

Making Controlled Accesses in MIPP

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The following are the instructions for making controlled accesses in MIPP. Please read and understand these instructions carefully. MIPP takes controlled access procedures very seriously.

Rules:-

1. Maximum length of controlled access (CA) is 4 hours. The access should be concluded within this period.
2. CA's should be authorized by the run co-ordinators or the spokesperson.
3. There should be two or more persons in the CA.
4. At least one of these should be a MIPP "Expert", who has made CA's previously.
5. No person may participate in a CA without a key. This would be a very serious safety violation with very serious lab-wide consequences.

STEP 1

Think through what you are going to achieve during the CA. What tools do you need? How much time? Make sure you have your TLD badge with you.

STEP 2

Proceed with your CA team to the key tree located in MIPP portakamp and shown in Figure 1.

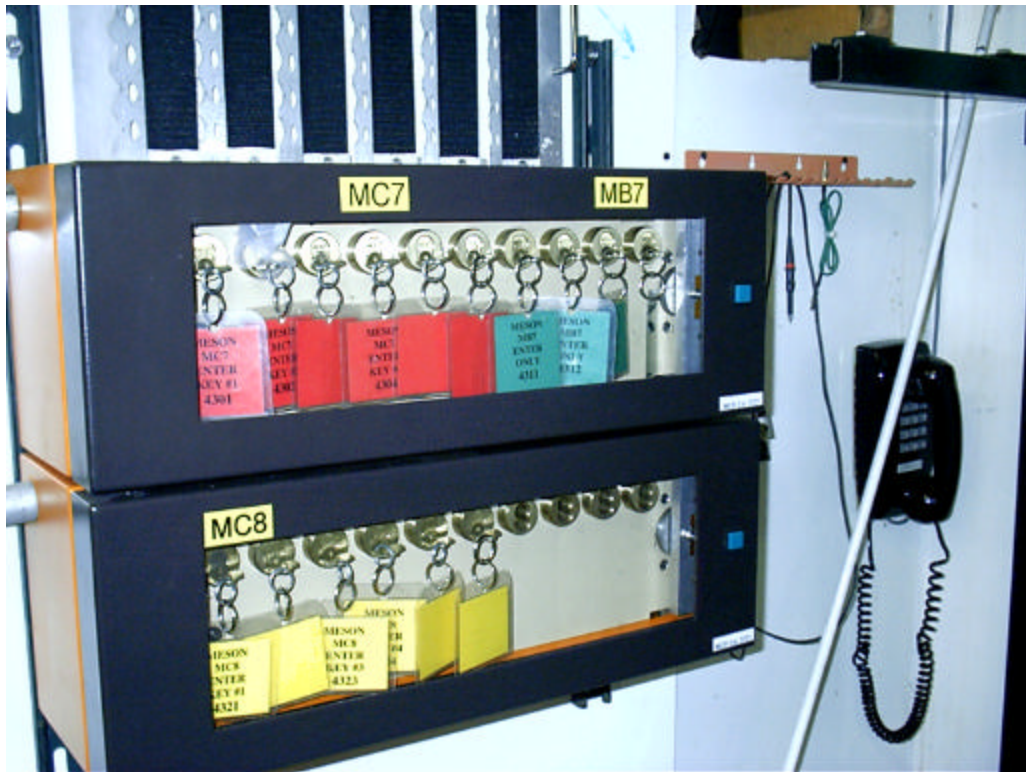


Figure 1 The MIPP Key Tree

Call the Main Control Room (MCR), X 3721 to ask for a CA. Specify which area you need to make a CA to. You can make CA into MC7 (the experimental hall), MC8 and also to M-Bottom (MB7). They will ask for your Fermilab ID's and check in their database whether you are qualified. If so, they will remotely open the key box. Open the key box and remove the keys one by one – one key per person. The keys are removed by turning them counter-clockwise by 90 degrees and pulling them out. You will have to give the key number you are pulling out to MCR. This is repeated for each person separately.

Step 3

Proceed to the area where you are making the CA. The rest of the example will illustrate the common case of making the CA into the experimental hall. Open the radiation fence lock using your key and proceed to the first door in the experimental building where the interlock box is mounted on the side as shown in Figure 2. If the interlock is active, the sign should be flashing “Enclosure Interlocked”. If you successfully complete a CA, the sign should continue to flash or you have broken the interlock.



Figure 2 Outside Interlock Box in MIPP

Step 4

Open the Outside Interlock Box by disengaging the catches to be found under the box (Figure 3).



Figure 3 In order to open the outside interlock box, disengage these latches located underneath the box.

Step 5

We now proceed to do the CA. Let us call the people making the CA, Persons A and B. Person A inserts his key into the right hand lock labeled “ENTER KEY” and turns it clockwise 90 degrees. After this the CA must be completed in 45 seconds or the interlock will be dropped automatically. A green light will come on. Person A then says “green light” to signal to person B that it is ok to proceed to open the door. Use the phrase “green light” and not ambiguous words such as OK to signal this.

STEP 6

Person B then inserts his key into the lock on the door (Figure 4) and opens it. He keeps the door open, enters the experimental hall and inserts his key into the



Figure 4 The interlock door into MIPP. This lock is opened using the interlock key.

interlock box lock marked “ENTER KEY” (Figure 5) and turns the key clockwise 90 degrees, till the green light comes on in this box. Person B then says “Green light” signaling that Person A can remove his key from the lock outside. Person A does this and enters the building as well. Person B should continue to keep his key in the Interlock box while this happens. Person A then enters the hall and closes the door shut. Only after the door is shut is Person B allowed to remove his key from the interlock box. Removing this key prematurely (while the door is open) is the most common cause of dropping the interlock.



Figure 5 The interlock box inside the MIPP building

After the door is locked, Person B removes the key from the interlock box. The “Enclosure Interlocked” sign should continue flashing if the CA is successful.

After the work is finished, the procedure to exit the building is executed. Person A, inserts the key in the interlock box (in Figure 5), twists it clockwise 90 degrees till the green light comes on and says “green light”. Person B, opens the door and with the door open, proceed to the interlock box outside and inserts his key and turns it till green light is obtained. He says “Green light”. This is the signal for Person A to remove his key and proceed to exit the building. The door is then locked and only then should Person B remove his key from the outside interlock box. The “Enclosure Interlocked” sign should continue flashing if the CA is successful

The CA team then proceeds to lock the radiation fence and proceed to the key tree (Figure 1) and calls the MCR. MCR opens the key tree and the team proceeds to replace the keys one by one. After a key is replaced, it should be turned clockwise 90 degrees to engage it in the tree. When all the keys are replaced, the team closes the door and a successful CA is completed.

Procedure to let one person remove himself from the CA that has at least 3 people.

At times, a CA may contain 3 or more people and one of them needs to return to the portakamp, allowing the others to continue the CA. In this case, two members of the CA, persons A and B go to the interlock box in Figure 5. Person B inserts his key, obtains the green light and says “green light”. Person A then opens the door and exits. He closes the door behind him. When the door is secure, Person B removes his key from the interlock and continues the CA. Person A goes back to the portakamp, calls the MCR and tells them that he has exited the CA. He replaces his key. The rest of the team continues with the CA and then terminates the CA as indicated above.

Principles behind Controlled Access Rules

We outline the principles behind the CA rules so that people may find it easier to reason out their actions a little better. When a key is removed from the key tree, the beam critical device is disabled and the beam cannot be sent to MIPP experimental hall. By the same token, if all the keys are returned, beam can be sent. This mandates that no physicist takes part in a CA without a key, since this would make it possible for the beam to be sent to MIPP while that person is in the experimental hall. Taking part in a CA without a key would thus be an egregious violation of CA rules and will result in severe consequences.

When the door to the collision hall is opened without a key in the interlock box, the interlock is broken. This is because this condition is identical to the one that would result if some one tried to force open the entrance door (while the beam is on for instance). This would immediately disable the beam by dropping the interlock.

CA is meant to be made by two or more people. That is the reason that the door is opened by one person inserting the key in the outside box, followed by the second person opening the door. This is followed by the second person inserting his key in the inside box, followed by the first person removing his key. At no time should the door be open while neither key is engaged, since that is equivalent to forcing the door open.