2007 Coal Mine Rescue Rules Training

April 10, 2007

Thomas Todd: Chief Judge

Tom Hlavsa: Asst. Chief Judge

- 5. Failure to locate and record accurately (verbatim) on the map objects/conditions that should have been found and were indicated to be in the mine, for each omission ___2
  - Verbatim
    - Same sequence
    - not stacked or oriented like the card
    - Symbols are not acceptable to replace wording
      - “ cannot be substituted for the word inches
      - Legend symbols still used

- Do not have to map objects/conditions that are initially found in the fresh-air base.
- This discount shall be assessed for all objects/conditions that are not mapped in an area of the mine that the team should have explored if the problem had been worked systematically and correctly or for mapping objects/conditions not found in the mine.
- Objects/conditions located in areas of elongated unsafe roof, unsafe rib, and areas where unsafe roof extends diagonally from rib to rib must be mapped if passed by the team.

- The legend shall be used by all teams to mark their respective mine maps.
  - Objects/conditions not covered by the legend will be written in by the team and the location of the object/condition indicated by the symbol "X".
  - The team may place any additional information on the mine map concerning objects/conditions found in the mine if it does not adversely affect the legibility of the items/conditions required to be mapped.

- The marked map as submitted by the team will be compared with the problem and key map by the map examiners.
  - 6 foot tolerance
  - Center point to center point

- Team fails to explore the entire mine
  - FPA except at locations where the following objects/conditions are encountered:
    - **Faces**
    - **Caved areas**
    - **Water over knee deep**
    - **Unsafe roof across an opening**
    - **Seals**
    - **Stoppings**
    - **Barricades**
    - **Closed regulators**
    - **Inextinguishable fires**

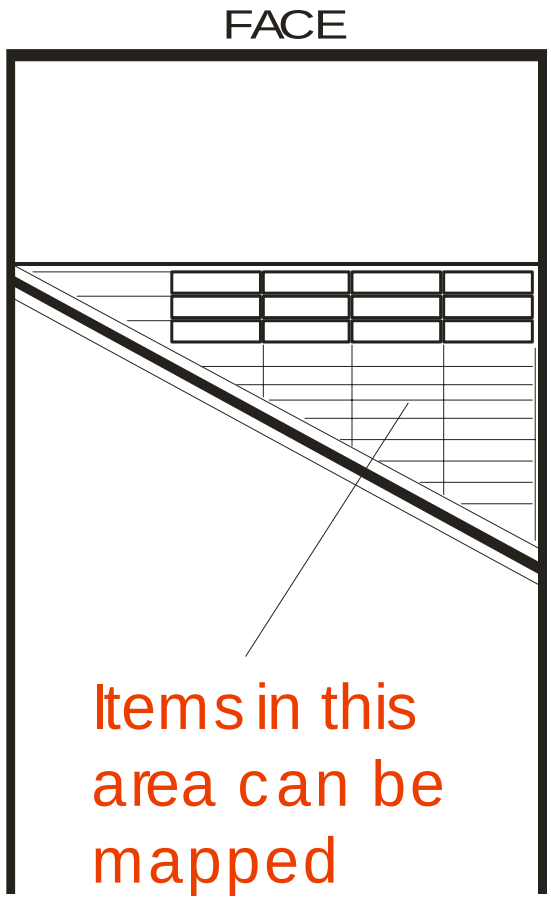
- Information found on notes in lunch boxes, at barricades and any other location
- Patient statements and notes given to team do not need to be on map

- A placard indicating person but cannot be reached
  - Mapped as an X with the word person written out
- The following changes need to be noted on the mine map to indicate the conditions left in the mine and the fresh-air base:
  - **Changes to ventilation structures**
  - **Victims removed from the mine**
  - **Electrical circuits energized or de-energized**
  - **Fires extinguished**
  - **Water pumped**
  - **Roof supports installed**
- **Areas reentered by team**
  - **Smoke cleared**
  - **Gases removed**
  - **Permanent changes in direction of ventilation**

- A single placard which denotes the start and end of any condition requires only one symbol to be mapped.

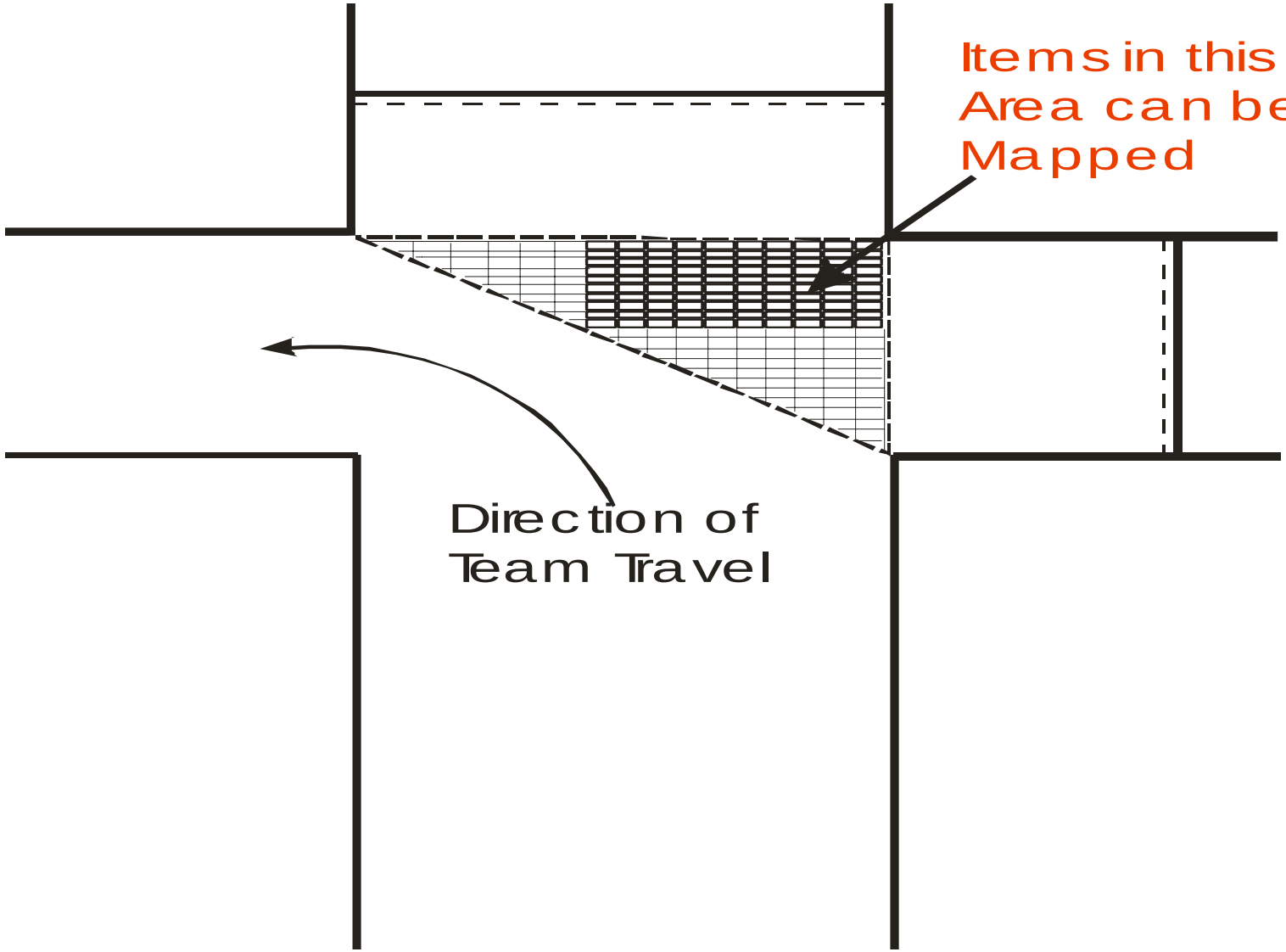
- Ventilation structures such as stoppings, doors, etc. that are initially located and mapped, will remain on the map and any removal of such structure will be reflected by a notation such as removed. If rebuilt in the same location, a notation, such as rebuilt, will suffice. If a check curtain is converted to a temporary stopping, a notation indicating such will suffice.
- All newly erected, intact and airtight structures built by the team, except for frames erected for a line curtain, will be considered to be temporary stoppings. Regardless of their use or intention (i.e. ventilation, airlock, seals, regulators, etc.) they shall be treated and mapped as a temporary stopping.

MAPPING

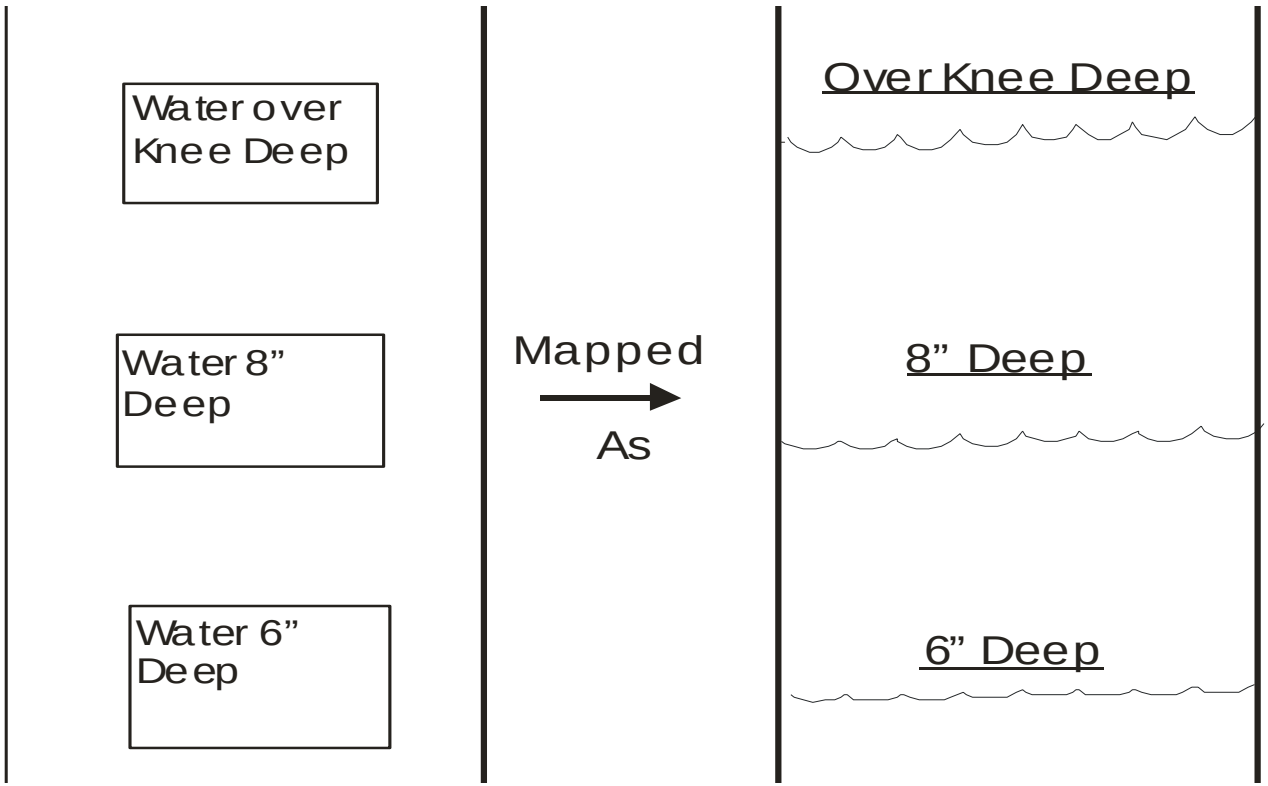

FACE
Items in this area can be mapped


FACE
Items in this area can be mapped

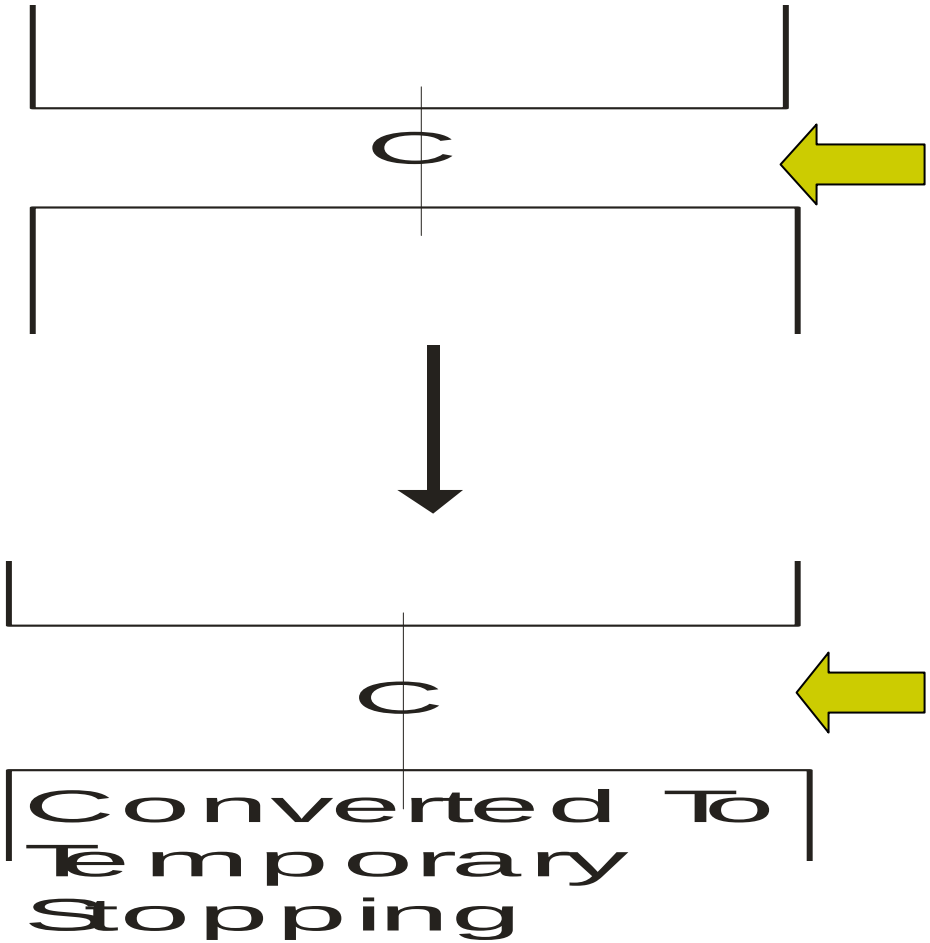
MAPPING



Mapping Water Depth



Converting a Check Curtain



INTERPRETATIONS OF B CARD

- A. Apparatus
- 1. Apparatus improperly assembled, each apparatus___ 3
  - Failure to fasten covers, snaps, etc.
  - Full practice canisters or other acceptable canisters must be in place and used in the apparatus.

- 2. Apparatus improperly adjusted to the wearer, each person___1
  - Patient must have apparatus on and properly adjusted, even if on stretcher.
  - This ONLY applies to shoulder straps, chest straps, and head straps that are not properly fastened, are twisted or rolled
- 3. Failure to follow prescribed procedures for going under oxygen, each person, excluding patient___3
  - This will depend on type of apparatus used.

- 4. Apparatus part or parts worn or deteriorated so as to be dangerous to the wearer, each person___8
  - Holes that are in the breathing tubes and straps that break after the wearer goes inby the fresh-air base are discounts.
- 5. Oxygen supply of team members over specified limitations___2
  - Prior to starting work

- 18. Failure to give proper notification to the briefing officer with lifeline or communication system of team's intentions, each infraction___1
  - Must report intentions to the briefing officer
  - Improper signals would apply only to signals transmitted between the No. 5 team member and the briefing officer.
  - All team members must hold or be attached to the team lifeline while traveling.

D. Gas and Roof Testing

- 23. Failure of captain to test the roof, face, and/or ribs by the sound and vibration method, each infraction ___2
  - Unsafe
  - Caved areas
  - Prior to building a temporary stopping
  - Building frames for a line curtain
  - Rebuilding a stopping that is completely destroyed
  - Converting an existing check curtain to a temporary stopping
  - Faces

- No team member may perform work or move into any area during a team stop until the captain makes the appropriate roof examination for that area.
- If it can be done safely, all roof tests shall be made from rib to rib, and the face, roof, and each rib at faces of places.

- The proper way to make roof tests along an extended area of unsafe roof would be to make roof tests from rib to rib at the outby end of the unsafe roof, zigzag between the edge of the unsafe roof and the adjacent rib, and make tests from rib to rib at the inby end. See Figure 1(a) and 1(b). If an example is not shown in the rules then a zigzag test will be sufficient.

- 25. Improper procedure when testing with gas detectors, testers, and indicators, ___2
  - METHANE - Detector shall be held at eye level or higher
  - CARBON MONOXIDE - Detector shall be held at chest (between neck and waist) level
  - OXYGEN DEFICIENCY - Detector shall be held below the waist level
  - Verbally identify each test

- 27. Captain’s legible date and initials ON:
  - Barricades
  - Stoppings
  - Ventilation doors
  - Seals
  - Regulators
  - Walls of overcasts and undercasts
  - Check curtains converted to stoppings
  - Team built stoppings
    - Each location where they are constructed
      - After the building process has begun
      - Before the clock is stopped or the stopping is moved.

- 27. Captain’s legible date and initials AT:
  - Location of all faces
  - Bodies
  - Live persons
  - Points where objects/conditions prohibit further travel in that direction
- These dates and initials must be marked at or on each required location, during the initial exploration, before the team advances or retreats from that area.

- 28. Failure of teams to stop within 50 feet of the fresh-air base to check team members and apparatus___4
  - All team members underground or inby the fresh-air base
  - Affected apparatus upon initial re-entry inby the fresh-air base after such apparatus has been repaired or changed.
  - Within 50 feet of the bottom of the air shaft.

- 30. Captain or other team member who acts to endanger self or patient, each occurrence___5
  - A. Travel under unsafe roof, unsafe rib, or overhanging brow.
  - B. Travel into or through water over knee deep
  - C. Passing a fire in the same opening or intersection the team is traveling without first extinguishing the fire
  - D. Not immediately retreating to the fresh-air base when the manufacturer's warning device of the apparatus is activated.

- E. Removing any roof support that is set, whether found or installed by the team
- F. Ventilating an unexplored area with irrespirable air when the location of a potentially live person is unknown.

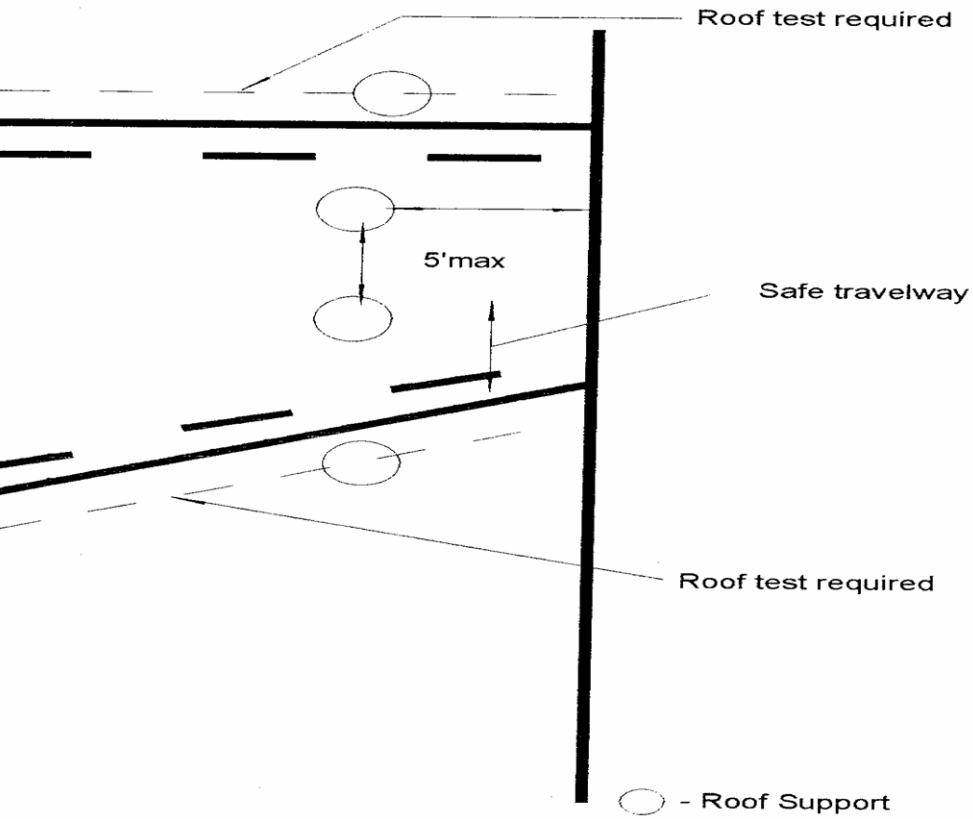
Setting Roof Supports

- Both ends of the unsafe roof have been previously tested by sound and vibration method
  - Set first timber outby unsafe roof
  - Set additional timbers in unsafe roof at no more than five foot intervals
  - Set last timber inby unsafe roof before any other work is done or team members pass through the area

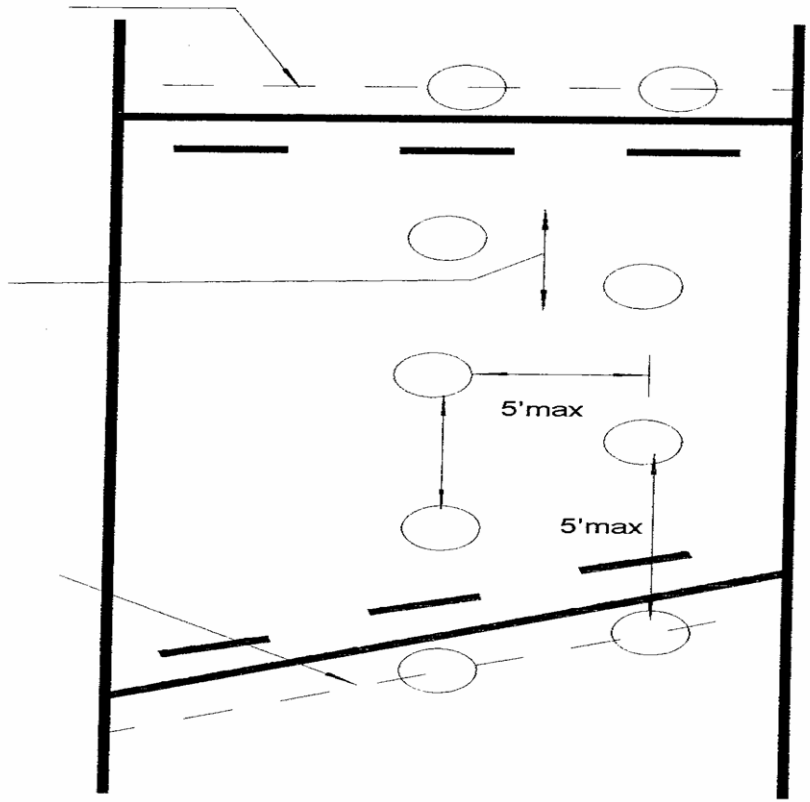
- Neither end of the unsafe roof has been examined by the sound and vibration methoda.
  test roof on outby end of unsafe roof
  - Set first timber outby unsafe roof
  - Set additional timbers in unsafe roof at no more than five foot intervals
  - Set last timber inby unsafe roof
  - Test roof on inby end of unsafe roof before any other work is done or team members pass through the area
- Outby/inby verbiage is interchangeable depending on the direction the unsafe roof is approached.

Figure 2

EXAMPLES OF PROPER METHODS OF SETTING ROOF SUPPORTS



aximum width travel way may
stablished between one row
pports and a safe rib or
een two rows of supports.



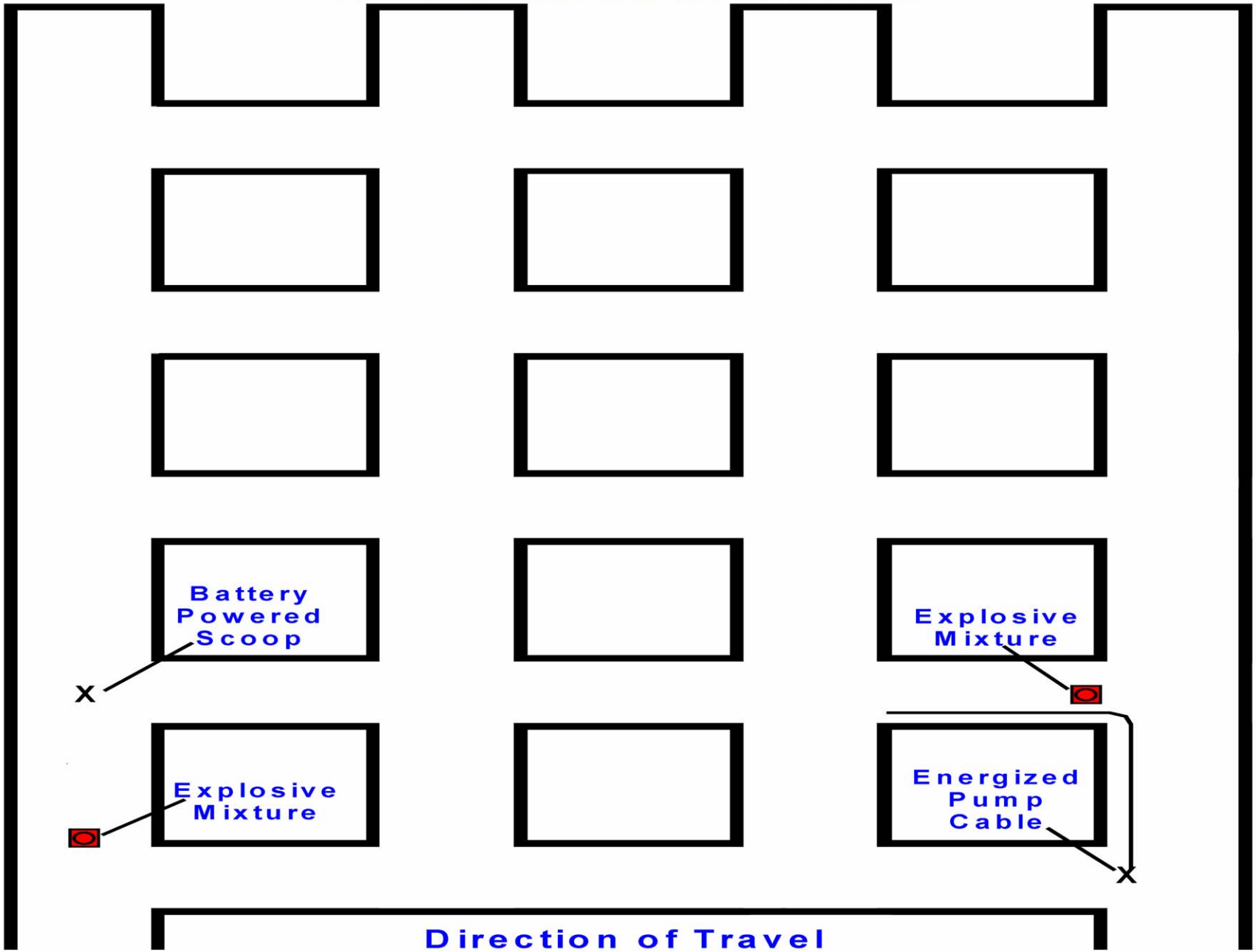
No roof test required IN area of unsafe roof.

Simulate setting support by standing in proper location and then placing on floor.

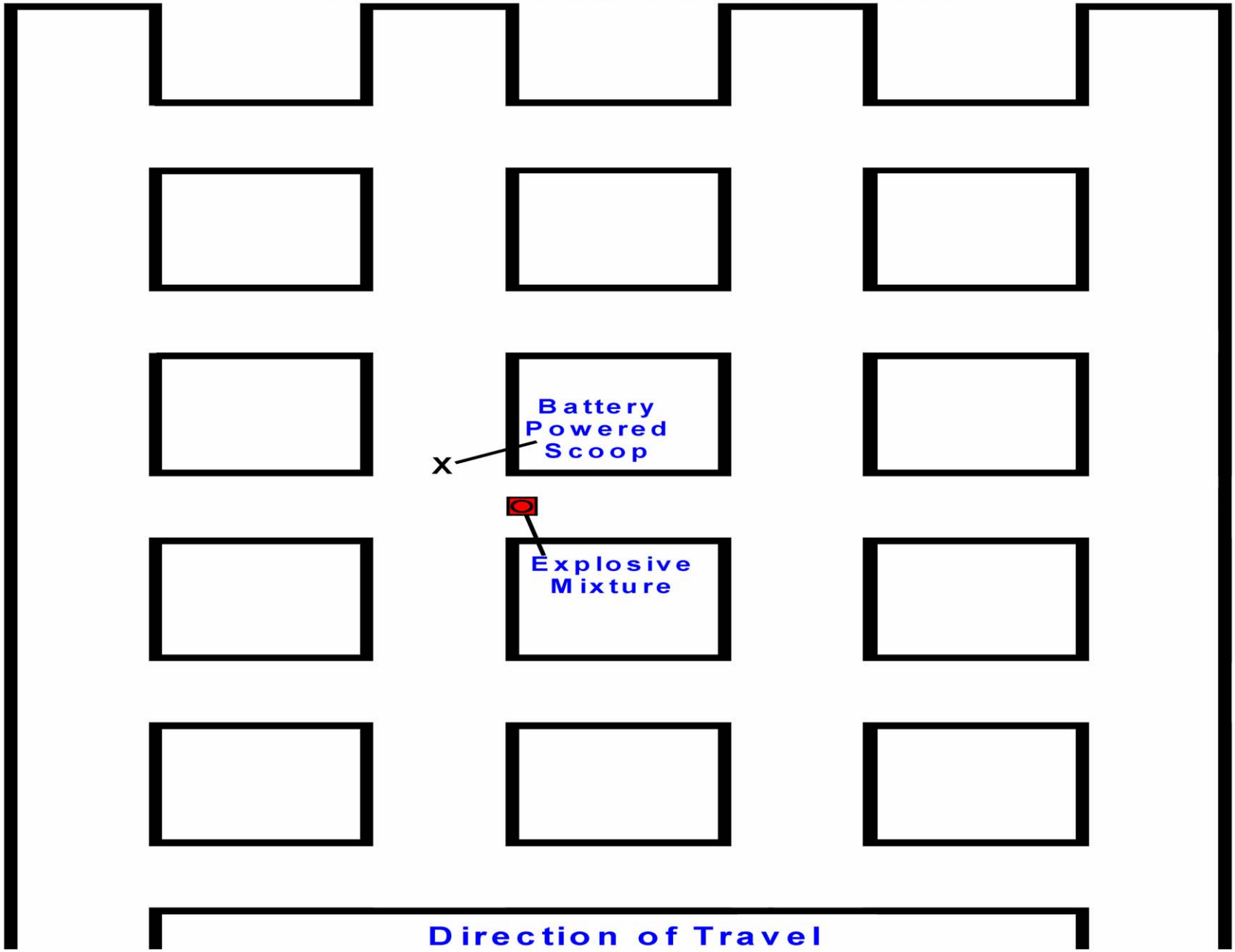
If the unsafe roof is less than 5 feet in length, a minimum of three supports must be set; one on each end and one under the unsafe roof.

- 31. Any act by a team which may result in an explosion of an explosive air/gas mixture___30
  - A.Changing conditions of the mine ventilation system in such a manner that an explosive mixture is moved over an ignition source.
  - B. Continuing exploration after conditions are found to indicate an imminent explosion is possible by the presence of an explosive mixture and evidence of fire
    - Visual acknowledgment of a fire
    - Smoke
    - Carbon monoxide above 10 ppm
    - Energized electrical equipment, energized circuits (including all batteries except cap light batteries) or energized cables found in an explosive mixture
    - When a withdraw situation exists at an intersection, the team can go to any location they have already explored at that stop, prior to exiting the mine. The key phrase in this paragraph is “at that stop.”
    - A team must continue to explore if it knows there is a continuous nonexplosive separation between the explosive mixture and the evidence of fire or energized cables.

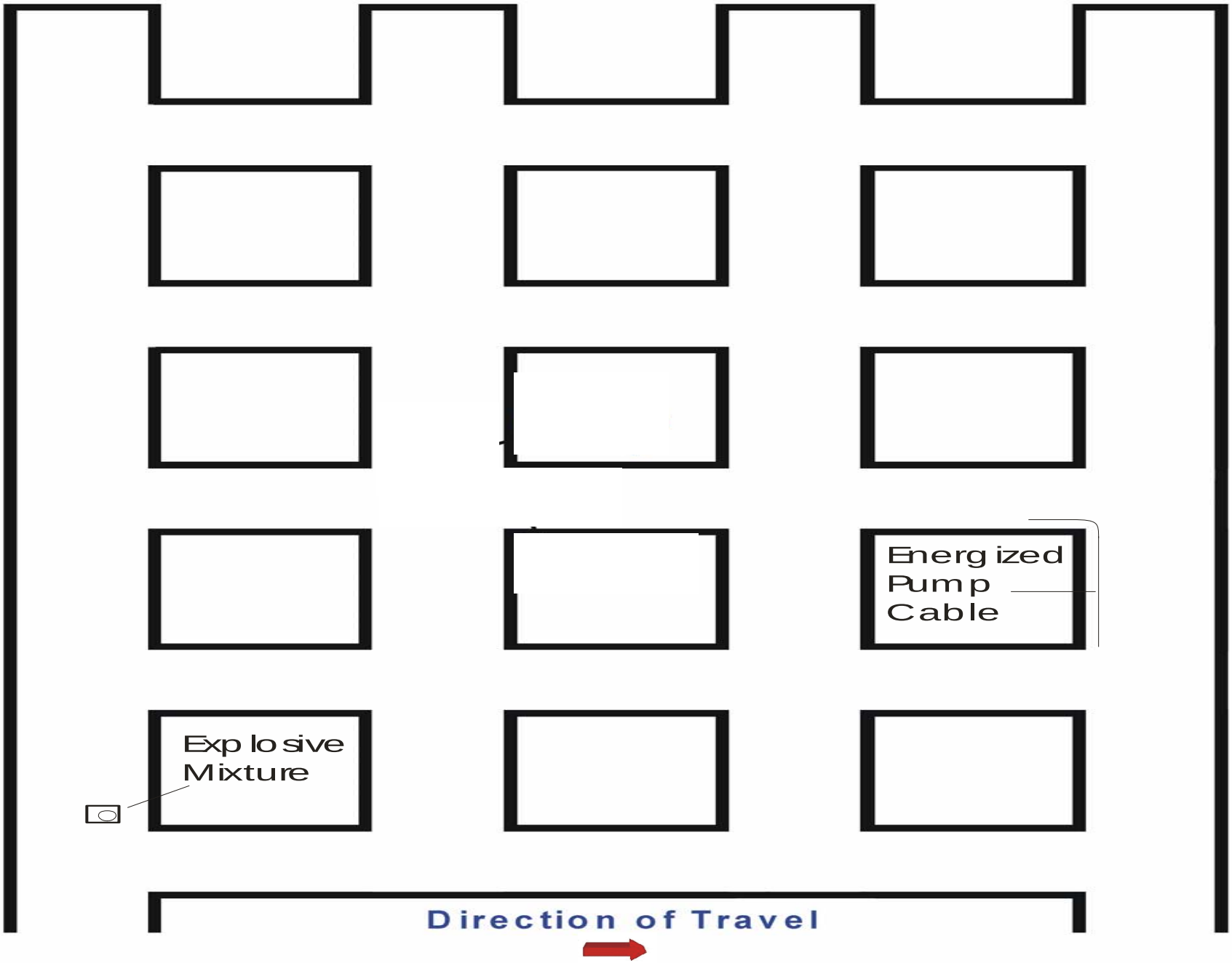
Rule 31
Withdrawal Situation



Rule 31
Not a Withdrawal Situation



Rule 31
Not a Withdrawal Situation



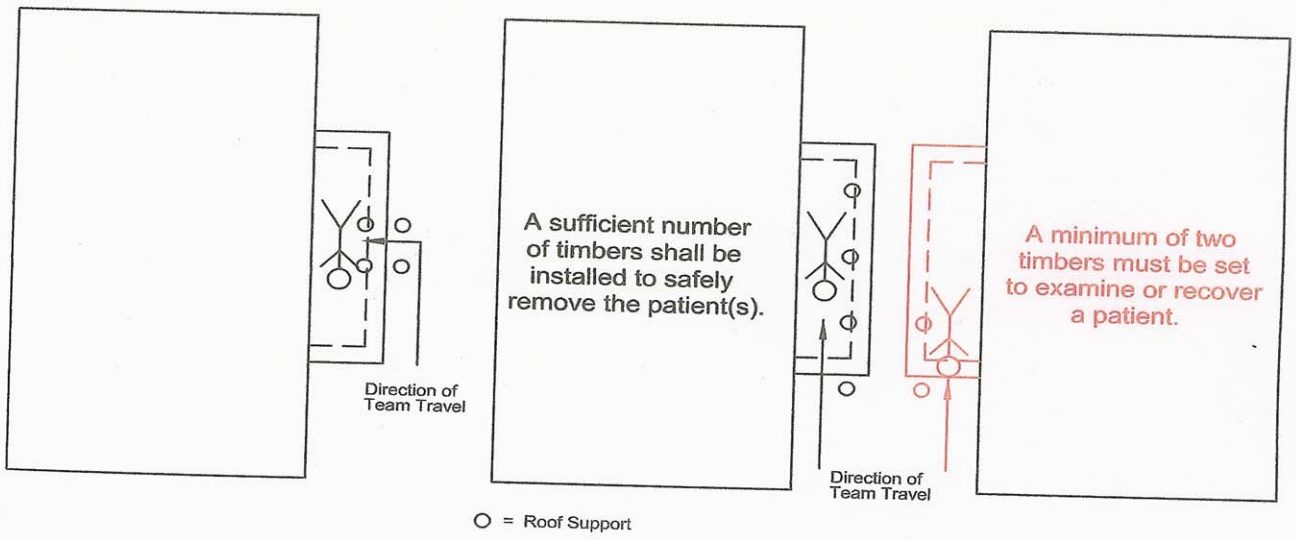
- C. Changing conditions of the mine ventilation in such a manner that an explosive mixture is moved over an unexplored area.
- D. Changing conditions of the mine ventilation in such a manner that an explosive mixture is moved over energized electrical equipment, energized electrical circuits (including all batteries except cap lamp batteries) or energized cables. Energizing electrical equipment, electrical circuits, or cables in an explosive mixture, or moving any of the above ignition sources into an explosive mixture.

- Explosive mixture
  - Methane 5 – 15% inclusively
  - Oxygen is 12.1 percent or greater

- 32. Failure to locate missing persons, each omission___10
  - The team must stop and the captain examine, by touching with his or her hand, all missing persons (live persons or body) prior to any team member passing the location of the missing person.
  - If the Captain cannot physically examine a missing person located under elongated unsafe roof due to a lack of roof support, a team stop will not be required.
  - If roof support is provided, bodies located under unsafe roof must be examined before the clock is stopped and after all missing persons have been accounted for.

Figure 3

PROPER INSTALLATION OF ROOF SUPPORT TO RECOVER A PATIENT LOCATED UNDER AN AREA OF ELONGATED UNSAFE ROOF



- 33. Failure to bring live person to the fresh-air base, each omission___20
- 34. Failure to properly protect a live or potentially live person(s), each omission___10
  - Proper protection must be used on persons exposed to or found in irrespirable atmospheres.
    - Less than 19.5 percent oxygen
    - Carbon monoxide in excess of 50 PPM
    - Smoke
  - Conscious person – Self Rescuer
  - Unconscious person – An approved breathing apparatus or device with full face piece.

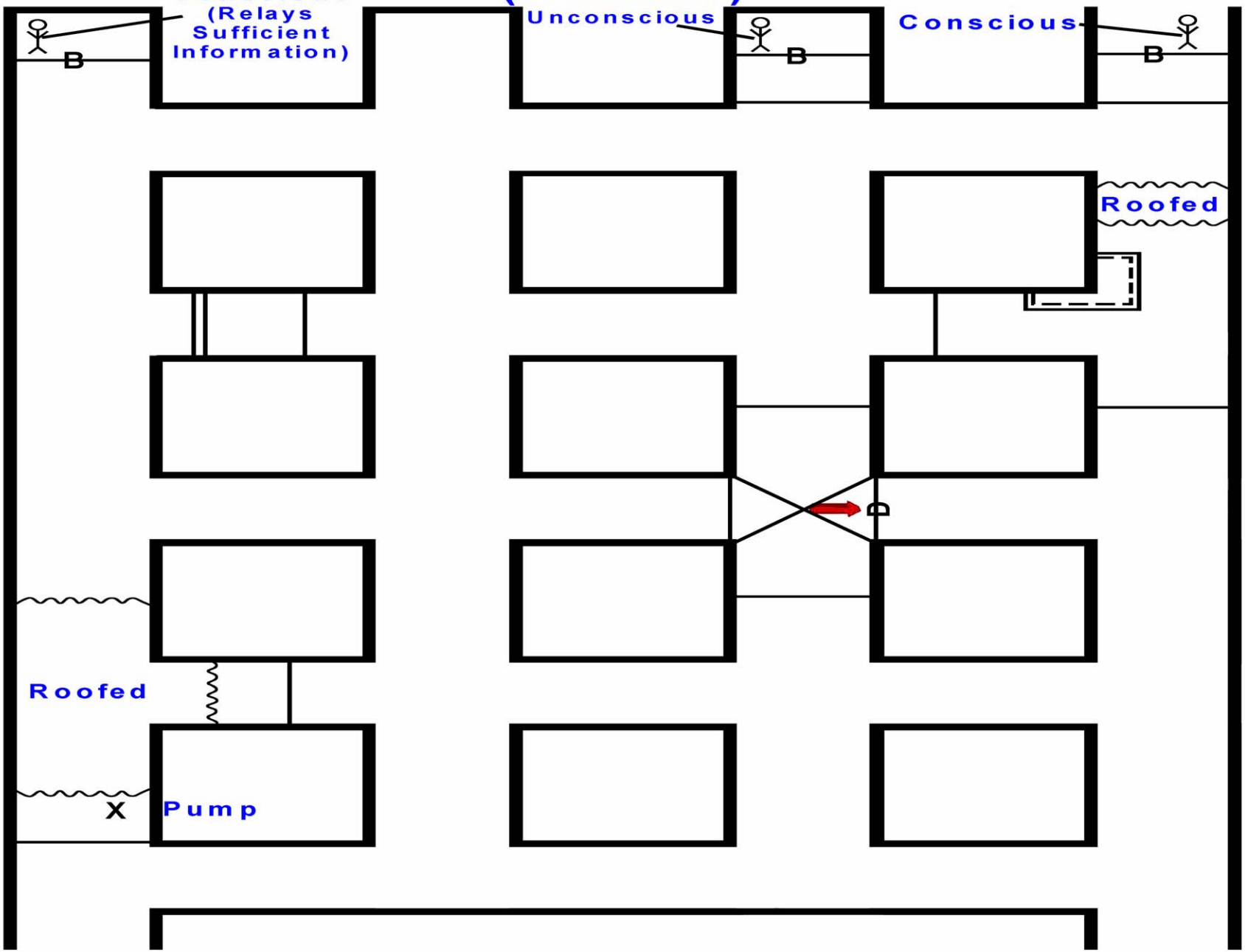
- 42. Failure to remove patient(s) promptly to the fresh-air base, each infraction___6
  - A. Either by visual or verbal contact
  - B. When a team reaches a patient(s) (visual contact)
    - Exploring ahead of the location will be limited to 25 feet in any direction.
    - May perform any function during this team stop.
    - May not continue to explore while retreating with the patient, unless required by the problem design.
  - C. May continue to explore if necessary for its own or the patient's safety
    - Patient shall be removed as soon as means or materials are available

- 43. Failure to erect temporary stopping (airlock) when necessary, each infraction___6
  - Before breaching airtight separations such as:
    - Stoppings
    - Doors
    - Seals
    - Barricades
    - Closed regulators
    - Removing water roofed
  - When retreating out of a barricade or coming back through a stopping where an airlock has been erected, it will not be necessary to airlock on the way out if this will not change any existing ventilation.

- Person behind the barricade, stopping, etc.
  - No airlock for “airtight”
- An airlock is formed by erecting a temporary stopping at a location(s) that will provide the equivalent airtight separation as the airtight structure or condition breached by the team. An equivalent airtight separation would require an airlock built for each airtight structure removed within one crosscut. An equivalent airtight separation must also be maintained when pumping water roofed.

- If the water roofed is in an entry or crosscut one build is required; a 3-way intersection two builds are required; a 4-way intersection three builds are required. If there are two sides blocked, one airlock is needed. If there are three sides blocked, two airlocks are needed. If four sides are blocked, three airlocks are needed. This is the minimum requirements for a solid line map and may not prevent air movement on a dotted line map.

Rule 43
(Airlock)



- Opening: Any entry or mining that was performed off an entry, room, or crosscut that may or may not connect to another entry, room, or crosscut.
- Crosscut: An opening that connects two entries.
- Contaminant: Any one or more of the following:
  - Smoke
  - Carbon monoxide above 10 PPM
  - Methane above one percent
  - Less than 19.5 percent oxygen

C. **When advancing in an entry and an intersection is encountered with open crosscuts on both sides, the team would be required to tie across into the contaminated crosscut first unless the team is required to return to a contaminated entry.**

If the team encounters a contaminant in both crosscuts, the team has the option of which crosscut to examine first. As the team advances into a contaminated crosscut and subsequently encounters an air clear placard prior to reaching an intersection, the team must stop (prior to captain passing the placard) and make further advances in the other contaminated crosscut.

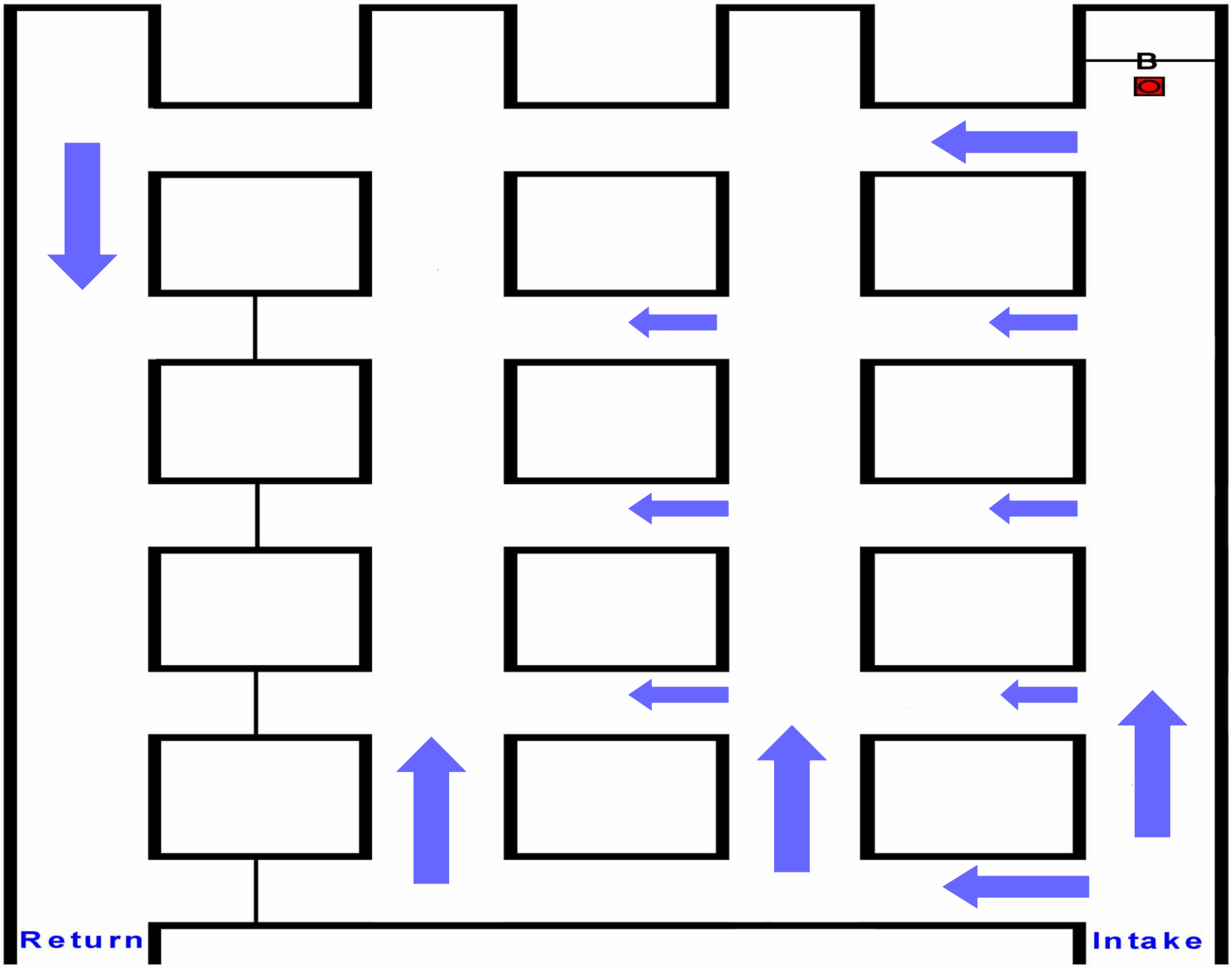
- G. Exploration behind seals is not necessary, unless required by the problem and then only after all accessible areas of the mine are explored.

- 46. Only the ventilation material provided will be permitted to be used during the working of the problem. Erected walls of overcasts/undercasts cannot be removed or altered by the team. An overcast cannot be rebuilt as an overcast if completely destroyed, but if the materials from the destroyed overcast are on the field they can be used to build temporary stoppings. Other structures located on the course shall be completely disassembled when moved to other locations.___10

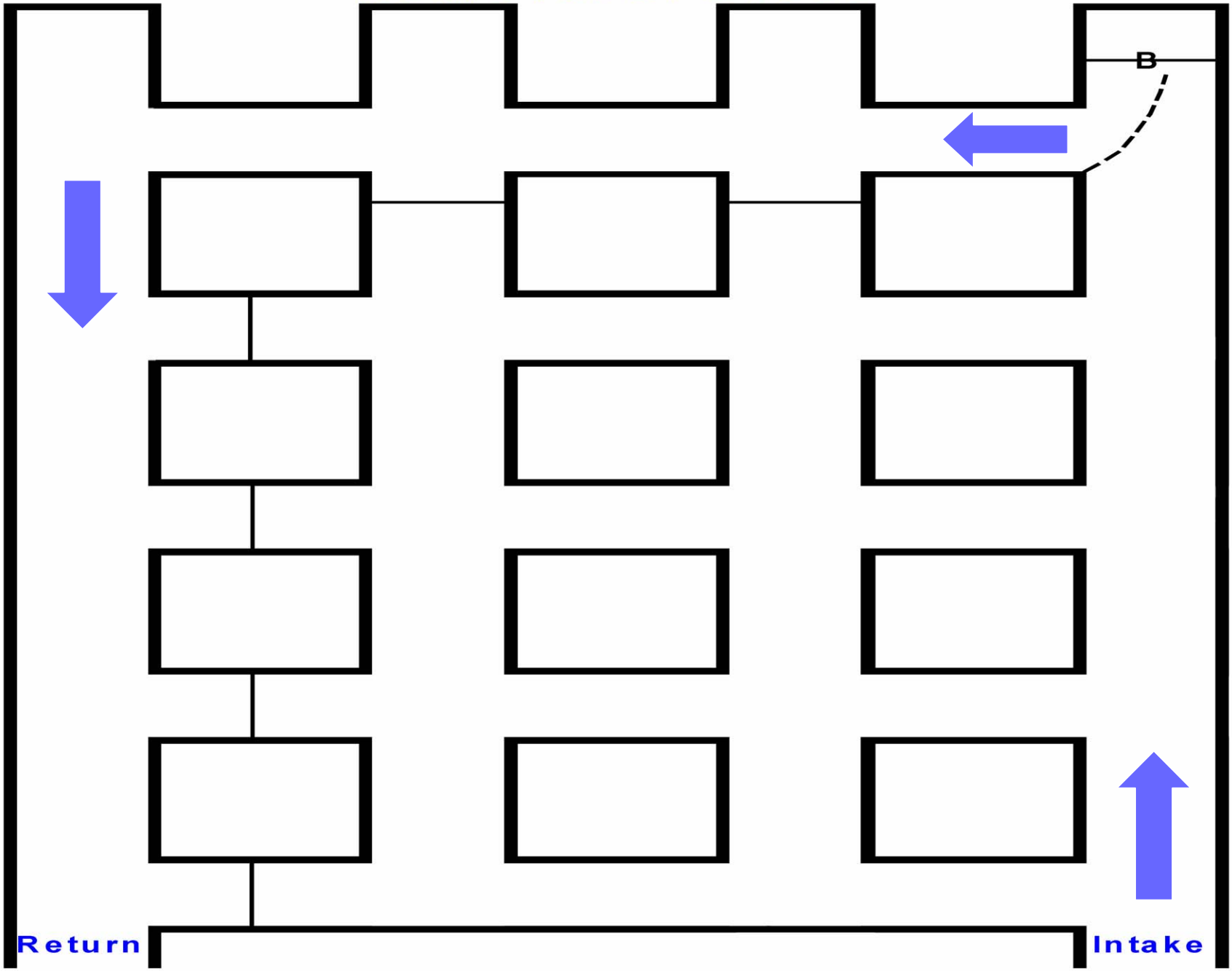
- 47. Less than five team members completing problem, each person___8

- 48. Failure to examine lunch pails, each infraction___2
  - Lunch pails under unsafe roof need not be examined unless teams enter the area.
- 49. Any act by a team member that violates the intent of the problem design layout, each location___10
  - Traveling into or passing materials through areas indicated to be impassible by placards or intended to be impassible by the physical condition indicated.

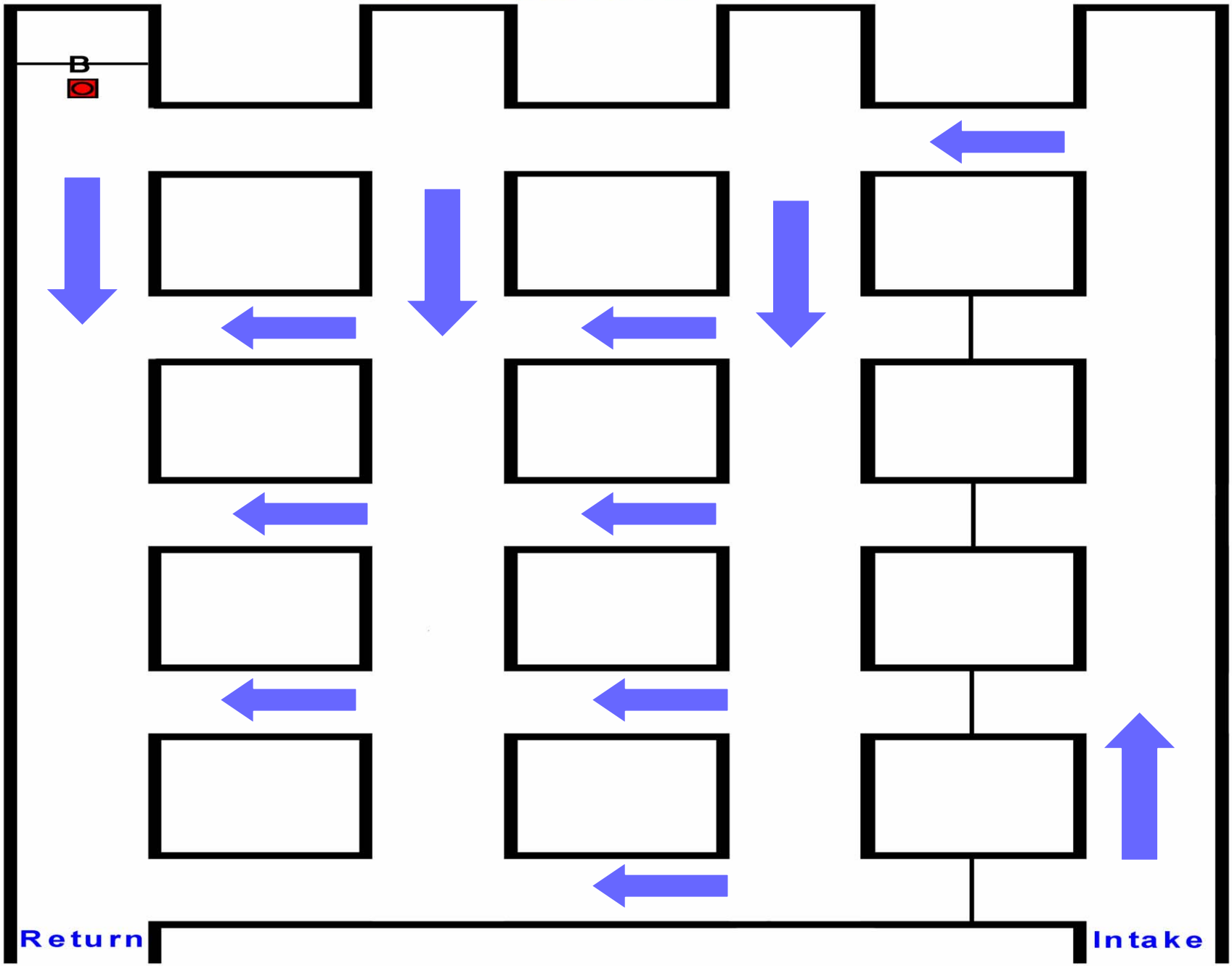
Parallel Air Flow



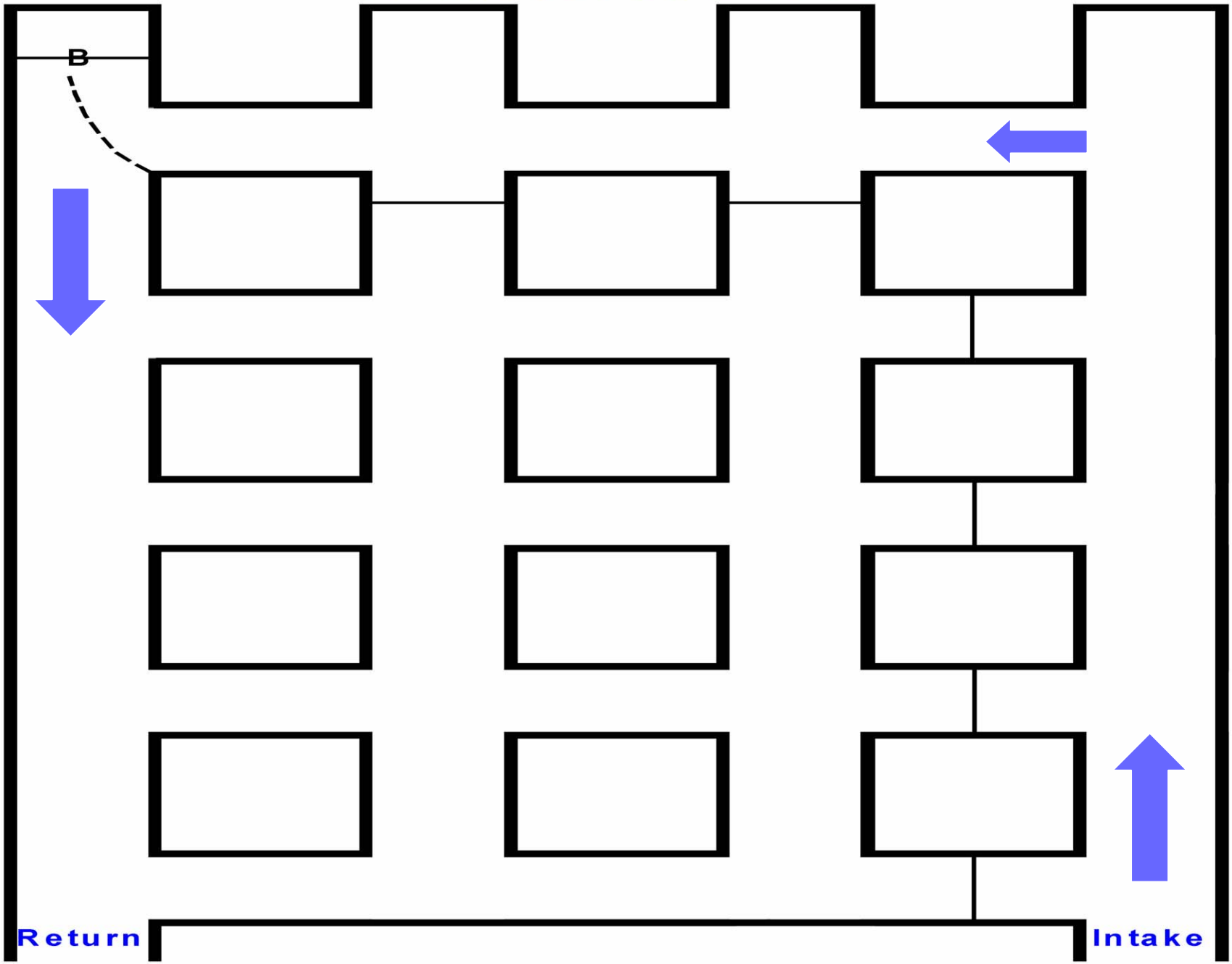
Removal of Gases



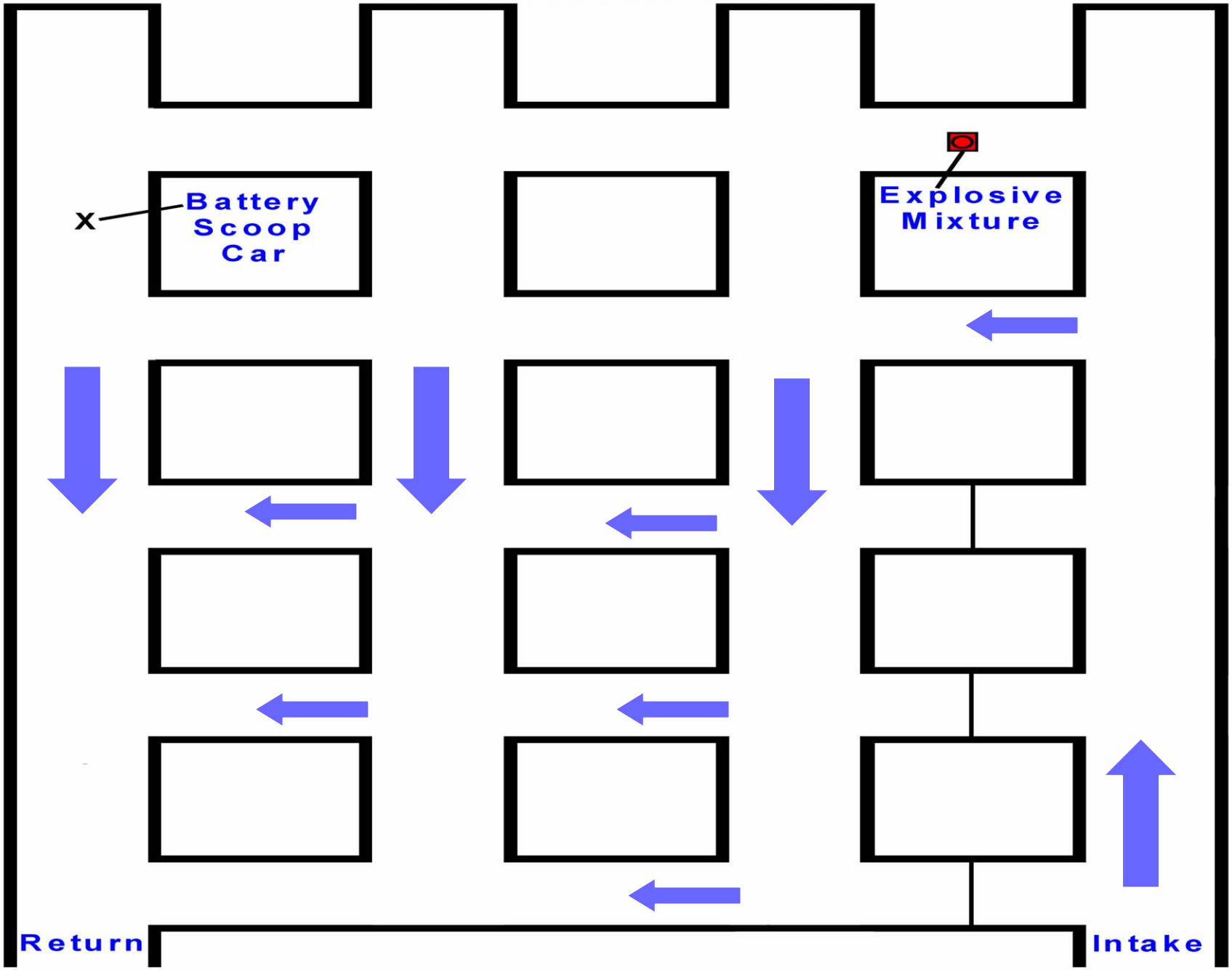
Parallel Air Flow



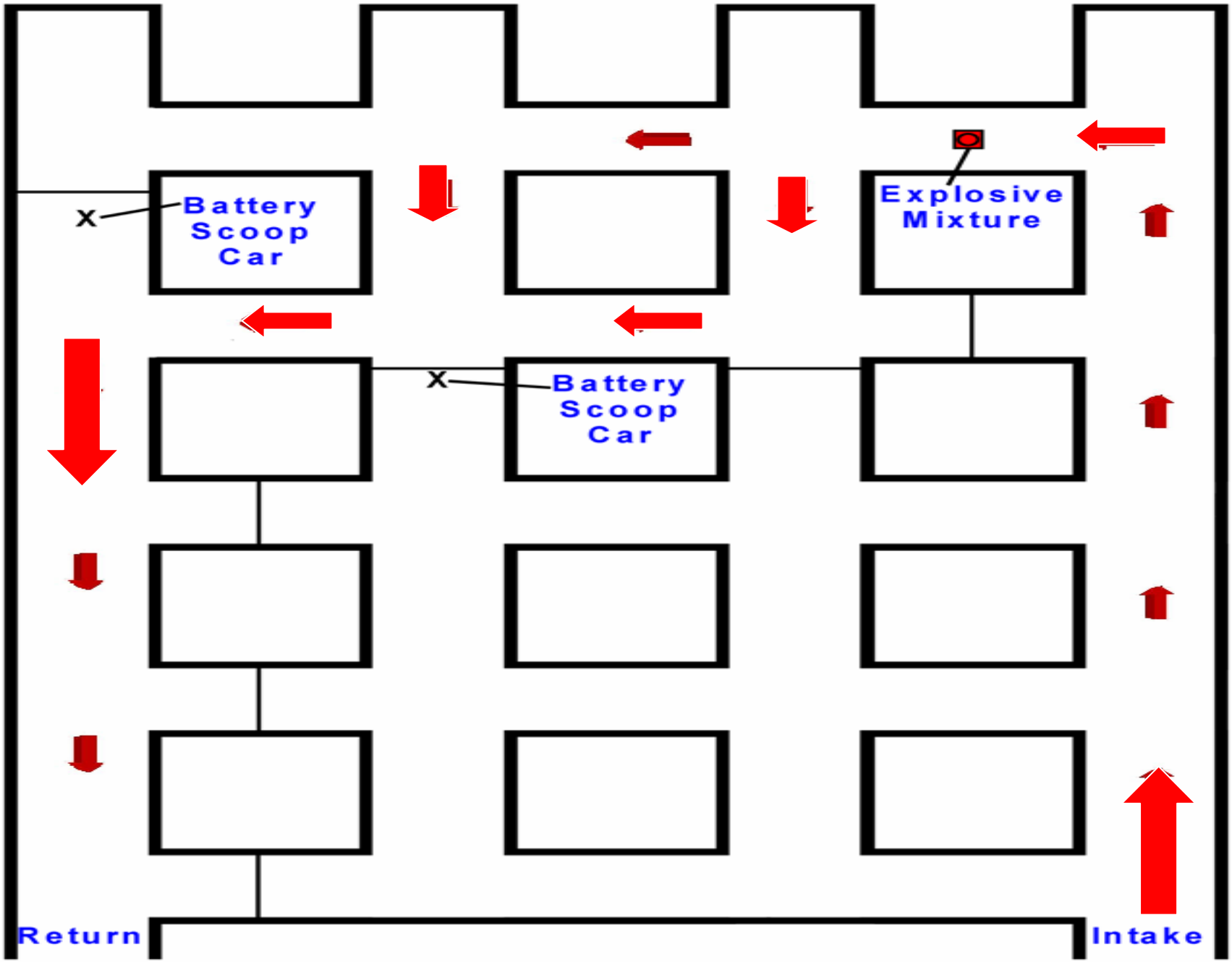
Removal of Gases



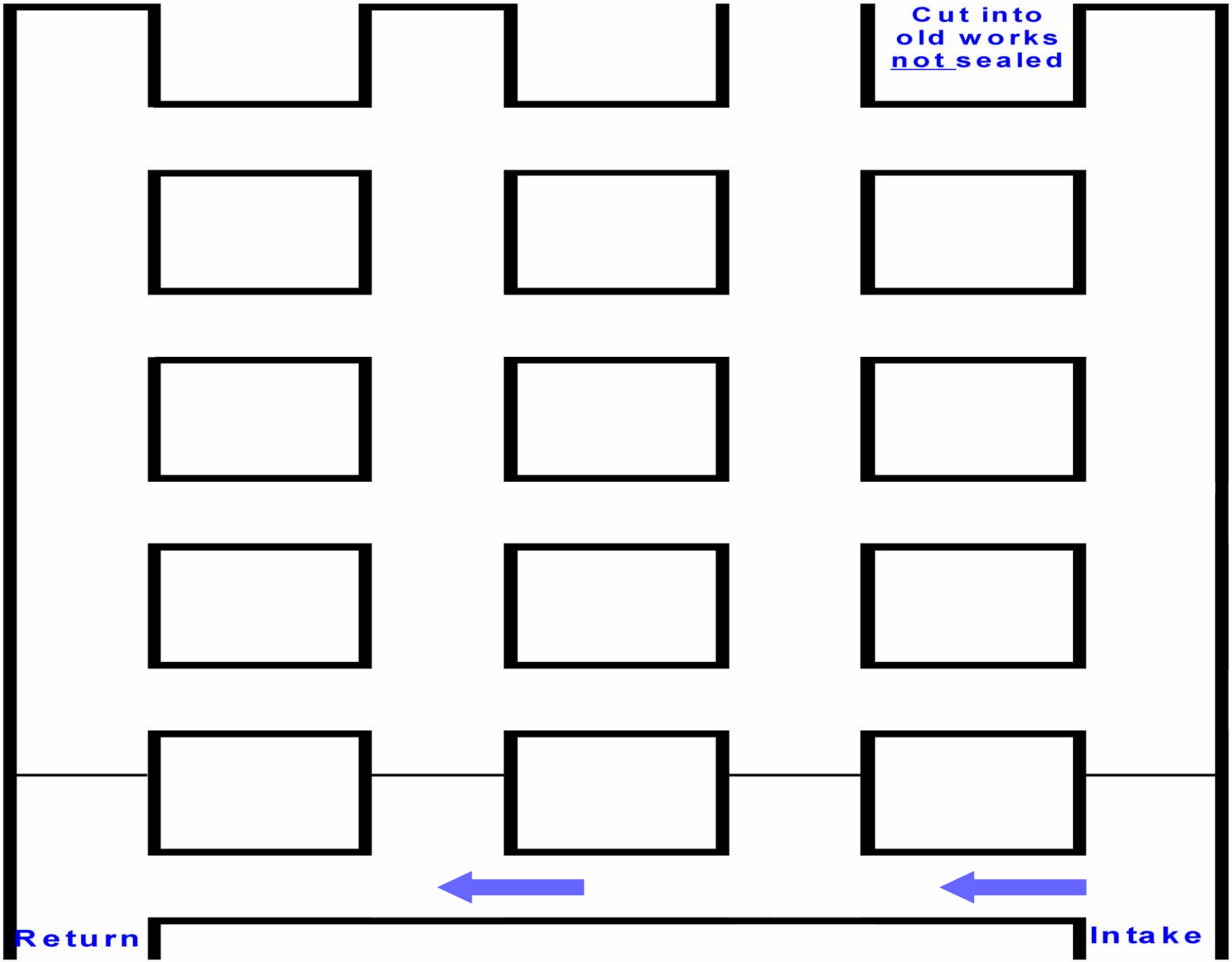
Parallel Air Flow

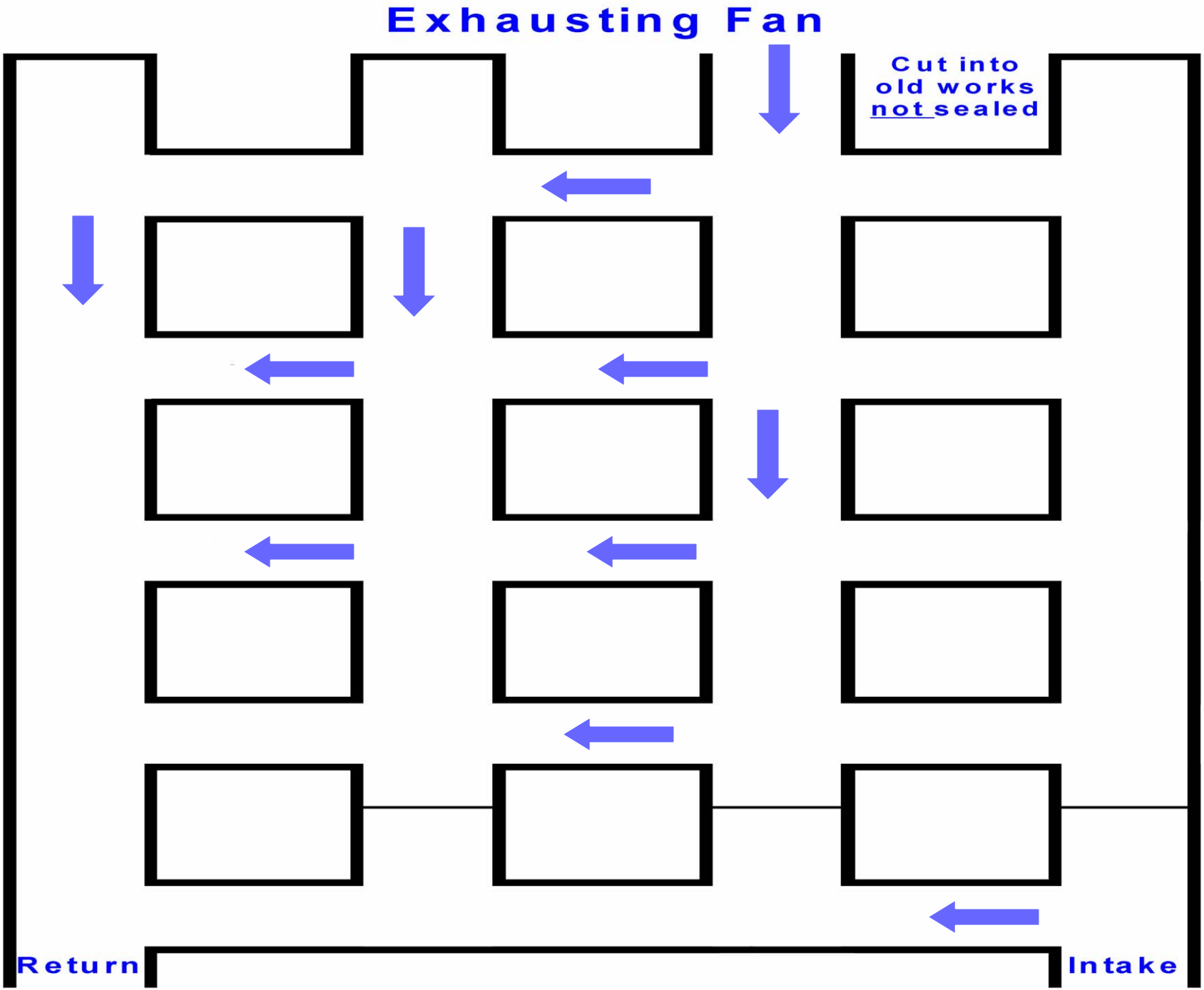


Removal of Gases

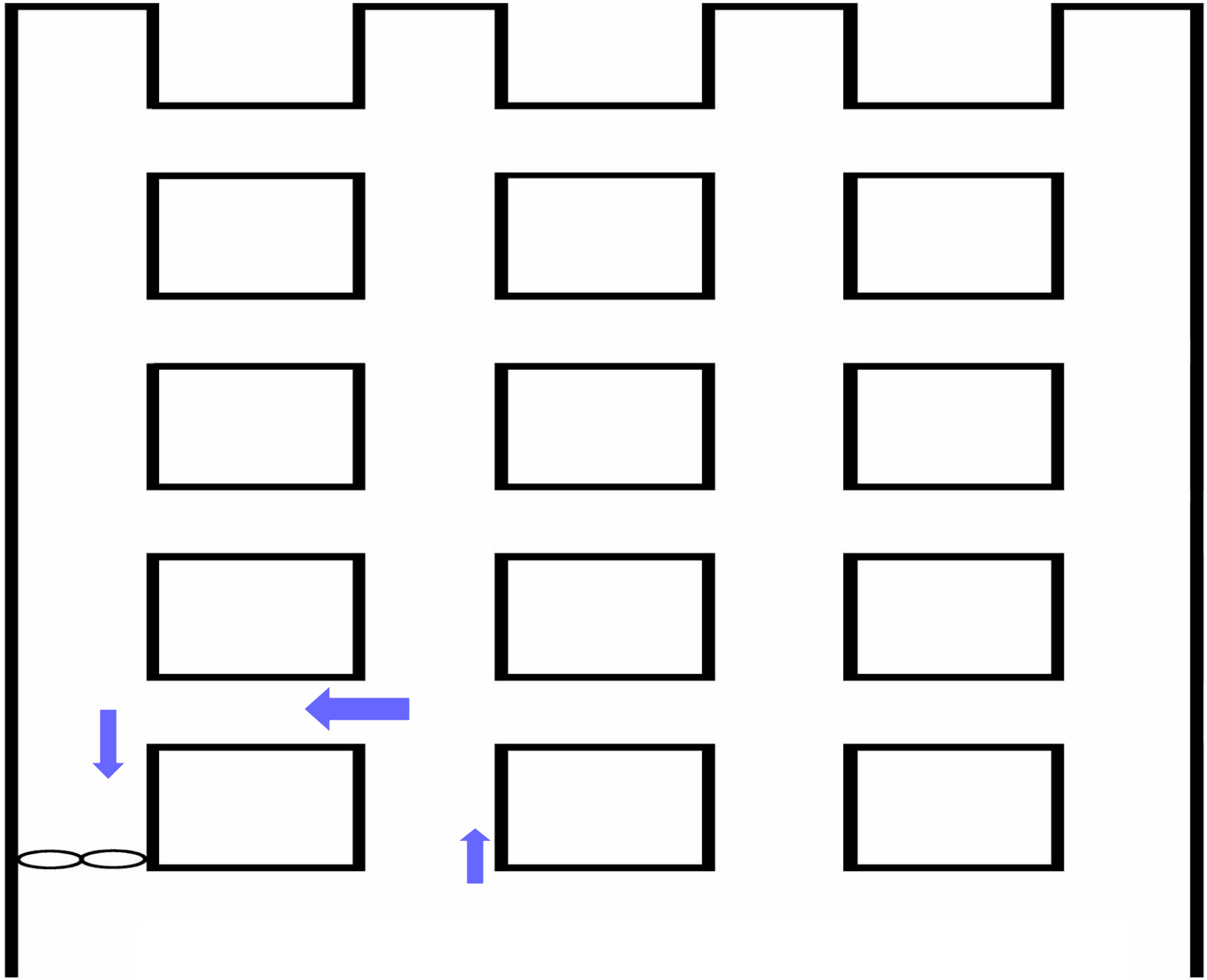


Exhausting Fan

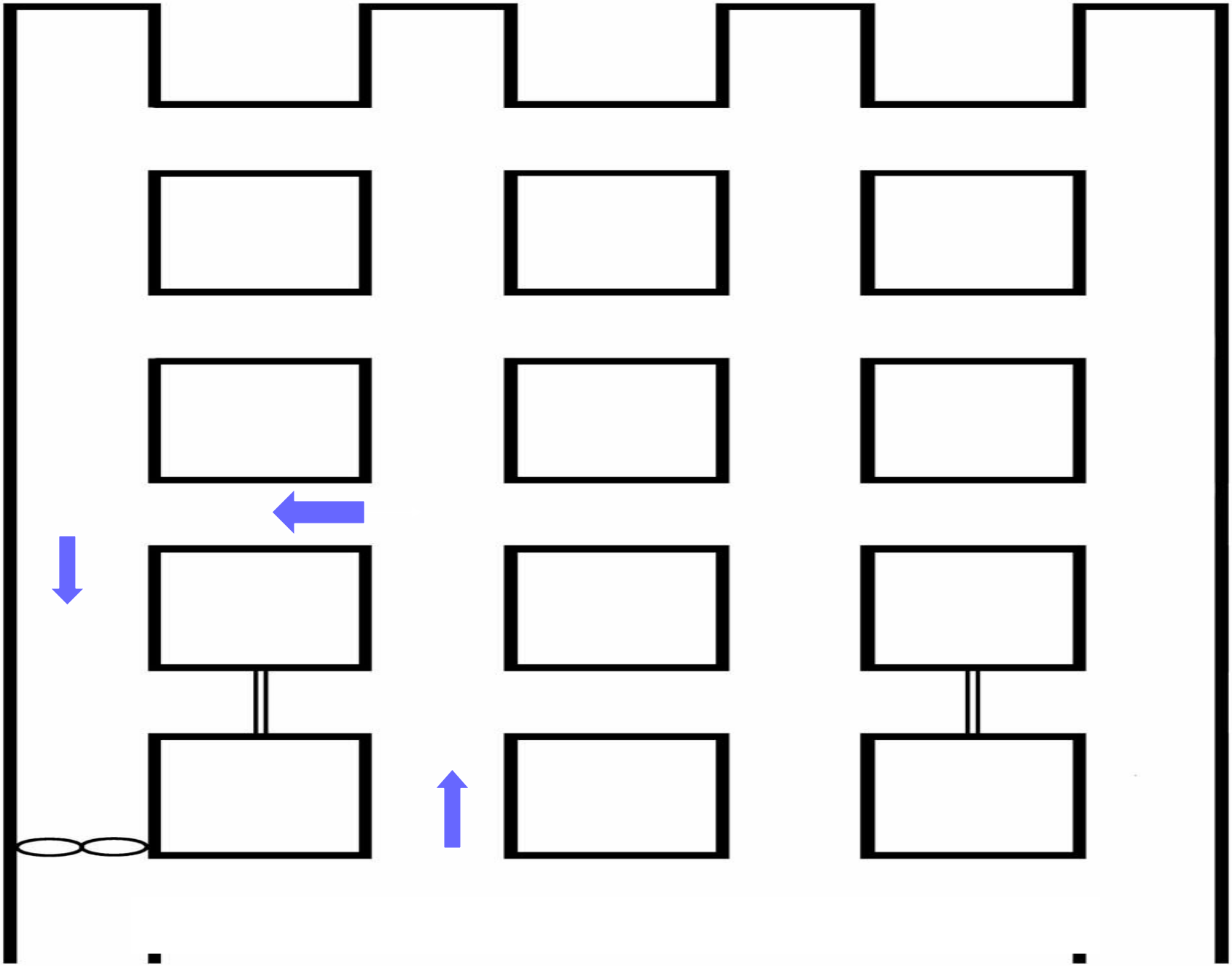



Exhausting Fan
Cut into
old works
not sealed
Return
Intake

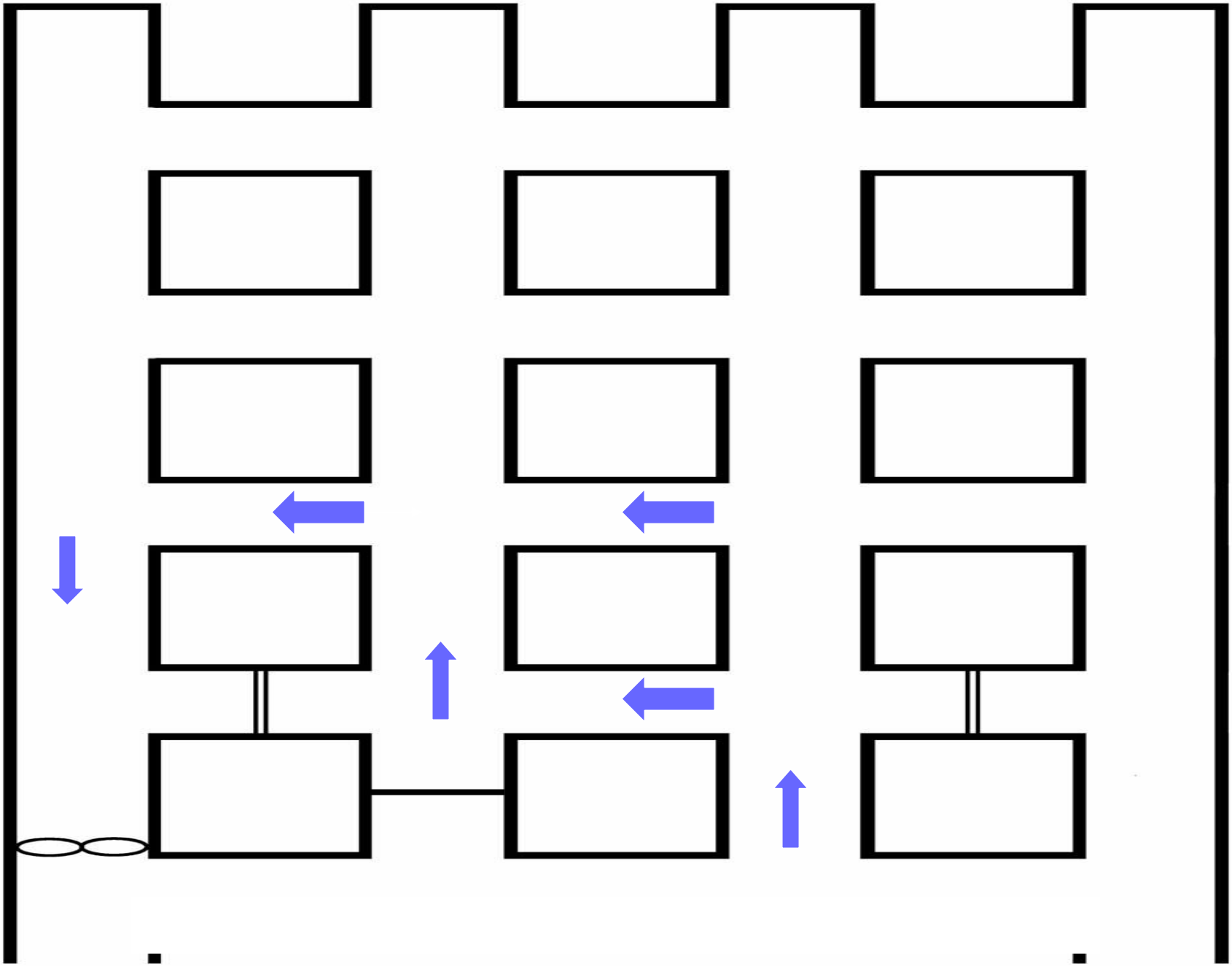
Exhaust Fan ON



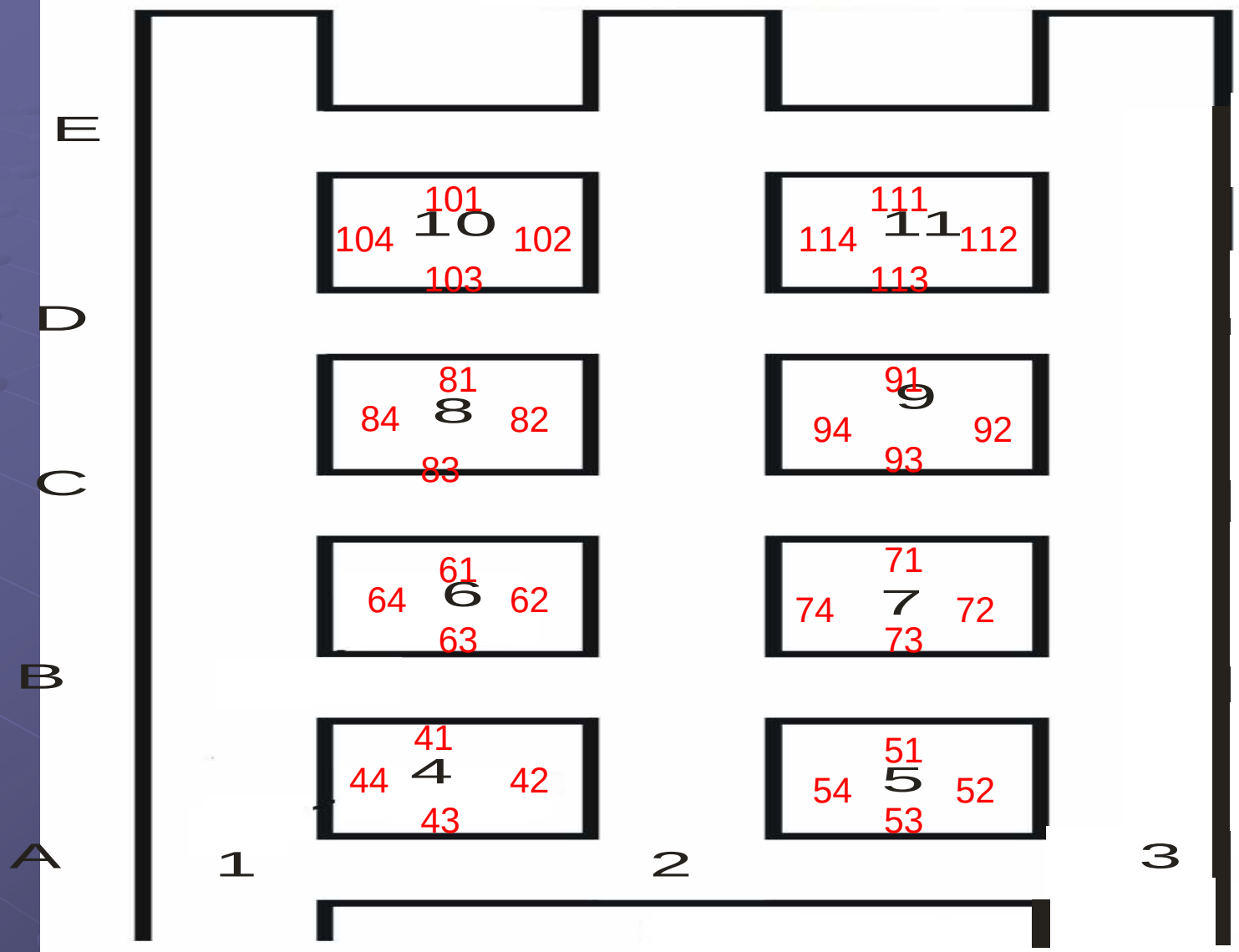
Exhaust Fan ON



Exhaust Fan ON



Blank Reference Map



CAREvent DRA
Automatic Rescue Ventilator

A. Procedures for getting under oxygen:

1. Bring mask close to face and open cylinder valve. Face mask straps may be placed over the head and the mask allowed to hang loosely prior to opening cylinder valve. This will suffice for bringing the mask close to the face.

2. Put on facepiece properly and tighten straps; observe gauge.

3. Check gauge and operation, straps, etc.