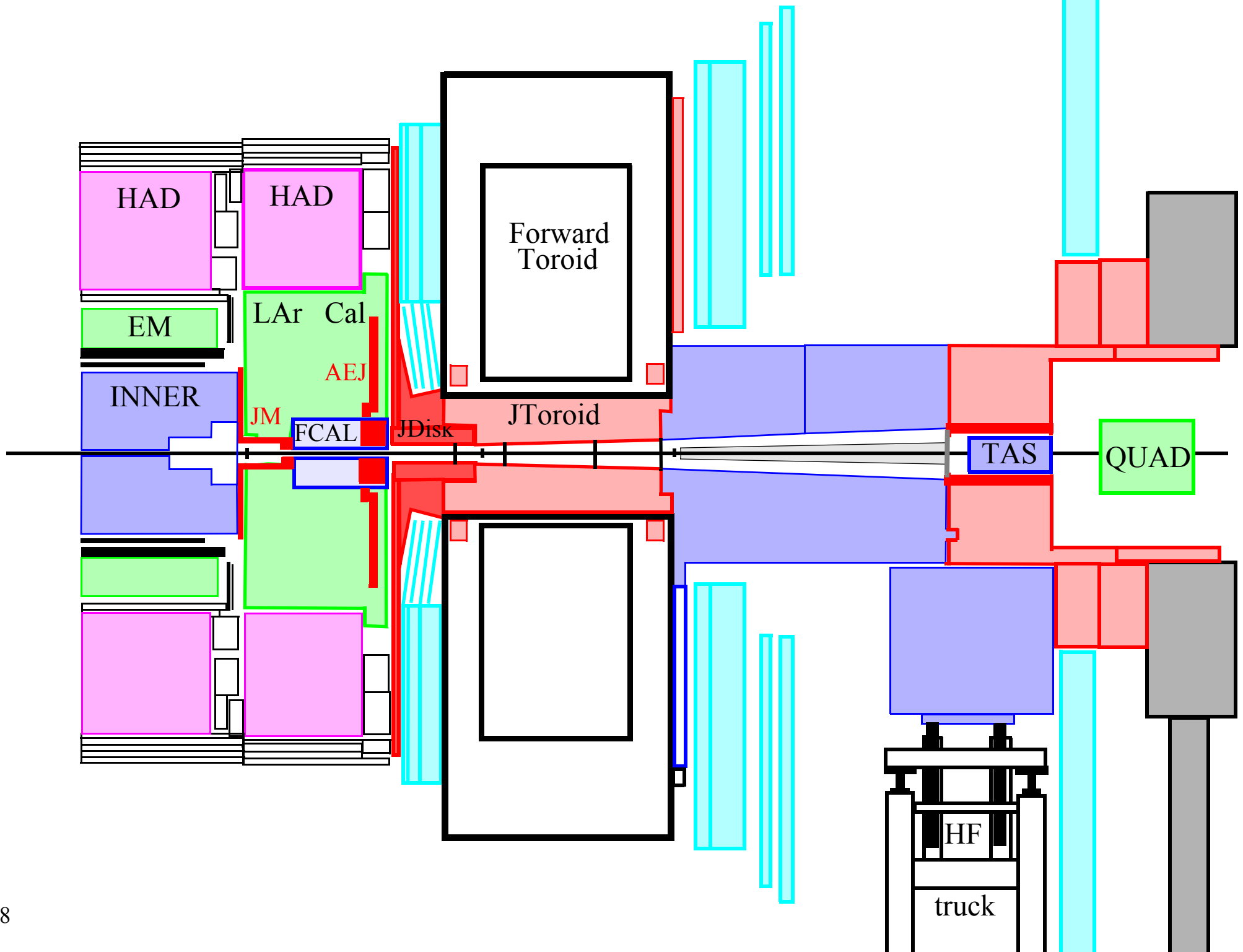




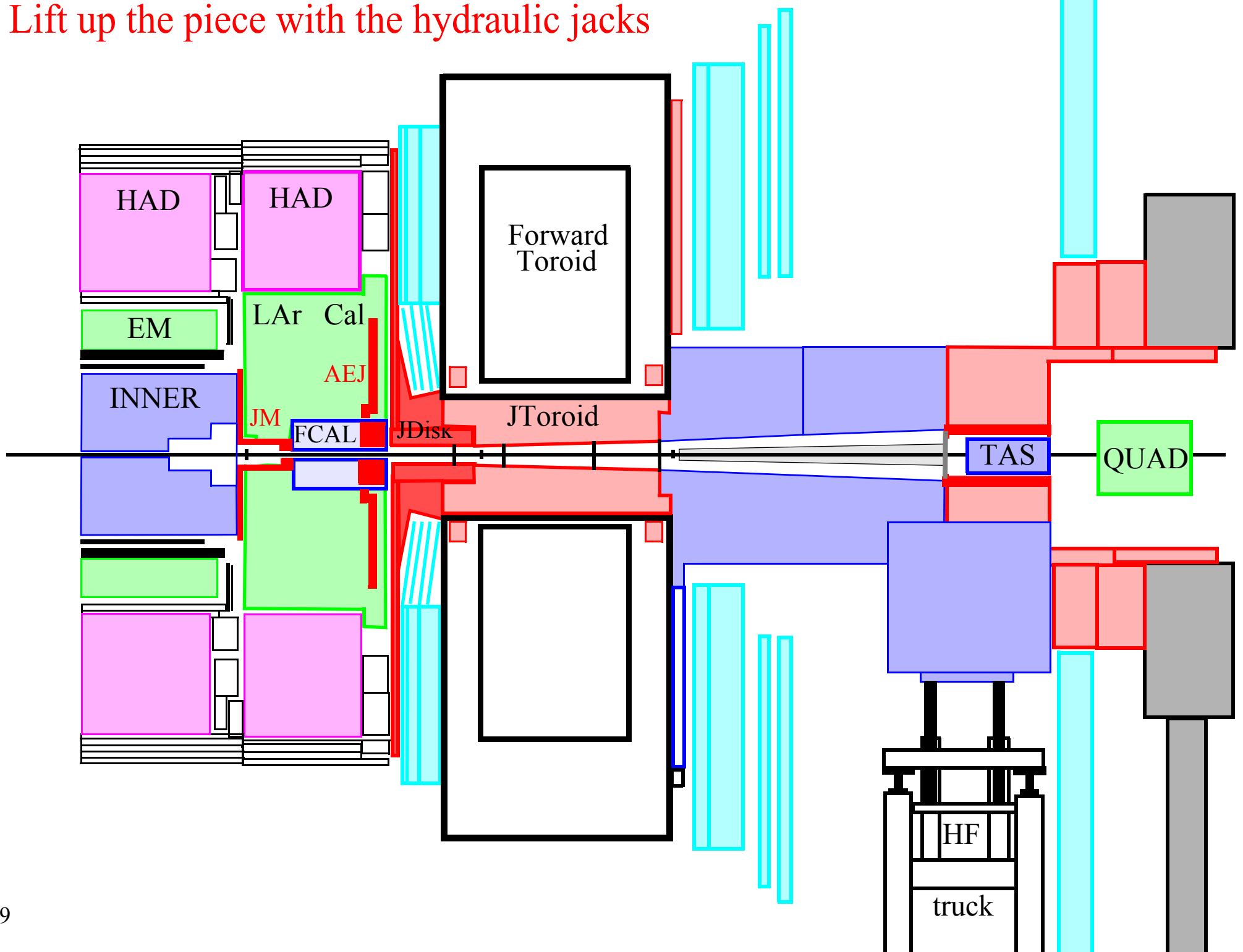


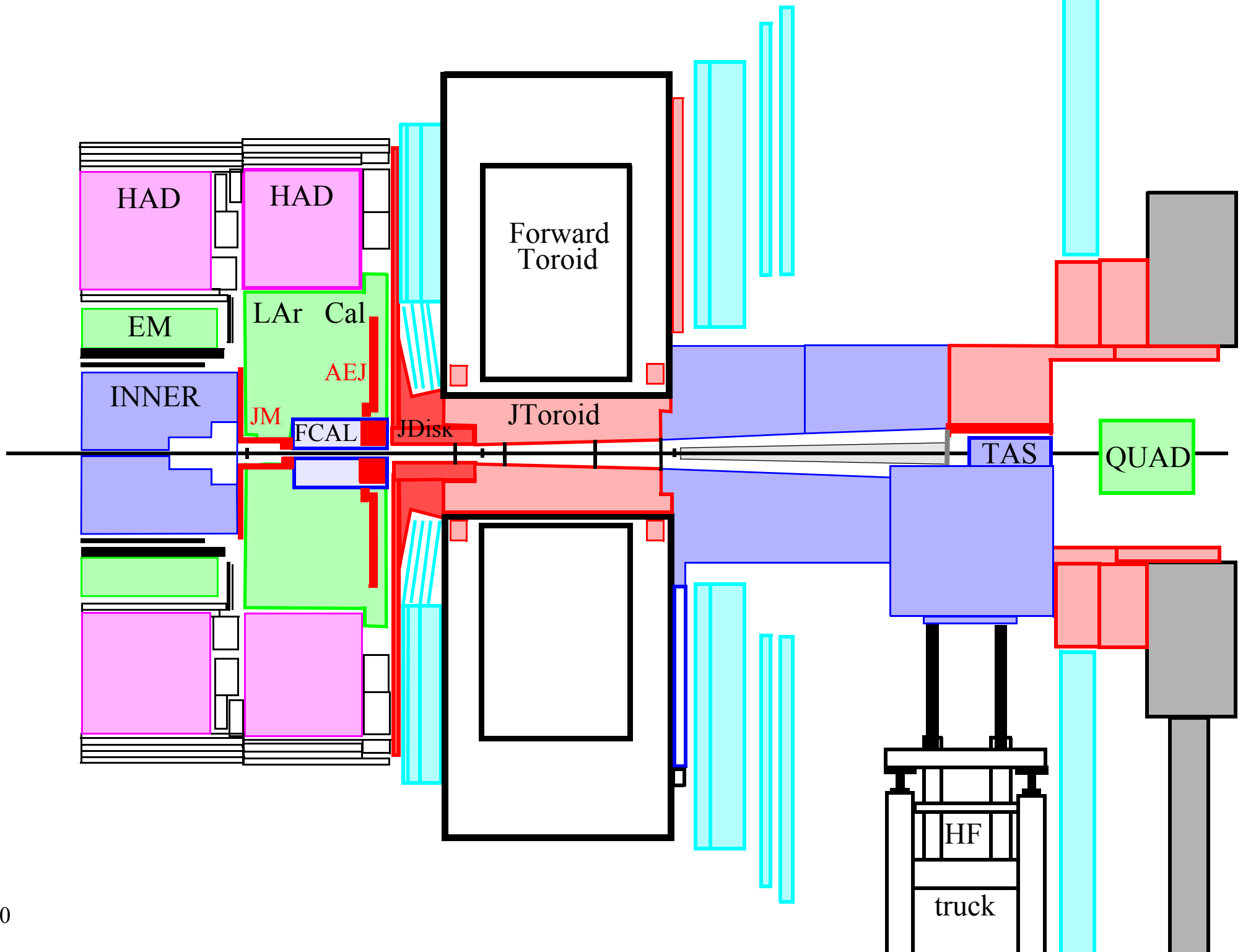
Move the HF truck in both the X- and Z- directions



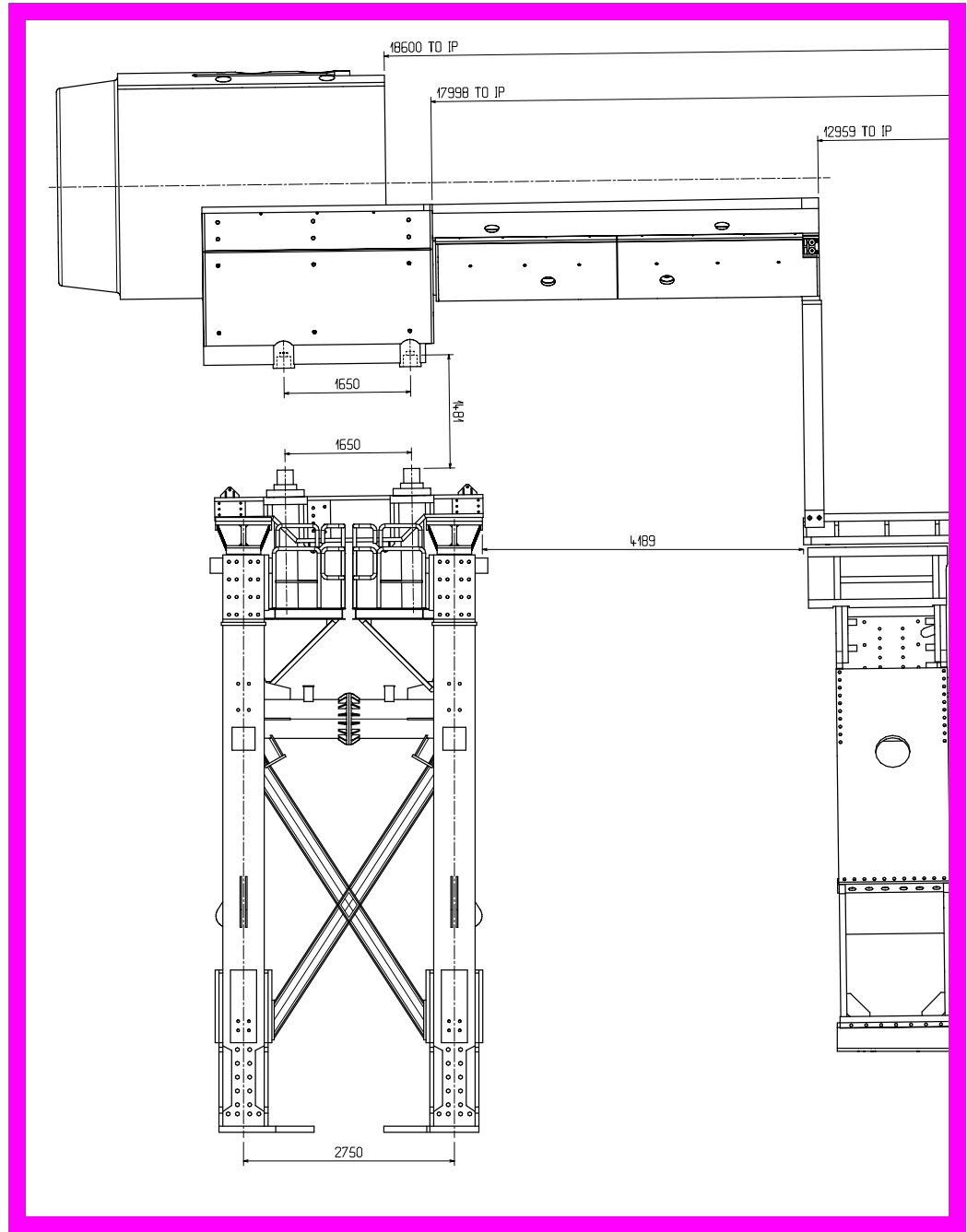
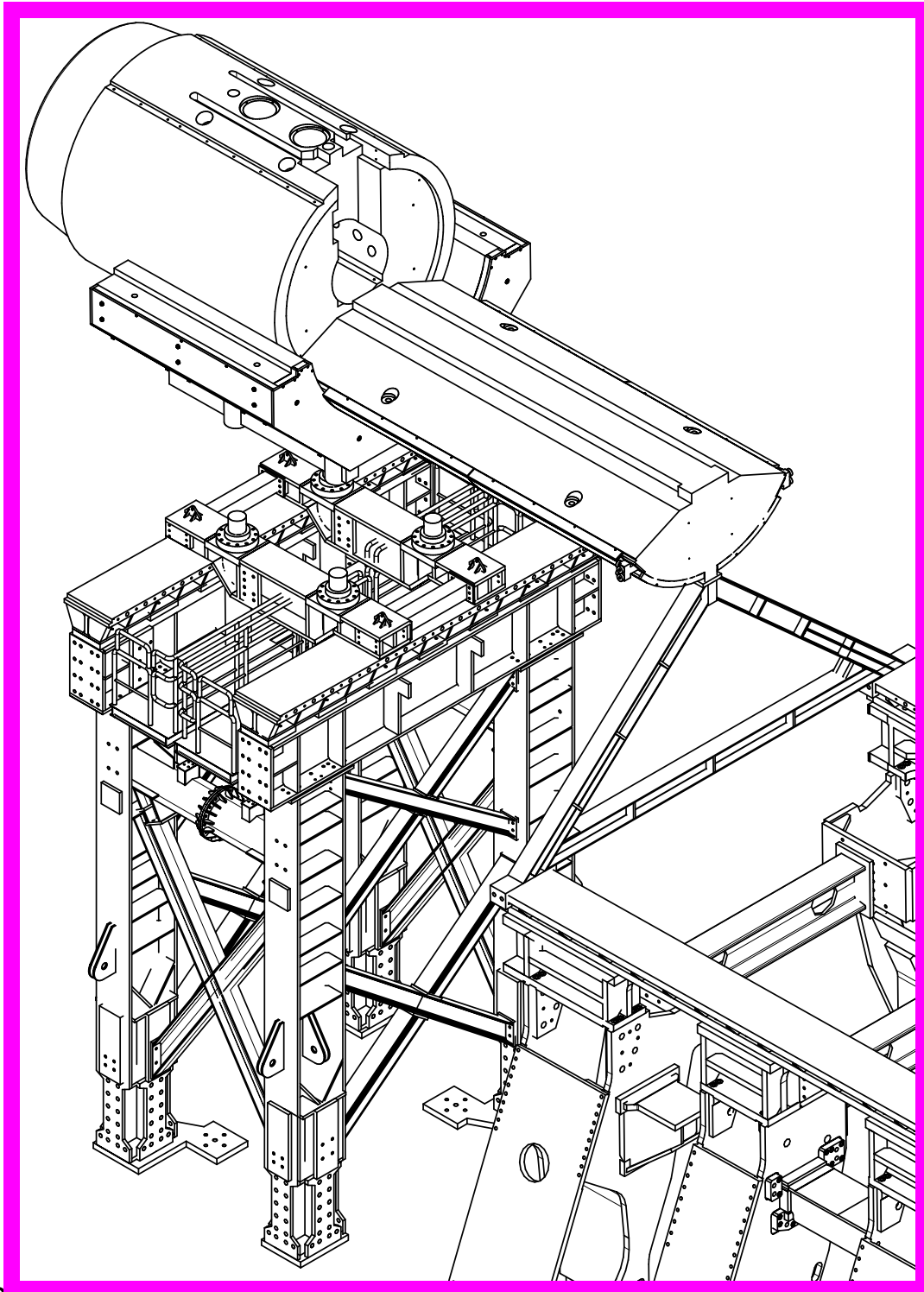


Lift up the piece with the hydraulic jacks

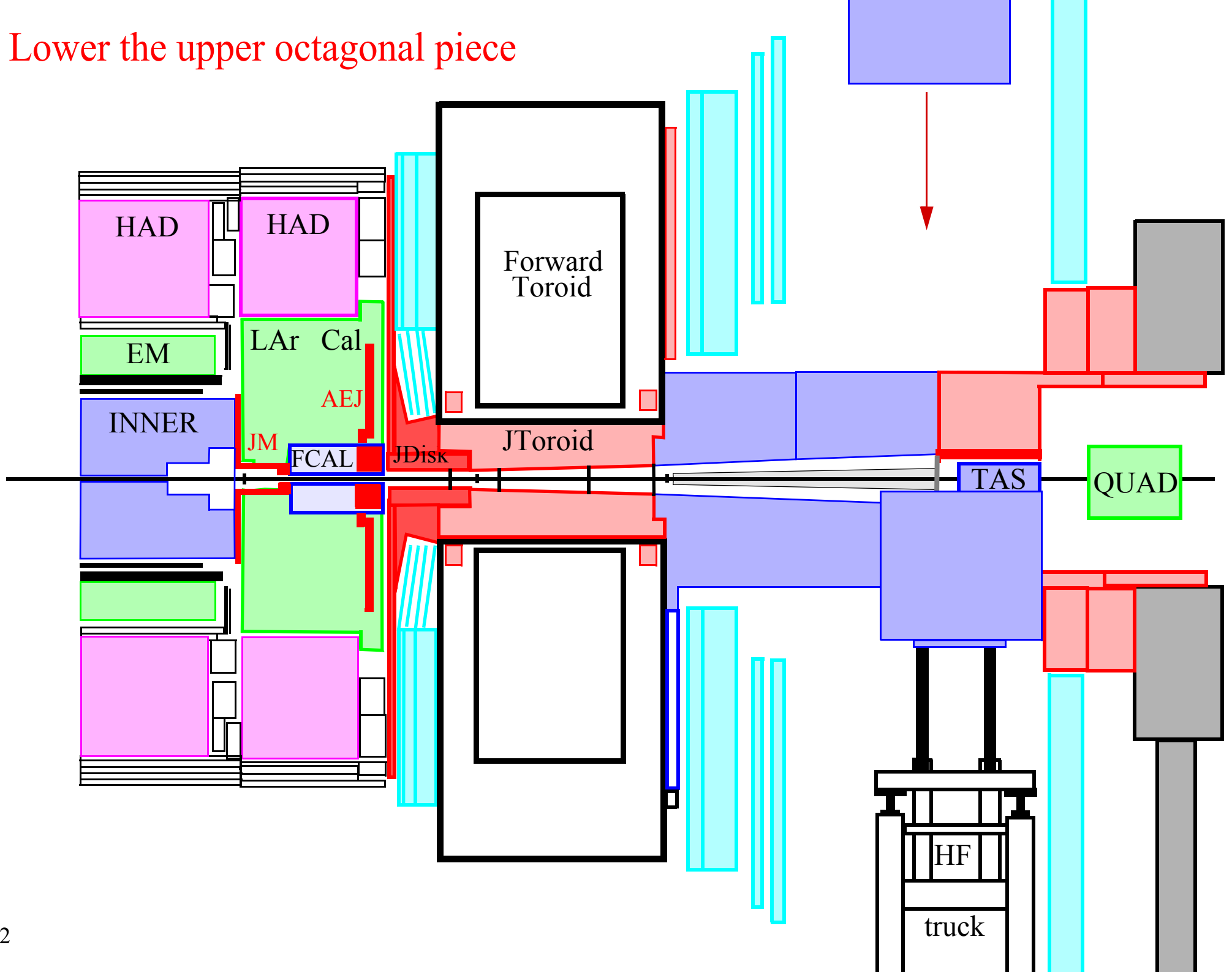


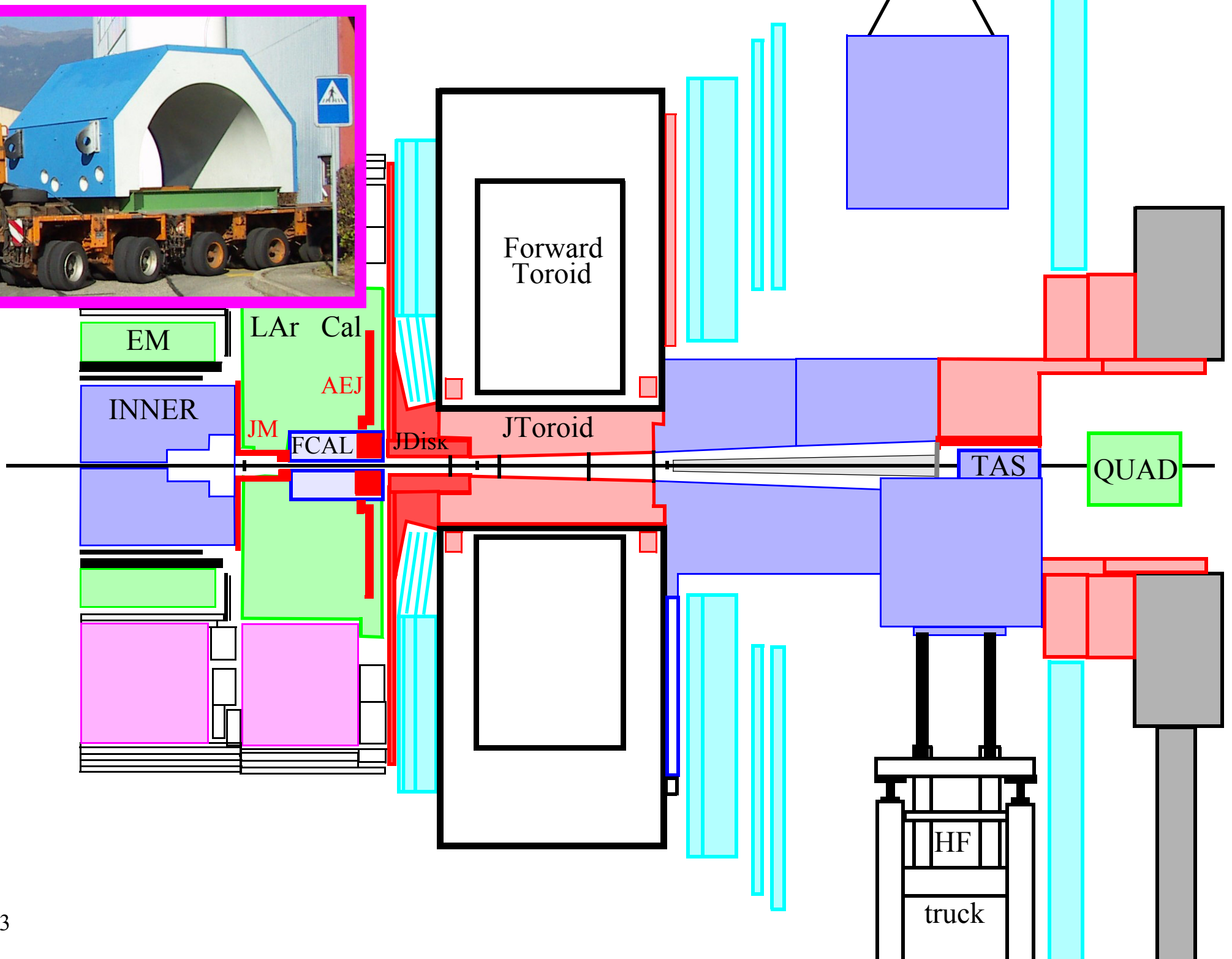


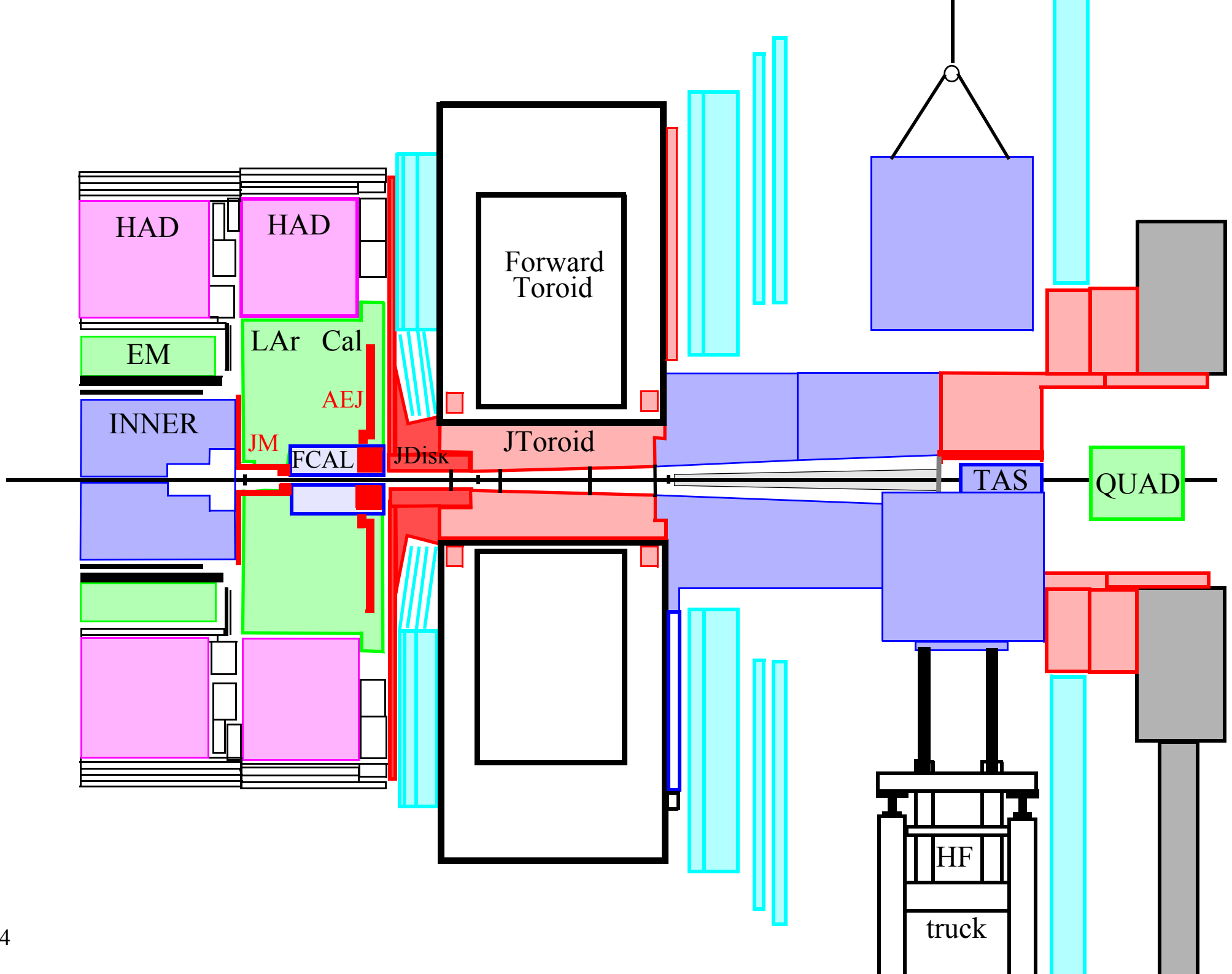




Lower the upper octagonal piece







Is there enough crane reach for this operation ?

