

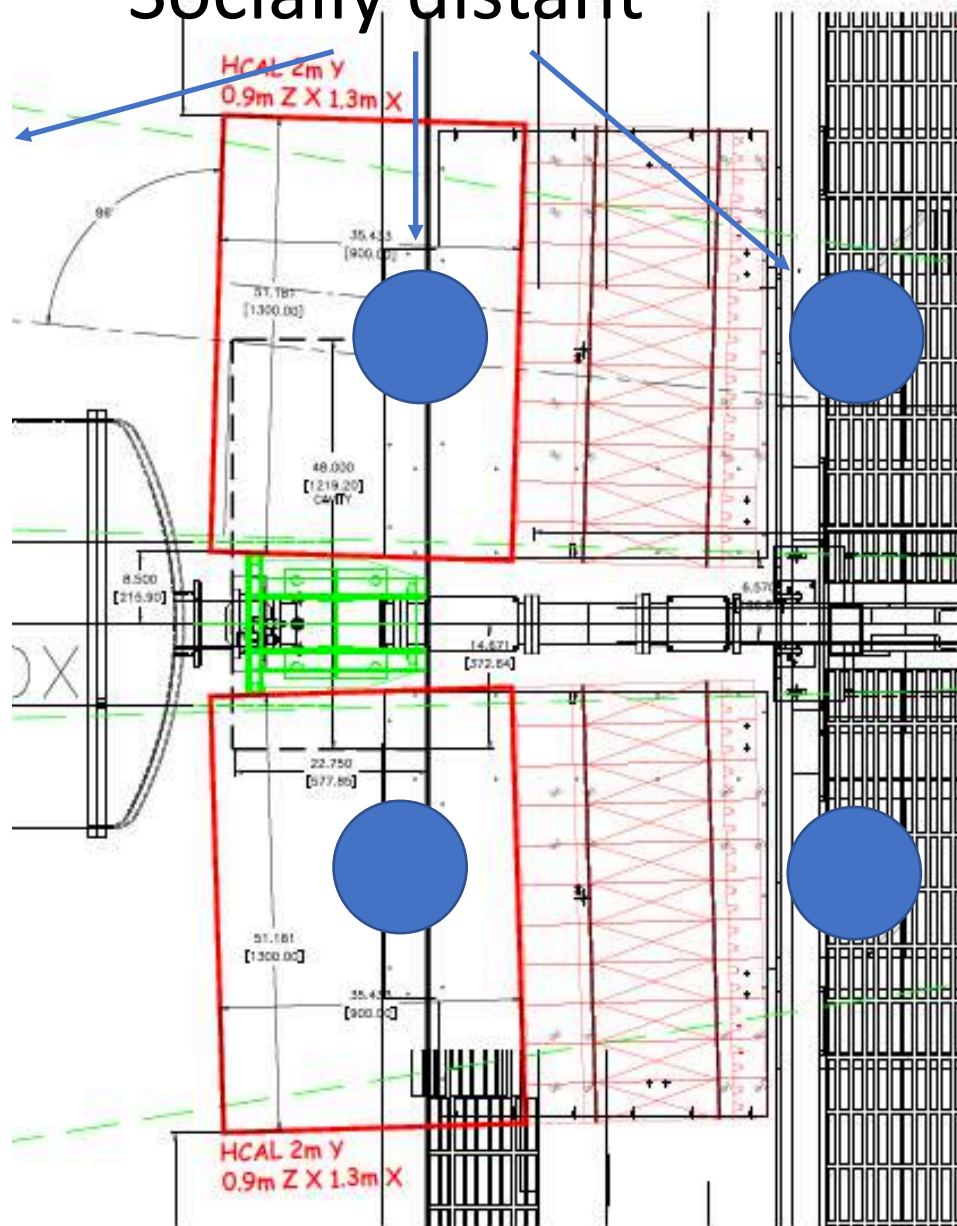
Discussion. Detailed Task List for ECal and Hcal.

O.Tsai(UCLA) f2f meeting, 21/07/2020

Goals:

- Identify missing tasks
- Identify Manpower
- Clarify schedule

Socially distant



Working at the Platform:

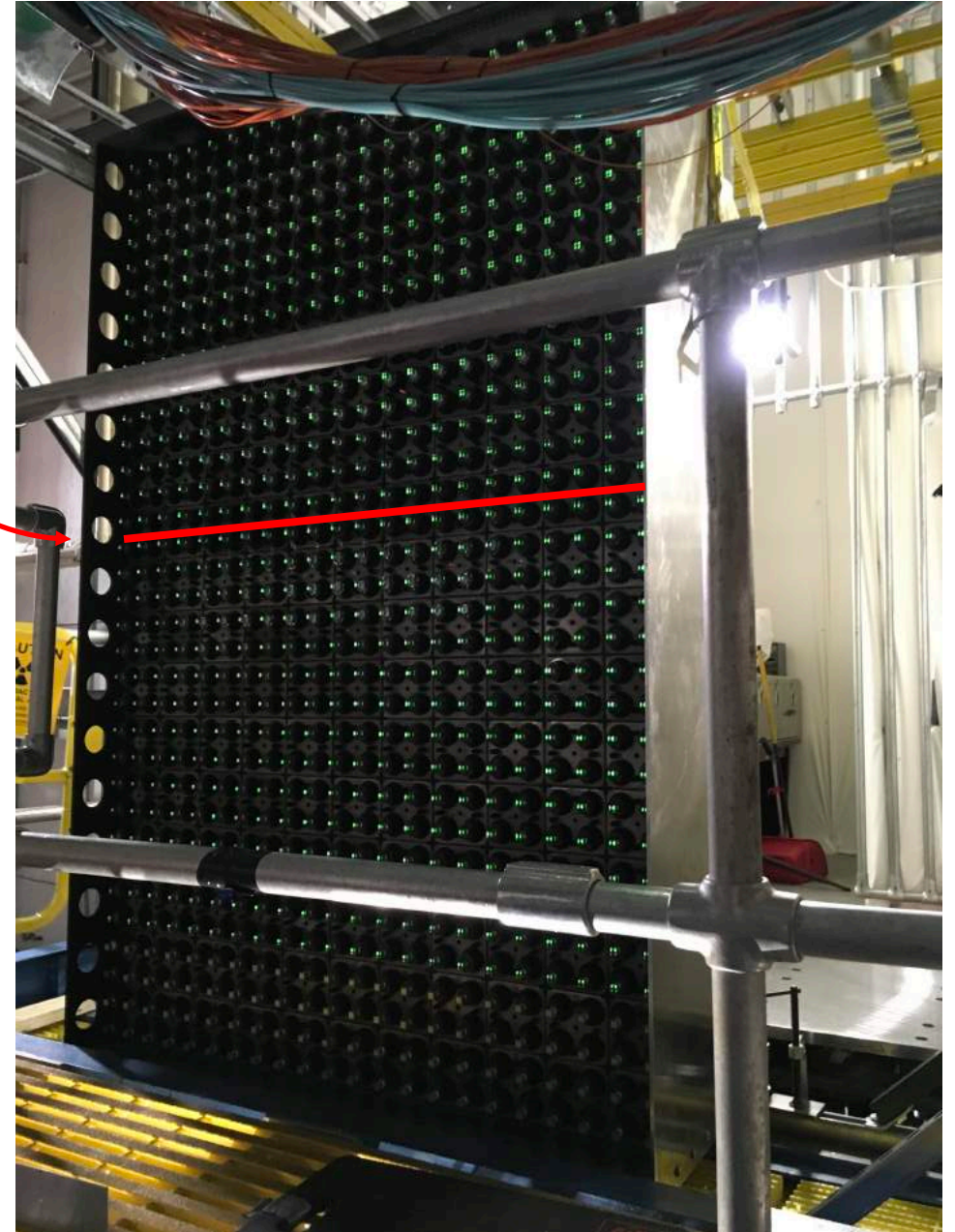
- Assumed that we can get six person working in the are.
- Some tasks can be done in parallel.
- Working on the back of Ecal with Hcal assembly in process will be very difficult.

EMCal Mechanical Tasks:

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1. Remove Steel Straps around enclosure.
2. Add tension bar to remove bowl on side walls
3. Find and put in place bottom black anodized angle, which was missing from last year.
4. Glue feedthrough cable inserts
5. Glue aluminum angles to the front cover plate
6. Install fans in fan box.
7. Test cooling.
8. Need to make cable feedthrough on the back for LED system.

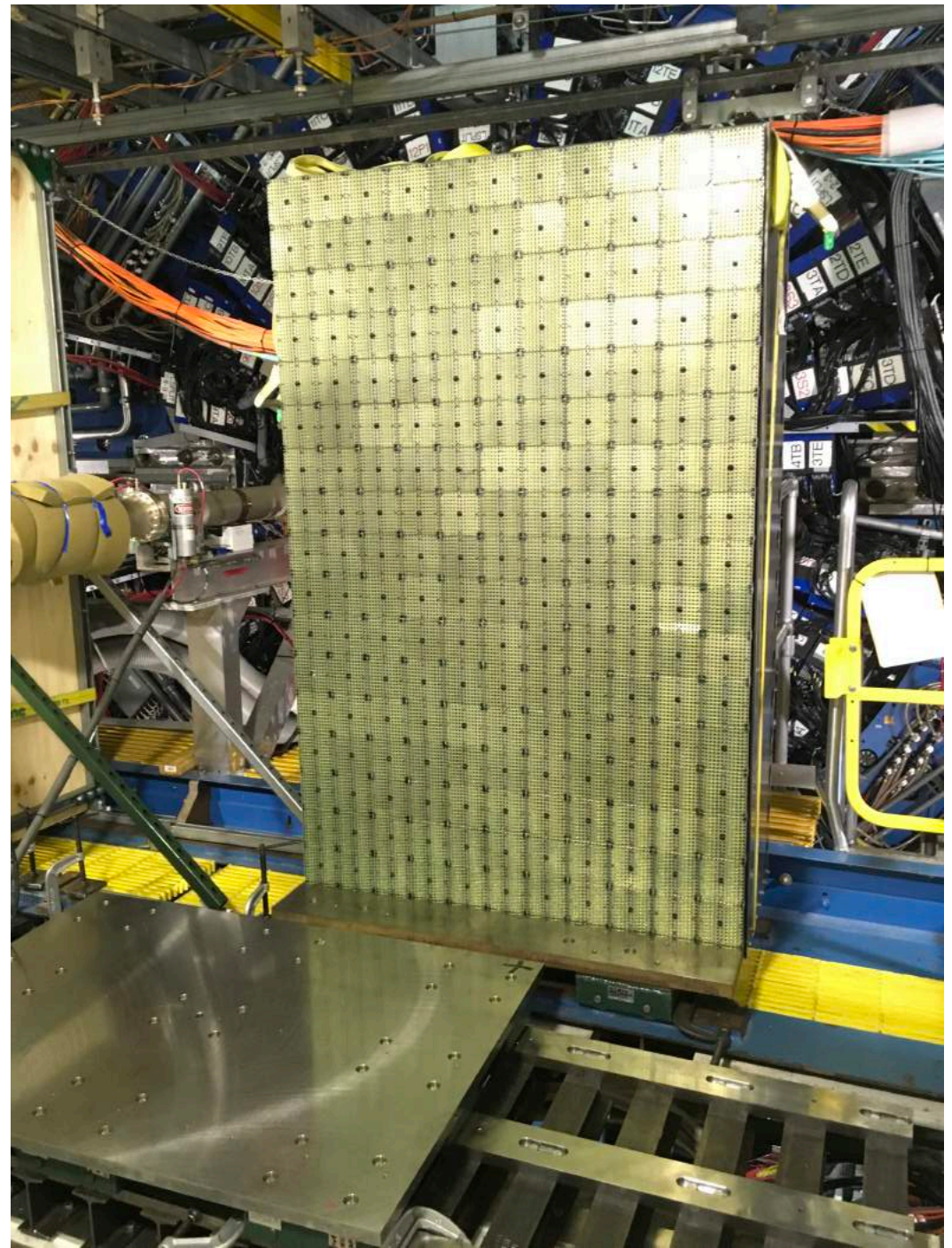
Manpower: STSG and Oleg



EMCal LED System:

1. Remove Back Covers.
2. Install LED boards.
3. Install LED cables.
4. Make cable feedthrough on the back cover for LED cables.
5. Test LED system.
6. Install back covers.
7. Make light tightening.

Manpower: Tim + help from STSG + Oleg



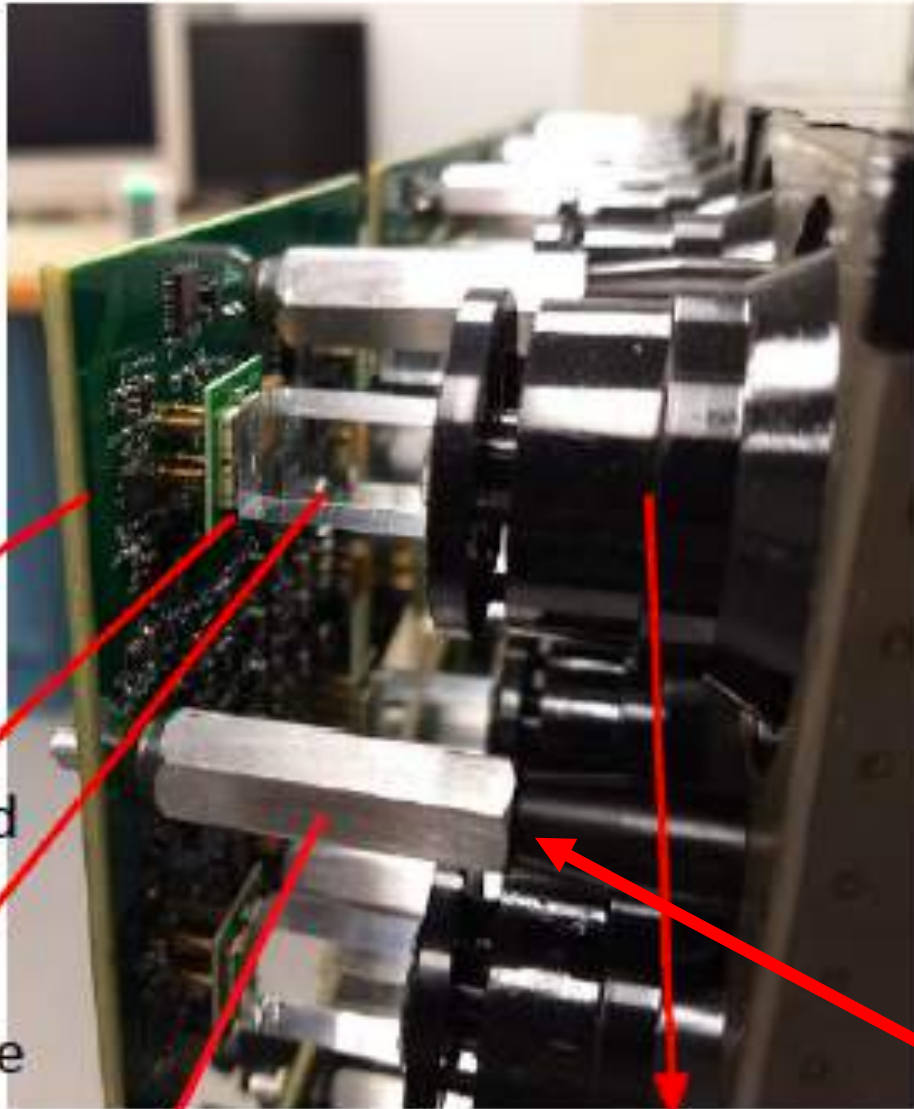


EMCal SiPMs:

1. Install FEE standoffs. (STSG)
2. Glue SiPM boards to light guides and check alignment. **Manpower (Mike+Student+Oleg)**
3. Produce map of SiPM boards on detector (Board serial number – position) **Manpower (Mike+Student+Oleg)**

STGS ,need to make good lightening of the area. Lots of visual inspections at this stage.





FEE Card

SiPM Board

Light Guide

FEE Standoffs

Fiber bundle³

EMCal Electronics inside enclosure:

1. Install FEEs. **Manpower?**

2. Produce map. (FEE Board serial number – position)

Manpower?

3. Install cables FEE-to-Patch Panel.

Manpower?

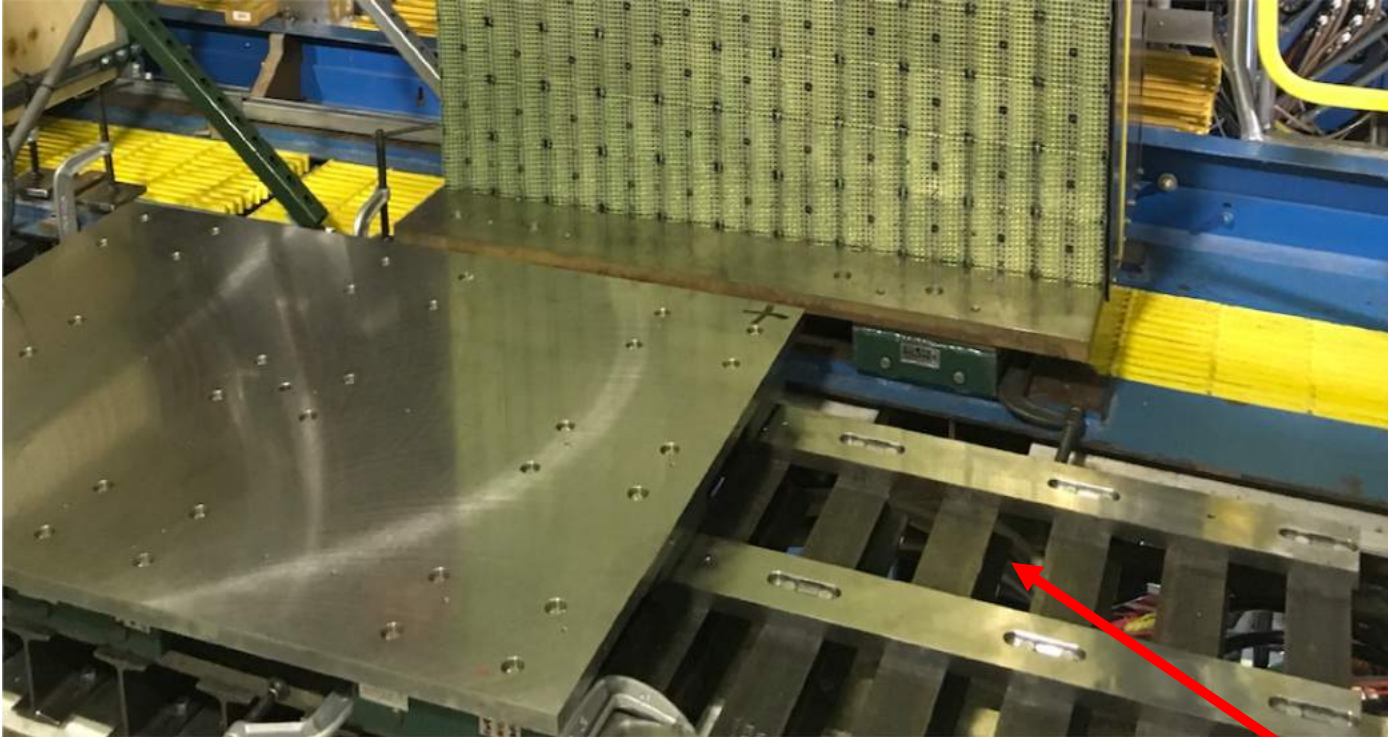
(Mike, Tim, Akio, Student)

It may be variations in height of Standoffs + blocks mounting pins. May need to make adjustments for some, hopefully very few blocks if any may need this.



EMCal Electronics, Patch panel, cabling to DEP:

1. Install Patch Panels. **Manpower? (Mike,Tim)**
2. Connect signal/power/control from FEE to patch panels. **Manpower? (Mike,Tim)**
3. Connect signal/power from patch panels to electronics rack (DEP, Power Supply). (**not necessary all**) **Manpower? (Mike,Tim)**
4. Make light tightening. Cables feedthrough and front cover. **At this stage ECAL is ready for initial commissioning.**



External. CAD should do modification of vacuum pump before we'll start Hcal assembly.

Hcal Mechanics:

1. Shim/re-align roller boxes.
(this has to be done at position where we'll be doing stacking)
 2. Install stoppers on rails.
 3. 'Anchor' on the wall for hcall pulling.
 4. 'Anchor' on the baseplate? Or it is existing holes
 5. Put protection boards/thick film to cover openings in the rails. We'll have lots of small metal hardware which can get into electronics racks (washers, small screws, nuts, dowel pins etc.)
 6. Install/align HCAL base plates.
- 1-5 STSG, 6 STSG+Oleg**

Some parts will need to be cleaned before we start staking.

1. Dowel Pins all in oil, they will be shipped to BNL as they are now and have to be cleaned before use.
2. Small master plates at BNL, covered with light oil to prevent rusting – need to be cleaned
3. Large master plates may be oiled, hopefully not. Need to clarify.

All this mean we need enough supplies to do degreasing on some parts at BNL.



Staking is a back breaking job, we have to do it right at STAR.



Stacking, re-stacking at FNAL in 2014, 2019

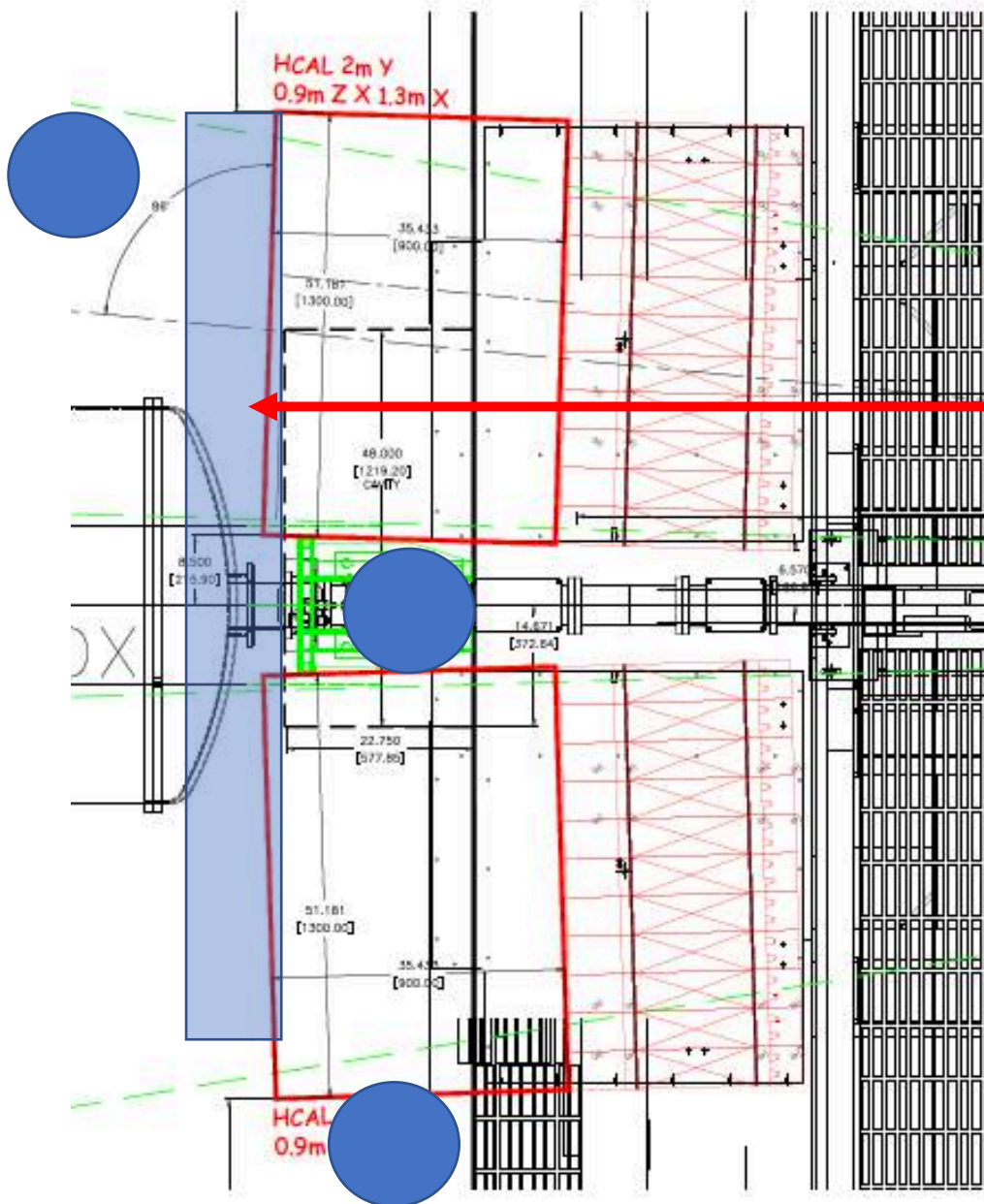
No social distancing,

Ergonomically correct. Waist high.

To minimize handling of absorber blocks for south side
I thought of using 4" high

Bench-Top Belt Conveyor
with Variable Speed, 10 Feet Long, 12" Belt Width

6" belt width



Even if we decide on pre-stacking absorber blocks on south side it is still may be very useful.
Passing blocks from North-to-South is quite awkward.

Action items:

- Need to check what will fit under DX magnet/pump.
- Need to think what tools we need to avoid repetitive bending

Hcal Layer Stacking Cycle:

1. Insert dowel pins
2. Put absorber plates
3. Put dummy WLS plates
4. Insert scintillator plates
5. Remove dummy WLS plates
6. Calibrate WLS/SiPM plate
7. Insert WLS/Sipm plate
8. Insert reflector/mask
9. Put master plates

REPEAT 20 times

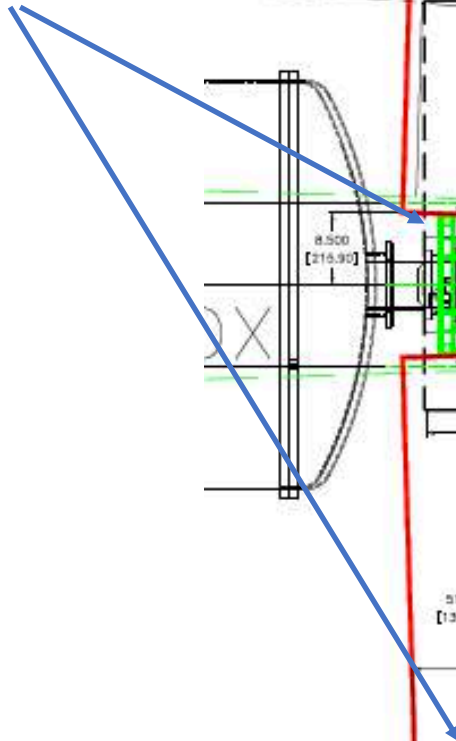
Assumed at least two person doing stacking.
North/South Sides
COVID?

Manpower?

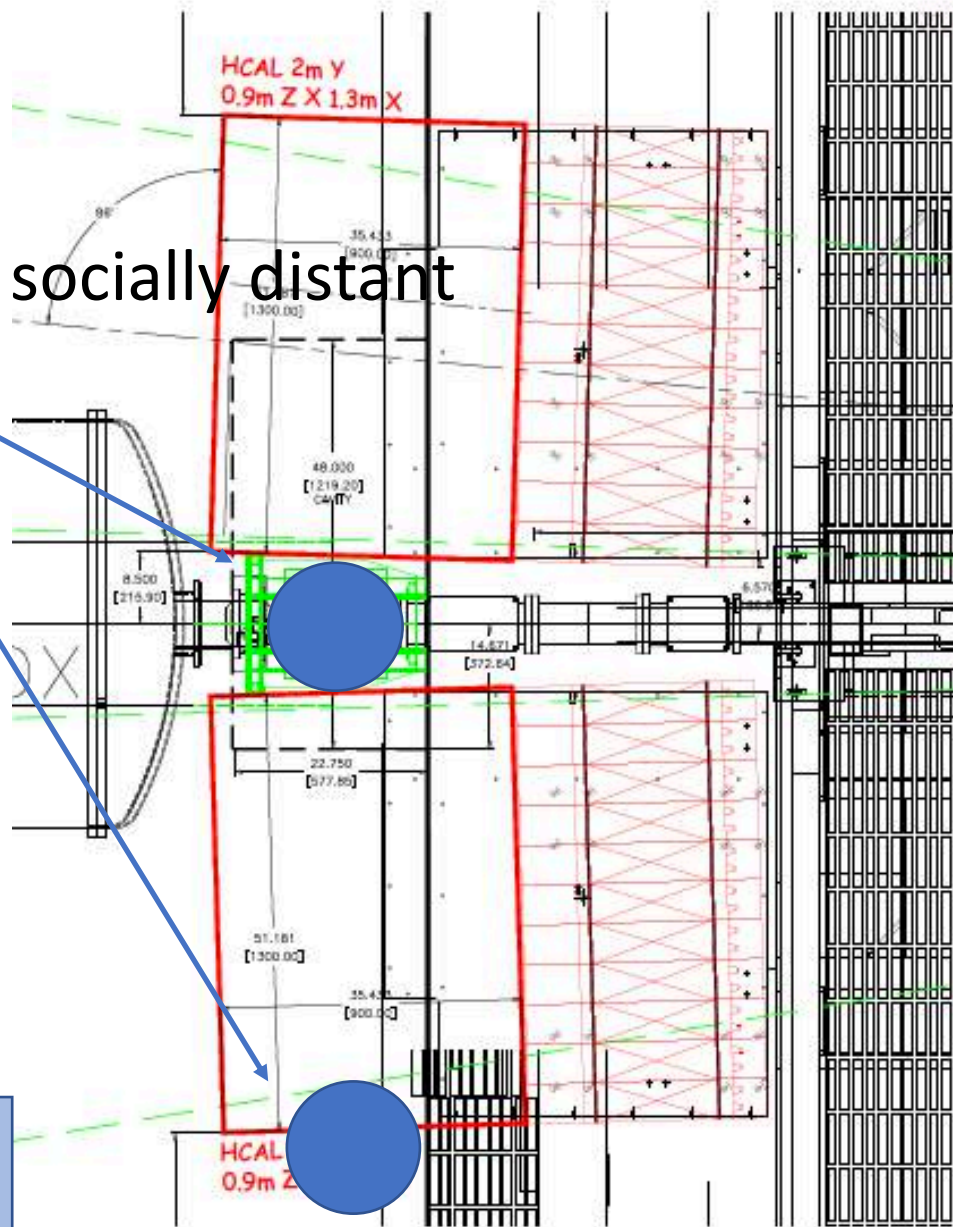
CAD+Oleg + Student(s)/ Shifts?

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Difficult to be socially distant



On Top of laser box
setup to calibrate
WLS/SiPM assemblies



HCal WLS plates work at BNL:

Reason to do calibration of WLS plates on the platform is step (3) to minimize damages to plates during handling.

1. Glue SiPM boards to WLS plates (Elke's lab)
2. Transfer needed amount of boards to the platform.
3. Remove protective film.
4. Calibrate (1-2 min per plate)
5. Insert into HCal assembly.

Manpower? Student –name?

Hcal Enclosure:

(will be same issues as for Ecal)

1. Install enclosure
2. Install FEE interface plates
3. Glue Cable feedthrough
4. Install tension bar
5. Install fan box
6. Glue aluminum angles on front cover
7. Test cooling

STSG mostly + Oleg



Hardware to mount Hcal boards –
Oleg/STSG

Hcal Instrumentation:

1. Install FEE boards
2. Connect SiPM/FEE boards
3. Produce map.
4. Install LED boards
5. Install LED cables
6. Install signal/power cables from FEE to patch boards.
7. Connect patch boards to electronics racks. Signal, control, power.
8. Light tighten enclosure.

Manpower? (Tim, Mike, Akio, Student)

At this point HCAL is ready for initial commissioning.

Commissioning Plan has to be spelled (step by step). We'll not have enough time to do it today. Had to be worked out during August, discussed in regular meetings.

1. Initial commissioning, Fall/Winter 2020
Step by step initial power up sequence, etc.
2. Commissioning during Run 21.
3. Commissioning during Run 22.

That's it for today. Thank you.