B-52

STATE OF NEW JERSEY

In the Matter of
Christopher Barkalow, *et al.*,
Battalion Fire Chief and
Fire Officer 2, Various Jurisdictions

CSC Docket No. 2016-2039

FINAL ADMINISTRATIVE
ACTION OF THE
CIVIL SERVICE COMMISSION

Examination Appeals

ISSUED: OCT 25 2016 (RE)

Christopher Barkalow and Robert Pasquariello, Battalion Fire Chief (PM1489T), Asbury Park; Michael Auble and Matthew Deibert, Battalion Fire Chief (PM1490T), Atlantic City; Jacinto Lopez Jr., Bryan Stanislawski, and Jason Zebrowski, Battalion Fire Chief (PM1491T), Bayonne; Scott Wentworth, Battalion Fire Chief (PM1492T), Belleville; Steve McConlogue, Kevin Preston, Michael Shuflat, and Steven Strauss, Battalion Fire Chief (PM1494T), Elizabeth; Audra Carter and Joseph Grossi Jr., Battalion Fire Chief (PM1496T) Hoboken; Thomas Pizzano II, Battalion Fire Chief (PM1497T), Millburn; Joseph Delikat, James Lyones Jr., and John Meixedo, Battalion Fire Chief (PM1499T), Newark; Mark Buriani, Battalion Fire Chief (PM1509T), Trenton; Henry Sisbarro III, Battalion Fire Chief (PM1510T), Union Township; Jose Colon, Loren Hart, John Johnson, and Thomas Jones Jr., Fire Officer 2 (PM1513T), Jersey City; Kevin Cowan Sr., Michael Crossan, Todd Estabrook and Steven Wojtowicz, Fire Officer 2 (PM1514T), North Hudson Regional Fire and Rescue Service; Dwayne Dixon, Agripino Figueroa and Samuel Munoz, Battalion Fire Chief (PM1515T), Camden, appeal the correct responses to various questions on their respective promotional examinations. These appeals have been consolidated due to common issues presented by the appellants.

It is noted for the record that this two-part examination consisted of a written multiple-choice portion and an oral portion. The written portion of the examination consisted of six scenarios. Each scenario had a description and various accompanying diagrams, and candidates were required to answer questions pertaining to each scenario. The appellants challenge the correct responses to

questions 4, 9, 10, 11, 15 through 19, 21, 23, 24, 27, 29, 30, 31, 34, 35, 40 through 45, 48, 50, 52, 53, 54, 57, 60 through 63, and 65 through 68.

After examination reviews, but prior to this decision, two changes were made in scoring. Specifically, question 34 was double-keyed to options a and b, and question 44 was double-keyed to options b and d. An independent review of issues regarding test questions has resulted in the following findings:

Questions 1 through 12 pertain to the first scenario, a report of fire in a 2-story, side-by-side, ordinary construction, row-frame building built in the early 1900s. It is a Thursday evening (6:30 p.m.) in July with a temperature of 92 degrees Fahrenheit and clear skies. There is a slight wind blowing from the east to the west at 5 MPH. The appellant is the first arriving officer on scene and establishes command. Side B faces the attached building and there is a hydrant located in front of the building on Side A. The water supply is adequate. Upon arrival, the candidate notices fire and smoke coming from the 2nd floor windows of Side A of the involved building. Dispatch reports that there are residents that are not accounted for. The candidate serves as the Incident Commander (IC) for the duration of this incident.

Question 4 asked for the **MOST** effective way of preventing extension to the exposures based upon the scenario description and diagrams. The keyed response was option a, 1¾ inch lines to the 2nd floor of Exposure B. Mr. Buriani argues that the correct response is option b, 2½ inch line to the 1st floor of Exposure B. In support, he states that the question used the plural word "exposures," and did not specify which exposures to choose. He argues that option b is equally effective.

In reply, the fire in the fire building was on the second floor. According to pages 408 and 409 of the text, *Fire Officer's Handbook of Tactics, 4th Edition,* by John Norman, standard practice in an old-style row frame with fire on the top floor calls for 1¾ inch lines to be stretched into the top floor of each exposure to stop extension in the cockloft, while other crews work on darkening down the original fire. Fire on the second floor of the fire building is more likely to extend through the cockloft to the attached rowhome than it is to go through the wall of the first floor. Additionally, a 2½ inch line in a row home exposure is impractical and unnecessary in all but the largest residential fires. The keyed response is correct.

Question 9 indicated that the ladder company is about to shut off the power; however, the firefighters are unsure if it is safe to proceed, since water has collected on the floor in front of the electrical panel. This question stated that the candidate "should tell them to ...," and the keyed response was option d, stop, because standing on a wet floor could produce arcing. Mr. Strauss argues that the correct response is option a, proceed, since their boots will prevent an electrical current from being made. He states that the power will be shut off at the circuit breaker

panel, water from the hoses is usually on the floor, and it is normal practice for breakers to be shut off regardless of the type of boots being worn. He states that, unless the breaker panel itself is wet, the plastic and the service breaker alone is sufficient to prevent arcing, even if a person were standing directly in water, as a 120/240-volt circuit breaker can only arc for a very short distance or travel a modest distance along a moist pathway. He states that to be electrocuted in this situation, a fire fighter must have boots with a hole in them, high water or entirely wet boots, and a wet circuit panel. He explains that if you did not shut off the electric, there is a slim chance someone on a line could get electrocuted when the hoseline inadvertently contacted an electric outlet or wire, so you could not operate a hose line with the power on and must evacuate the entire building. He argues that a wet basement floor is not a reason to give up an interior attack, there has not been an electrocution while turning off a circuit breaker in the last 20 years, an insulated tool such as a screwdriver could cut off the circuit breaker without risking any chance of electrocution, and [by] code electrical panels are never placed lower than the level of ankle boots worn by firefighters.

In reply, page 275 of *Safety and Survival on the Fireground*, 1st edition, by Vincent Dunn, states that arcing is the situation in which a large electric spark jumps between two closely spaced, conductive objects when electric current is interrupted, and one the of the conductive objects could well be a firefighter. A spark might jump from the panel to the firefighter when he is shutting off the electrical supply and standing on a wet, conductive floor. Based on this text, *Dunn* does not support that the boots would protect the firefighter. As such, the keyed response is the best response.

Question 10 indicated that the fire has entered the cockloft of the involved building and the candidate decides to apply a tower ladder bucket master stream. Candidates were to complete the sentence, "You should have the stream positioned ...," and the keyed response was option b, below the cockloft so that the water streams up. Mr. Johnson argues that the correct response is option c, to the left of the building to cover the Side B exposure. He explains that fire spread through the unprotected void spaces in class III construction is the biggest problem. As such, he argues that his priority is to protect the cockloft in exposure B using the bucket master stream, which is safer than the keyed response. He states that this stream will be used from below in both options, but protection of the exposures and cocklofts is the first concern.

In reply, the question has indicated that the fire is in the cockloft in the involved building. The water has to get to the fire, and applying the water from below will create steam which will then cool the fire, and the steam can vent through any openings cut in the roof. Page 118 of *Norman* explains that one of the most common reasons for using a master stream is that the fire has extended into the cockloft, and as long as part of the roof is intact, the fire will burn beneath that

section, unimpeded by a stream coming through a hole in the roof. A much more satisfactory approach is to put a lot of water on the fire from underneath where it will cool off the fuel, thus stopping the production of gases and, consequently, flame. Applying water to the left of the building to cover the side B exposure will not fight the fire in the cockloft. The keyed response is the best response.

Question 11 asked for the **GREATEST** risk to firefighters in the tower ladder bucket based upon the information stated in **question 10**. The keyed response was option b, collapse of the cornice. Mr. Grossi argues that the correct response is option a, curtain wall collapse. He states that, according to page is 552 and 553 of *Norman,* a falling wall could strike ladders or platform baskets positioned too close to buildings, causing injury or damage to the apparatus. He also indicates that page 224 of *Safety and Survival on the Fireground* (1992) by Vincent Dunn shows a picture of an aerial platform with its bucket torn from the boom after a building wall collapsed.

In reply, in question 10, the fire has entered the cockloft of the involved building and the candidate decides to apply a tower ladder bucket master stream. Page 392 of *Norman* states that even if the building is a traditional multiple dwelling with wood joists and masonry walls, there is the threat of partial collapse from the metal cornices on many buildings. There is no indication in the scenario that the tower ladder bucket is too close, or that the building is threatening to collapse. The building is of ordinary construction, and there is no curtain wall to collapse. The greatest risk when directing a master stream upwards towards the cockloft is the collapse of the cornice. The keyed response is correct.

Questions 13 through 24 pertain to the second scenario, a report of a fire in a two-story, ordinary constructed apartment building built in the 1960's which houses eight attached apartments. It is a Monday morning (7:30 a.m.) in March with a temperature of 40 degrees Fahrenheit and overcast skies. The wind is blowing from the west to the east at 15 MPH with gusts up to 20 MPH. The candidate is the first arriving officer on scene and establishes command. Upon arrival, the candidate notices smoke and flames coming from Side A of the involved building and a civilian informs the candidate that there is a victim on the second floor. The candidate serves as the IC for the duration of this incident.

Question 15 asked for the form of ventilation the candidate should avoid, based upon the scenario description and diagrams. The keyed response was option b, ventilation of the windows on Side B. The appellants argue for option c, ventilation of the roof, and option d, ventilation of the windows on Side C. In support of option c, they argue that there is a confirmed victim on the second floor with fire on the first floor; page 243 of *Norman* indicates that venting should draw fire away from the life hazard, and ventilating the roof will draw fire up the interior stairway to the second floor to the confirmed victim, and be more catastrophic than

the keyed response; page 243 of *Norman* indicates that horizontal ventilation is preferred at minor to moderate fires and not all fire demands vertical ventilation, thus, horizontal ventilation was sufficient; page 139 of *Norman* indicates that roof venting is not initially required, but horizontal venting is, as it greatly speeds the advancement of the hoseline; and, a previous question had stated the roof was unsafe due to water buildup. In support of option d, the appellants argue that side C is clear and not on fire, so venting that side would draw smoke and fire to the unburned side where the engine company will attack the fire; venting side C will result in fire on the whole first floor and an exterior attack; not venting side C results in the engine company entering through the rear and pushing and extinguishing the fire out the A/B side; and, the possibility of a life hazard could be impacted.

In reply, in the scenario, there is fire in the interior on side A, in the living room and stairs, but is has not yet extended to the second floor, and the diagram indicates that there is no fire on the second floor. The wind is blowing from the west (side B) to the east (side D) at 15 MPH with gusts up to 20 MPH. This question is independent of the rescue of the victim on the second floor, as rescue of the victim takes priority over ventilation for fire. Page 114 of *Brannigan's Building Construction for the Fire Service, 5th Ed.,* by Francis Brannigan and Glenn Corbett, states that if winds exceed 10-20 MPH, their role in driving the fire within a building must be considered from a tactical standpoint. Current protocols call for attacking the fire from upwind and, in some cases, limiting ventilation. As such, breaking windows on side B will allow 15 MPH wind to supply oxygen to the fire and speed fire spread. While the ventilating side C or the roof is not optimal, side B is the least desirable side to ventilate. The keyed response will not be changed.

Question 16 indicated that the candidate orders a thermal imaging camera (TIC) to be used to search for signs of extension. It asked how should the TIC be directed. Candidates were to complete the sentence, "That it should start from ...," and the keyed response was option d, the ceiling and sweep the camera side to side. Ms. Carter argues for option c, the ceiling and sweep the camera top to bottom. She states that page 282 of *Norman* indicates, "a good habit to get into is to perform a modified Z-pattern sweep, directing the camera from side to side along the ceiling level looking for signs of fire traveling overhead, then dropping down the eye level and again sweeping side to side looking for landmarks.

In reply, the appellant's quote on page 282 of *Norman* supports the key, starting from the ceiling and sweeping the camera side to side.

Question 17 asked where should the company begin their search when ordering a primary search of the second floor apartment. Candidates were to complete the sentence, "The company should start from the ...," and the keyed response was option c, point where they enter the building. Mr. Delikat argues for

option a, point closest to the seat of the fire. Mr. Colon argues for option b, point furthest away from the fire. Other appellants argue for option d, areas mostly likely to have extension. Mr. Delikat indicates that page 244 of *Dunn* indicates that searches should start at the point of fire origin and work outward. Mr. Colon argues that page 285 of *Norman* states that a primary search is best begun away from the area directly above the fire, and progress in the direction of the fire. In this case, the best route for the search would be from side C to side A. The appellants arguing for option d state that the point of entry was through the front door, and page 285 of *Norman* states that, when beginning a search of floors above a fire, start the search as soon as you enter the floor area and progress in the direction of the fire up. Thus, a search from the point where they enter the building would waste valuable time. Instead, the search team should immediately progress to the floor above the fire and begin when the team reaches the floor. They must do so quickly, because of the danger of superheated gases and smoke present in the stairwell. Searching the areas that are likely to have fire extension adheres to the principle of progressing in the direction of the fire. In this case, that would be above the fire.

In reply, the fire blocks the front door and the stairway to the second floor, and there is a known victim on the second floor. As the stairway is blocked by fire, entrance through the front door or through the door on side C on the first floor is not the preferred method of ingress to rescue the victim on the second floor. Rather, the building should be laddered and the search should begin on the second floor after entering through a window. As noted, page 285 of *Norman* states that, when beginning a search of floors above a fire, start the search as soon as you enter the floor area. Firefighters will enter the floor area when they enter the building through a second floor window, and they should start their search from the point where they enter the building. Starting at the point closest to the seat of the fire is clearly incorrect as this is a primary search of the second floor apartment and the fire is on the first floor. The point furthest away from the fire is also incorrect, as that would bypass the ingress and egress route of the second floor, where fire is located in the stairway, and a search should include the routes people normally use to enter and exit the building. Starting from the areas mostly likely to have extension is also incorrect. In order for it to be correct, the search crew would have to assess where the fire was most likely to extend, and proceed to that area first. Diagram 4 indicates that there is no smoke on the second floor, and as such, fire extension is not imminent. Visibility is good and the search should be quickly completed without delay. The keyed response is the best response.

Question 18 indicated that the candidate orders the second line into the 2nd floor apartment above the fire. Candidates were to complete the sentence, "They should proceed once ...," and the keyed response was option c, the 1st floor fire is being controlled. Mr. Shuflat argues for option a, the rapid intervention crew (RIC) is in place, while Mr. Figueroa argues for option d, the victim's exact location is

confirmed. In support of option a, Mr. Shuflat explains that the RIC team must be on scene, and page 73 of *Norman* indicates that the main priority must be to position the hoseline to protect the interior staircases for life safety and confining the fire. He argues that you should not wait until the fire is controlled, but must do so when the RIC team is on-scene. In support of option d, Mr. Figueroa argues that page 5 of *Norman* indicates that smoke travels up pipe chases, and poke-throughs going from stacked bathrooms, and the victim is in the bathroom.

In reply, page 81 of *Dunn* states that when a second attack team is ordered to stretch a hoseline above the fire, the officer of that company must visually check that the initial hose line is charged and controlling the original fire floor before going up the stairs. The RIC is on scene for firefighter safety, but the arrival of the RIC does not trigger the advancement of the second line. Further, the second line is advanced to the second floor apartment for protection of extension and egress. As such, the victim does not need to be found in order to advance the second line. The keyed response is correct.

Question 19 indicated that the candidate orders a ladder company to provide a second means of egress for companies operating on the 2nd floor. The candidates were to complete the sentence, "They should ladder the ...," and the keyed response was option d, 2nd floor windows on Side C. The appellants argue for option b, 2nd floor windows on Side B. In support, they explain page 171 of *Norman* indicates that the bedroom has the highest life hazard, and option b will give them access to the critical bedrooms; side C was easily accessible, then puts them in the rear bedroom, whereas side B gives access to the kitchen; side B was open to a large parking lot, and side B of the building had two large windows to the second floor bedrooms, which were in full visibility of the command post; side C contains a small bathroom window and only one access point which is in the path fire will be pushed once attacked; the question refers to "companies" operating on the 2nd floor, and the two bedroom windows on side B provide two means of egress; page 177 of *Norman* states that a vented window is more readily found under fire conditions, and the bedroom windows on side B can be vented, placing the wind at the firefighters' backs and pushing smoke away from the ladder crew; windows on side C are for a dining room and a kitchen, which are historically smaller-sized, and a sink is blocking access; the kitchen and dining room are low search priorities; venting side C would cause a negative pressure effect, drawing fire up the stairs; side C has a fence with a white railing on it, a storage shed, a patio with furniture, and a few trees, all of which are obstacles; wind is blowing from side B to side D at 15 to 20 miles per hour, which would cause heat, smoke, and fire to go from one window into the other because of the wind direction; positioning ladders on side C would put them directly in front of any means of egress/ingress; page 170 of *Norman* states that the ladder crew's highest priority is to gain access to the bedrooms and a means of egress using ground ladders; the wind is at your back on side B, blowing into the bedrooms, and of *Norman* and *Dunn* both state that when operating on

ladders you must stay upwind and keep the wind at your back; operating from side B gives fresh air to the victims and prevents heat and fire from coming out of the windows onto those on the ladders; it is not clear if this is a content fire or a structure fire, but if it is a structure fire, the side B window is suitable for egress and correct for ladder placement; and, side C would place the ladders in a 15 to 20 mph cross wind, which is dangerous.

In reply, page 179 of *Norman* instructs to not position ladders directly in front of ingress/egress routes, or where fire is likely to vent, as such locations pose accident risks, and you don't want to have to climb through fire. The response for question 15 has already explained that option b is incorrect, as wind is coming from that side at 15 to 20 MPH. Thus, entry at this side would push smoke back into the building. There are two windows on side C to the second floor, one over a sink and one into the dining room. Neither window is into a small bathroom, which is on side D. A second ladder could be put on side B, but that would be the third means of egress, and the window would not be opened unless necessary. The keyed response is the best response.

In **Question 21,** candidates were to complete the sentence, "Based upon the information stated in **question #20**, under the Incident Management Operating Guides, the ladder company would be designated as the..." The keyed response was option a, ventilation group. Mr. Auble argues for option c, roof group. In support, he states that the text *Fire Engineering* by John Norman[1] (no page number provided) clearly states the roof group is a specific location in which to set up a company for ventilation, to size up changing conditions, and determine actions needed.

In reply, the Incident Management Operating Guides indicate that groups are designated by the name of the function to be performed, and the ventilation group performs ventilation on each floor of a multi-story building. Groups are not confined to any geographical boundary, but operate across divisional boundaries. The keyed response will not be changed.

Question 23 indicated that one of the candidate's company's reports seeing smoke seeping through the Side B wall. Candidates were to complete the sentence, "This is an indication of possible...," and the keyed response was option a, collapse. Mr. Delikat argues for option b, backdraft, and states that page 107 of the *Firefighter's Handbook: Essentials of Firefighting*, 3rd edition, published by Thompson Delmar Learning, describes fire behavior in a room ready to backdraft as the smoke under pressure that will be seeping from cracks and seams.

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[1] He is actually referring to the text *Fire Officer's Handbook of Tactics, 4th Edition,* by John Norman, and the publisher is Fire Engineering.

In reply, *Delmar*'s reference to seeping is in regard to cracks and seams, while the question states that the smoke was seeping through a wall. Page 550 of *Norman* states that a collapse indicator is water or smoke seeping through a solid brick wall, which indicates a buildup of pressure on the interior as well as a weakness in the wall construction. The keyed response is correct.

Question 24 indicated that, during overhaul, a gas line in the kitchen is found to have been damaged and gas is leaking into the area. A firefighter uses a piece of clay/putty/soap to plug up the leak. Candidates were to complete the sentence, "This is...," and the keyed response was option a, only effective if used in conjunction with ventilation. Mr. Estabrook argues for option b, an effective method until the line can be repaired. Other appellants argue for option d, never an effective way of plugging a gas leak. In support of option b, Mr. Estabrook states that on page 280 of *Dunn*, a temporary repair can be made with putty, clay, a rag or soap, but that option a does not indicate that it is temporary. In support of option d, the appellants argue that it is not a safe action to operate in a fire with an active gas leak and a hasty repair does not fix the leak even with ventilation; gas will pocket low or in voids and greater concern should be given before passing a known gas leak when fighting a fire; command should be notified to have the gas company shut off the main; putty is never effective to stop natural gas leaks, putty is not a proven method of stopping a gas leak, and only shutting off a valve is a proper and secure way to stop the flow of natural gas; the question does not indicate that the Firefighter is a Haz Mat Technician, and if he is not, *Norman* states that he can only perform basic control, containment, or confinement operations; *Norman* provides other actions that can be taken, including turning the appliance valve nearby or the meter wing cock, notifying the utility company, and ventilating the area; and, using putty is not a safe practice, and although *Dunn* indicates that it has been done in the past to temporarily stop a leak, he does not indicate you should do this.

In reply, page 280 of *Dunn* states that some fire officers carry putty or clay to plug up broken or leaking gas pipes quickly; a rag or soap can be used temporarily to plug up escaping flammable gas, while other firefighters are simultaneously venting windows. Option b does not acknowledge that venting windows is necessary as well, and as such, is not the optimal response. Option d is incorrect as *Dunn* says carrying and using putty is acceptable. The keyed response is the best response.

Questions 25 through 36 pertain to the third scenario, a report of a fire at a two-story, single family home of wood-frame construction built in the 1990s. It is a Tuesday afternoon (4:30 p.m.) in April with a temperature of 52 degrees Fahrenheit and clear skies. The wind is blowing from the west to the east at 5 MPH. The candidate is the first arriving officer on scene and establishes command. Upon arrival, the candidate can see a little smoke escaping through the Side A windows.

Dispatch reports that the caller is possibly trapped in the house. The candidate serves as the IC for the duration of this incident.

Question 27 asked for the collapse hazard of this type of construction based upon the scenario description and diagrams, and the keyed response was option a, more resistant than Type II construction. Mr. Strauss argues for option d, more resistant than Type VI construction. In support, he states that a Type V building is made of wood trusses and will fail quicker than a Type II building, constructed with metal bar joists, as it takes longer to heat steel to failure. He states that a type VI building is not typically described, but is a hybrid building construction type, and the type V is more resistant.

In reply, the fire building is a type V, wood-frame, construction, and a type II is noncombustible. Option d refers to type VI construction, which is not a recognized construction type for fire service purposes. According to page 94 of *Corbett and Brannigan*, hybrid buildings are classified by the "least" type of construction present. Page 23 of *Norman* states that it might surprise some to learn that a wood-frame building poses less of a collapse hazard than does a noncombustible one. As such, the keyed response will not be changed.

Question 29 indicated that the candidate observes the ladder company attempting forcible entry utilizing the "through-the-lock" method and has spent considerable minutes on this task. Candidates were to complete the sentence, "You should order them to ...," and the keyed response was option a, use a flat-head axe and Halligan tool. The appellants argue for option c, use a hydraulic–powered forcible entry tool. In support, they contend that page 165 of *Norman* indicates that the need for speed is the overriding concern with forcible entry size up; the hydraulic powered tool is the fastest and most efficient method of gaining entry, assuming the door is not an outward swinging door, or flimsy and hollow, set in wood jambs; page 185 of *Norman* (3rd edition) details how one firefighter with a hydraulic powered tool forced four doors in less time that a two man team utilizing conventional irons; pages 224 and 225 of *Norman* explains how the hydraulic forcible entry tool is a possible correct choice since the type of door was not specified, and the fire building was Type V construction; page 224 of *Norman* describes speed and decreased fatigue as advantages over irons; and a hydraulic ram is at ready disposal and does a safer action as there is no swinging injury; and, if the ladder company is performing a through-the-lock procedure and not having success, they are already using a flat-head axe and Halligan, which were not successful.

In reply, according to page 201 of *Norman*, among the deciding factors for the appropriate forcible entry method are the need for speed, the type of door and lock assemblies, the tools and personnel available, and the degree of damage that entry will create. Page 202 states that two people should be able to force the vast

majority of doors using a Halligan-type tool plus a flat-head axe or sledgehammer. A hydraulic–powered forcible entry tool is great for steel clad doors set in metal jams, and the stronger the door, the more useful it is. However, it does not work well on flimsy or hollow doors set in wood jams, since these don't give the tool anything to push against. The fire building is a two-story, single family home of wood-frame construction built in the 1990s. As such, it most likely has hollow doors set in wood jams, and conventional means, using the flat-head axe and Halligan tool, is the best choice. A through-the-lock procedure does not use a flat-head axe and Halligan, but a variety of lock pullers and key tools. The keyed response will not be changed.

Question 30 indicates that dispatch confirms that there is a victim trapped inside the first floor bathroom, and the candidate orders a ladder company to ventilate the Side C windows. Candidates were to complete the sentence, "They should perform the ventilation ...," and the keyed response was option a, as soon as they are able to perform the task. The appellants argue for option c, once the engine company has a charged line in place, and option d, once the engine company has rescued the victim. In support of option c, the appellants argue that you must wait for a hand line if venting for life is causing more harm; venting immediately will cause fire growth and intensity and put the occupants in more danger; pursuant to research done by Underwriter's Laboratory (UL), venting low and high windows in a ventilation-limited fire situation creates prime conditions for a flashover, so an early ventilation can endanger firefighters; current practice is coordinated ventilation (with application of water) even when there are fire victims present; the diagram indicates fire is beyond where the victims are trapped, and therefore venting should be on side D to pull fire away from the victims; page 285 of *Norman* states that either the victim must be removed or hoseline must be brought in to protect the victim; sufficient personnel on the fireground and a coordinated effort would be the safest circumstance and the most people would be saved; and, venting without coordination could cause a backdraft explosion, or at the very least, draw smoke and fire toward a victim. In support of option d, the appellants argue that the victim should be rescued first, and page 243 of *Norman* states that horizontal ventilation for life hazard must be coupled immediately with rescuing or removal of the victims.

In reply, the first floor bathroom is on side B, and has no windows. Also, there are no windows on side D on the first floor. The victim must be removed or a hoseline must be brought in to protect the victim, but this does not address the question regarding ventilation. The kitchen, dining room and living room are involved in fire and, as there are windows and doors on sides A, B and C, this is not a ventilation-limited fire situation. As such, conditions do not suggest the possibility of a backdraft and these are not prime conditions for a flashover. Pages 242 and 243 of *Norman* state that, "Venting for life should obviously begin as soon as possible after the life hazard is recognized...For example, if a person is reported

to be in a room adjacent to the fire area, venting the windows will allow an influx of fresh air to someone whose life depends on it. Still, if you don't immediately take steps to remove that victim, you may worsen his or her plight by drawing fire toward the vented window." *Norman* also indicates that one of the main reasons for venting is to provide fresh air for breathing and to improve visibility while searching. Also, it states that firefighter masks do not always protect them. Clearly, option c is incorrect as it delays an influx of fresh air for the victim, and option d is incorrect as a lack of ventilation during rescue hinders firefighter visibility while searching, and endangers firefighters on the assumption that their masks will protect them and due to a buildup of heat. When operating in an environment immediately dangerous to life and health, *Norman* advises that ventilation should be performed as soon as possible. The keyed response will not be changed.

Question 31 indicates that the fire has now spread to the outside of the 1st floor and is beginning to travel up the sides to the 2nd floor, causing the window and objects near the window to ignite. Candidates were to complete the sentence, "This occurs through a combination of ...," and the keyed response was option b, radiation and convection. Mr. Johnson argues for option a, conduction and radiation. In support, he states that conduction is defined in the text as the transfer of heat through direct contact, while convection is the transfer of heat by physical movement of hot masses of air. He states that it rises up near the ceiling, heats the cooler air, and helps the combustion process to continue by mushrooming at the ceiling and moving the heated air and gases out to the side and down. He explains that the house has exterior walls made of plywood covered with vinyl, and flames are in direct contact causing the next row of vinyl and plywood to ignite, which is conduction.

In reply, page 112 of *Corbett and Brannigan* states that auto exposure describes the vertical spread of fire on the exterior of a multistory building, from one floor to the floor(s) above. The flames and hot gases exiting a window pass up the side of a building, heating the window and objects in the room directly above, potentially causing them to ignite. In such a case, heat is transferred through a combination of radiation and convection. The keyed response is correct.

Question 34 asked what color would the smoke in the room be based upon the information stated in question #32. The keyed response was option b, dark gray. The appellants argue for option a, black, and option c, light brown. In support of option a, the appellants argue that page 208 of *Dunn* gives warning signs and Chief Dunn has provided an update which indicates that dense black smoke is a warning sign of a backdraft explosion; the question is not "author specific," which leaves it open to general knowledge, and while *Norman* mentions dark gray smoke, other publications list black smoke, especially in cases of smoke and heat held in by tightly sealed windows; page 639 of *Delmar* lists black smoke as a sign of a potential

backdraft; this is a newer home with thermopane windows, which lends itself to holding heat and smoke due to energy efficiency; and, smoke color is not as reliable as it once was due to increased use of plastics and synthetics, and distinguishing between dark gray and black smoke is not realistic as people see colors differently. In support of option c, the appellants simply state that that is their opinion, or that some texts have brown as a color of backdraft.

In reply, question 32 indicated that Engine 2 reported backdraft conditions in one of the closed 2nd floor bedrooms. Page 510 of *Norman* states that when less than sufficient oxygen is available, large amounts of dark gray or yellow gray smoke are produced. This is an indication of potential backdraft, especially if the smoke is issuing under pressure and being drawn back in to the building. 208 of *Dunn* gives warning signs, but does not include a smoke color. Page 107 of *Delmar* lists yellowish-brown or yellowish-grey smoke present in backdraft conditions. Page 639 of *Delmar* lists black smoke as a sign of a potential backdraft. No text listed light brown as a possible color. As such, the correct response to this question should be double-keyed as options a and b.

Question 35 asked for the next course of action based upon the information stated in **question #32**. The keyed response was option b, vent the roof. Mr. Delikat argues for option c, vent the windows. In support, he states that the time it would take to perform roof ventilation operations would do more harm than good, and performing horizontal ventilation is more advantageous.

In reply, as noted above, question 32 indicated that Engine 2 reported backdraft conditions in one of the closed 2nd floor bedrooms. According to page 42 of *Norman*, if a backdraft explosion is suspected, the first tactic that should be attempted is to vent the highest portions of the affected area, usually the roof. If ventilation is performed in the wrong location, you can get an explosion. The appellant is simply incorrect, and the keyed response will not be changed.

Questions 37 through 47 pertain to the fourth scenario, a report of a fire in a fast food restaurant of steel bar joist construction built in the 1980s, but renovated in the mid 2000s. It is a Saturday afternoon (1:00 p.m.) in September with a temperature of 71 degrees Fahrenheit and overcast skies. There is little to no wind. The candidate is the first arriving officer on scene and establishes command. Upon arrival, the candidate notices smoke coming from the roof of the building. According to witnesses, there are employees and customers who are still unaccounted for. The candidate is the IC for the duration of this incident.

Question 40 asked for the BEST means to extinguish the grease fire, and the keyed response was option d, wet chemical extinguisher. Some appellants argue for option b, CO^2 extinguisher, while Mr. Strauss argues for option c, fog pattern. In support of option b, the appellants argue that page 185 and 186 of

Delmar (2nd edition) (page 215 of 3rd edition) states that a common extinguishing agent for cooking oil fires is a carbon dioxide extinguisher; page 100 of *Delmar* (2nd edition) states that a smothering agent prevents oxygen from getting to the fuel and propagating the chain reaction of fire, which collapses due to the lack of oxygen; and, pages 215 through 217 of *Delmar* indicate that class K fires are "wet chemical," fixed systems, and a common extinguishing agent is carbon dioxide. In support of option c, of Mr. Strauss argues that multiple smoke clouds are coming from the building, so it has a sizable fire, and the Hand K type extinguisher should be used only with full visibility in order to be able to approach the fire and direct the nozzle.

In reply, pages 216 through 217 of *Delmar* indicate that Class K is a new classification of fire as of 1998 and involves fires in combustible cooking fuels, and class B extinguishers are less effective for deep layers of cooking oils. Class K agents are usually wet chemicals, water-based solutions of potassium carbonate-based chemical, potassium acetate-based chemical, potassium citrate-based chemical or a combination. It states that these agents are usually used in fixed systems, but it does indicate that a common extinguishing agent is carbon dioxide, which is used for Class B fires. Additionally, the NJ Fire Code 904.11.5.1 Portable fire extinguishers for solid fuel cooking appliances, states that all solid fuel cooking appliances, whether or not under a hood, with fireboxes 5 cubic feet (0.14 m3) or less in volume shall have a minimum 2.5-gallon (9 L) or two 1.5-gallon (6 L) Class K wet-chemical portable fire extinguishers located in accordance with Section 904.11.5. Option c is incorrect as it uses water. The keyed response is correct.

Question 41 indicated that the candidate considers using the HVAC for vertical ventilation. It asked which is NOT a consideration when contemplating using the HVAC system, and the keyed response was option b, capacity of the HVAC. The appellants argue for option d, floor layout. In support, they argue that there is no correct answer as page 476 of *Fundamentals* states that if the HVAC system does not have the capacity to pressurize areas with fresh air, and exhaust contaminated air to the outside, it can complicate problems; page 450 of *Norman* states that use of the HVAC system can provide beneficial results if it is properly designed and used; and page 336 of *Norman* speaks of the practice of using the HVAC to vent smoke for high-rise fires only, and the HVAC unit was sized for the exact cubic feet of the structure. It is noted that Mr. Dixon selected option d, but argues for the keyed response, option b. In his appeal, he believes the keyed response was option c, location of civilians, and that he had selected option b.

In reply, page 450 of *Norman* states that the IC must weigh the benefits to be gained (faster smoke removal) against the dangers posed (risk of spreading or intensifying the fire) before deciding to allow the HVAC to be used. The IC must know the following: 1. The exact location of the fire. 2. The floor layout and the location of the stairs, air supply, and return shafts and outlets. 3. The location of

firefighters and civilians. 4. The fire conditions. 5. Whether using the system will endanger firefighters or civilians by drawing fire toward them. The keyed response is correct.

In **Question 42,** candidates were to complete the sentence, "When considering performing vertical ventilation in this type of structure, you should ...," and the keyed response was option a, perform it while large hoselines cool the underside of the roof. Mr. Dixon argues for option d, have cuts made parallel to the short side of the building. In support, he argues that *Norman* states that every strip mall cannot be given up, and that store fires with restaurants are worse than fires in single stores.

In reply, while store fires with restaurants can be worse than fires in single stores, this was neither. The fire building is not in a strip mall, but it is a fast food restaurant of steel bar joist construction. Page 358 of *Norman* states that it is possible to operate safely on a metal deck roof, and operations should begin by using a large hose line for cooling unprotected steel joists, preventing their failure while other large streams are used to knock down the main body of fire. With roof supports protected, the ventilation team can safely vent the roof. This question is correctly keyed.

Question 43 indicated that, during extinguishment operations, an interior crew reports that a huge amount of black smoke under pressure is emanating from the suspended ceiling. Candidates were to complete the sentence, "This is MOST likely an indication that ...," and the keyed response was option b, a backdraft is about to occur. The appellants argue for option a, flashover is about to occur, and option c, rollover is about to occur. In support of option a, the appellants argue that black charged smoke is an indication of a flashover, and smoke from a backdraft would be yellow-gray and puffing; there is not enough information about the smoke and conditions to answer the question, the conditions described a free-burning fire rather than a backdraft condition; page 113 of *Corbett and Brannigan* defines flashover and states that it involves full room involvement, while page 114 describes a flameover (or rollover); page 66 of *Fireground Sizeup* by Terpak, states that a sign of a flashover is heavy smoke under pressure; page 27 of *Norman* indicates that flashover conditions include movement of smoke, heavy rolling clouds violently twisting skyward, and fire igniting from openings where the smoke is issuing; page 511 of *Norman* describes the same conditions as page 27 and states that this is called "black fire;" page 155 of *Fundamentals* indicates that the smoke that precedes a backdraft is thick yellowish smoke, and page 27 of *Norman* describes large amounts of dark gray or yellow-gray smoke with a backdraft; and, page 160 of *Fundamentals* indicates that black smoke under pressure describes black fire, which includes black smoke which is high volume, high velocity, turbulent and ultra-dense; page 159 of *Fundamentals* indicates that turbulent smoke flow is related to heat in the smoke, and contains an immense amount of

energy which, when ignited, will result in a flashover. It is noted that Mr. Cowan argues for option a although he selected option d. In support of option c, Mr. Strauss argues that page 72 of *Dunn* describes a rollover while page 75 describes a backdraft. *Dunn* indicates that black smoke coming out of a hole in a suspended ceiling is a rollover as you have combustible gases in a compartment that get mixed with air via the hole, and come out ignited. Also, for a backdraft, there should be a sealed area with air introduced, rather than a hole already present, and you would get an explosion, not just flames.

In reply, page 116 of *Corbett and Brannigan* indicates that a ceiling made of suspended combustible tile creates a combustible void above the tile. In such a ceiling, a huge amount of black smoke under pressure is a signal that a backdraft is imminent. A flashover is a sudden event that occurs when all the contents of a container (room) reach their ignition temperature nearly simultaneously, generating intense heat and flames. Prior to flashover, smoke gases with lower ignition temperatures ignite intermittently within the upper thermal layer, and this is called a rollover. Rollovers appear as fingers of flames that come and go. The description in this question of a huge amount of black smoke under pressure does not describe either a flashover or a rollover. The description did not include fire or fingers of fire, state that the smoke was turbulent, or describe black fire. It indicated that the smoke was under pressure so there were no holes present. The keyed response is correct.

Question 44 indicated that a firefighter on the hose line near the fire area is seen being knocked down by falling, burning debris and is not moving. Candidates were to complete the sentence, "Your FIRST action should be to ...," and the keyed response was option b, use all available lines to protect the firefighter. The appellants argue for option d, activate and deploy the RIC team. In support, they argue that page 329 of *Norman* indicates that it is vitally important to continue to fight the fire when a Mayday is transmitted, or the trapped firefighter and rescuing firefighters will be in severe danger; the RIC is the most important element in successfully rescuing firefighters, and firefighter safety is the first concern at all incidents; page 298 of *Norman* indicates that all members should transmit a Mayday message before attempting an emergency escape; page 313 of *Norman* indicates that command should be notified immediately and many fire fighters wait too long to call a Mayday; the IC must be notified through Mayday procedures; the keyed response encourages delay for calling for immediate help and violates the reason why the RIC concept was developed; calling for the RIC adheres to recognized guidelines for the proper response to a stricken fire fighter, since none of the options include calling a Mayday; calling for the RIC takes only seconds and would not significantly delay the repositioning of hand lines to protect the stricken firefighter while help is on its way, while repositioning handlines would take much longer than calling for a RIC; since the scenario has the candidate as the IC for the duration of the incident, ordering the RIC to deploy is the realistic and expected

action, while orders for handlines on the trapped firefighter would come from a company officer, Operations Chief, or firefighters witnessing the event; page 313 of *Norman* states that notifying command immediately is essential for not wasting precious time for command to dispatch needed resources; page 329 of *Norman* provides seven steps that the IC should take for a missing, trapped, or unconscious member, and assigning resources to remove the member is one of the steps while applying hose streams is not; the key is tactically acceptable, but not an action for the IC; it is not the responsibility of the IC to order a single task; page 329 of *Norman* states that is important that operating units continue to fight the fire when a Mayday is transmitted, and the RIC is on-scene for the purpose of rescue of downed firefighters; the IC is more effective describing the event over the air rather than trying to verbally reach teams operating handlines in the area, as nearby teams would be alerted, and the RIC would be dispatched; redirection of handlines is a distraction and a delay in calling a Mayday; an IC would not be operating a handline, and could be pointing or motioning with their hands to alert others while giving a transmission; pages 312 through 314 of *Norman* provide Mayday protocols, the situation described warrants a Mayday, and people who are already committed on the fireground can be tired from firefighting; and, option d is correct pursuant to RIC New Jersey guidelines.

In reply, since the firefighter is knocked down and not moving, he cannot self-extricate. The nearest hoseline should be used to extinguish the debris around the fallen fighter, either without a specific order or by order of the company officer overseeing the downed firefighter. The IC will not have to issue this order, but his first action should be to activate and deploy the RIC. Thus, this question should be double-keyed to options b and d.

Question 45 asked which radio message should be broadcast FIRST based upon the information stated in **question #44**. The keyed response was option d, Mayday. Mr. Wojtowicz argues for option b, request additional resources. In support, he argues that as the IC, his first transmission would be for additional units, and as the IC, he would not be calling the Mayday.

In reply, this question does not ask for the first radio message to be broadcast by the IC, it merely asked which radio message should be broadcast first. A Mayday must be broadcast first when a life threatening situation is developing or has occurred. The keyed response is correct.

Questions 48 through 58 pertain to the fifth scenario, a report of a fire in a geriatric medical practice building, built in the 1960's. It is a Thursday afternoon (12:00 p.m.) in April with a temperature of 52 degrees Fahrenheit and clear skies. There is little to no wind. The candidate is the first arriving officer on scene and establishes command. There are two doors on Side A which are non-functional and do not grant access to the building. The front entrance is located near the A/D

corner and has a handicap accessible ramp leading to the parking lot. Sides A and B face parking lots. The C/D corner faces a private high school that is currently in session. Side D faces a dormitory, 40 feet away. Upon arrival, the candidate notices smoke coming from the roof of the building. An employee who escaped tells the candidate that the fire started near the entrance and that there were elderly patients and medical staff, that she did not see escape. The candidate is the IC for the duration of this incident.

Question 48, asked for the type of construction of this building based upon the scenario description and diagrams. The keyed response was option d, type V. The appellants argue for option b, type III. In support, they state that the construction had a brick veneer and wood studs, which meant that it was ordinary, with a two hour fire rating; page 244 of *Corbett and Brannigan*, states that type III construction began in 1955, and the building was made in the 1960s; brick veneer is popular in commercial structures, and is applied to buildings other than wood; and, wood studs can be used in any construction type for mounting and construction purposes, and a veneer mounted to wood studs is not exclusive to any type of construction.

In reply, this building was described as a geriatric medical practice building, built in the 1960s, with a brick veneer anchored by steel anchors nailed to wood studs. Page 244 of *Corbett and Brannigan* states that "the simplest ordinary construction building consists of masonry bearing walls, with wood joists used as simple beams spanning from wall to wall." Thus, type III requires that the brick walls of the building be loaded bearing or structural in nature. Page 213 states that, "Brick veneer siding is popular for wood frame residences, garden apartments, and smaller commercial buildings in areas where brick is economical. The brick is not structural, that is, it carries no load except itself." The brick veneer is not load bearing, but the wood studs of the walls are load bearing. The wood-frame construction is further confirmed by the mention of the wood studs, which are the load-bearing elements to which the brick veneer is attached. As such, the construction is characterized as type V, and the keyed response is correct.

Question 50 indicated that the candidate notices heavy, rolling smoke clouds violently twisting skyward upon arrival. Candidates were to complete the sentence, "This is usually an indication ...," and the keyed response was option d, of an intense fire, deep within the structure. Mr. Strauss argues for option a, that Class A materials are burning. In support, he states that Class A materials are ordinary combustibles, this is a medical building, and there would be no other type of material burning. He argues that the roof, such as one with asphalt shingles, vinyl siding, debris, or a vehicle behind the building could have been burning.

In reply, page 511 of *Norman* states that heavy, rolling clouds violently twisting skyward indicate extremely hot smoke from an intense fire deep in the

building. This is an indication of a flashover. According to page 443 of *Norman*, signs of an ordinary Class A combustibles fire are gray to brown smoke. The description in the question is best for the keyed response, an intense fire, deep within the structure, and will not be changed.

Question 52 indicated that firefighters report that they have encountered a large cylinder oxygen tank with fire impinging on it. Candidates were to complete the sentence, "You should order them to ...," and the keyed response was option b, darken any fire encroaching on it. Mr. Cowan argues for option a, evacuate the area immediately. In support, he states that page 503 of *Norman* states that you should hide behind any substantial object until you apply water, so evacuate the area is a better response.

In reply, the first priority with a large cylinder oxygen tank with fire impinging on it is to cool the shell. As such, the best course of action is to darken any fire encroaching on it. The question does not state that fire has melted the valve handle and regulator, that gas is leaking, or that the fire has added too much heat to the cylinder. Evacuating the area in anticipation of a BLEVE (boiling-liquid, expanding-vapor explosion) is premature given the conditions. The keyed response will not be changed.

Question 53 indicated that the initial attack team begins to push the Side A entrance. The candidate observes the backup team directly behind them. Candidates were to complete the sentence, "You should order the backup team to ...," and the keyed response was option c, give the initial attack team some room in case they need to retreat. They appellants argue for option a, stay in their position to more readily assist the initial attack team. In support, they state that this question is ambiguous, as the question did not indicate that the backup team was too close or overcrowding the attack team; human life was at stake, since patients and staff were in the building, so an offensive attack was mandatory; page 51 of *Norman* states to get the first line in place between the fire and the occupants as soon as possible, and commit all available personnel to this task; page 52 of *Norman* suggests that, for larger flows, commit a second hand line to the same position as the first one; there was no indication of a backdraft in the circumstances, so all available crew should work on getting the initial hand line stretched before attempting a backup line; a second crew behind the first is a standard operation; and, the keyed response defies the principles of an interior stretch in an occupied building in the absence of backdraft conditions.

In reply, prior questions indicated that heavy, rolling smoke clouds are violently twisting skyward. Thus, the fire is well-involved and temperatures are high. This question indicated that the backup team was directly behind the initial attack team. According to page 78 of *Dunn*, the proximity of a second attack team behind the first could block or delay backward movement or temporary retreat to

escape a blast from flashover or backdraft. Firefighters behind the attack team will actually be shielded from any blast of heat or flame; by the time they do feel it and reverse direction to retreat, the nozzle team will have been seriously burned. Also, they could accidentally push an attack team member forward into a potentially dangerous position, and crowding can inhibit an aggressive, forward-moving hoseline attack. If there is a blast of heat, the initial attack team will need space to retreat, so the keyed response is the best choice.

Question 54 indicated that the exterior power lines on Side D of the involved building have been knocked down during operations. The wire is not moving and appears dead. Candidates were to complete the sentence, "You should have firefighters ...," and the keyed response was option c, isolate the area, since the wire will become active once the insulation burns away. The appellants argue for option d, isolate the area, since the wire could pose a tripping hazard to fire personnel. In support, they state that a power line with its insulation burning is already energized and cannot become energized; the question should have said that the downed power line with the insulation burned off can ground out to the earth, creating a direct pathway to the ground, which would result in an arch fault, creating a life hazard; no one knows when downed power lines will become energized, and they should always be considered live unless the power company representative says they have been de-energized; the keyed response uses incorrect terminology, making it false; it does not state in the diagram or the scenario that the wire is on fire, so the insulation cannot burn away; page 533 of *Norman* states that the perimeter of the operation should be defined to reduce the possibility of a downed line dancing into spectators and rescue personnel; and, trips and falls are a leading cause of firefighter injuries.

In reply, the keyed response did not say that the wire would become energized; rather, it stated that the wire would become active. According to page 533 of *Norman*, a downed line can be dancing, arcing, or just lying still, and this can change from one moment to the next. A wire that appears "dead," can suddenly become very active when the insulation on it finally burns away or becomes wet by rain. *Norman* indicates that the first tactical consideration is to define the perimeter of the operation by establishing a safety zone to reduce the possibility of the downed line "dancing" into spectators or rescue personnel. All electrical wires should be treated as though they are live wires, which can spring in any direction without warning. The keyed response is correct.

Question 57 indicated that there is a firefighter who was performing interior operations that is unaccounted for. The candidate decides to activate the RIC team and the Safety Officer volunteers to help them with rescue efforts. Candidates were to complete the sentence, "You should ...," and the keyed response was option c, have the Safety Officer remain in his position, as it is critical for firefighter safety. Mr. Deibert argues for option d, have the Safety Officer remain in his position and

supervise the rescue operation. In support, the appellant states that the Safety Officer reports directly to the IC, and monitors and makes assessments about risks and hazards on a continuing basis, advises the IC on all operational safety matters, stops and prevents unsafe acts and tactics including rescue efforts, monitors overall scene safety, and is responsible for RIC replacement as needed.

In reply, the Safety Officer should not be used in the RIC if abandoning his function jeopardizes any firefighter working at the incident. The rescue operation will be supervised by an officer of the RIC. The appellant's arguments are not specific to the rescue operation, but support the key. The keyed response is correct.

Questions 59 through 70 pertain to the sixth scenario, a report of an explosion at a three-story courthouse, a non-combustible building built in the 1970s. It is a Tuesday afternoon (2:00 p.m.) in April with a temperature of 60 degrees Fahrenheit and overcast skies. The wind is blowing from the east to the west at 5 MPH. There have recently been terroristic threats made to the courthouse. The candidate is the first arriving officer on scene and establishes command. Upon arrival, the candidate notices smoke and fire coming from Side B (fire is not shown in the diagram due to the viewing angles but it is present). One of the victims who escaped states that an explosion went off in the Side B courtroom on the 1st floor. She states that courts were in session and employees were in the offices on the second and third floors. The candidate serves as the IC for the duration of this incident.

Question 60 asked from which direction should the candidate NOT have staging units respond, and the keyed response was option d, west. Mr. Strauss argues for option c, east. In support, he states that the response direction does not matter because the building is set back from the road, the wind is westward at 5 miles per hour, and smoke would dissipate before it reached the road in front of the building. He also states that if a secondary device was present, it would be placed in a vehicle on side D, or directly inside the building, so it would make more sense to stage on side B, where the exposure building would offer limited blast protection and vehicles would be away from the parking area.

In reply, page 115 of *Hazardous Materials: Managing the Incident*, by Gregory G. Noll, states that staging should be in a safe, upwind location. West is downwind, while east is upwind. Additionally, Side B faces an apartment building complex 10 feet away. Although the fire building may be set back, there is no reason to stage units downwind from the fire, where space is limited, and where the units would be in the collapse zone. Aside from the paved area next to the building, the only other area on side B is a parking lot with two apartment buildings, and other obstacles, between it and the fire building. The keyed response is correct.

In **Question 61** candidates were to complete the sentence, "When establishing a collapse zone at this incident, it should be AT LEAST ...," and the keyed response was option d, 2 times the height of the building. The appellants argue for option b, the same as the height of the building. In support, they argue that according to pages 218, 321, 335 and 336 of *Dunn*, page 247 of *Collapse of Burning Buildings, A Guide to Fireground Safety* by Vincent Dunn, page 552 of *Norman*, and page 435 of *Corbett and Brannigan,* the collapse zone should be equal to the height of the wall; the question referred to establishing a collapse zone of "at least" a certain height, which means the minimum acceptable distance, and the various reference texts state that it should be equal to the height of the building; the keyed response relies on inappropriate reference material, specifically the second edition of *Dunn;* although *Norman* indicates that collapse zones for explosions are twice the height of the building, the building is "post blast" and should be considered as a burning building with standard collapse zones or, as stated on page 409 of *Delmar*, 1 ½ times the height of the building, which was not an option; the building was not bowstring construction; and, *Norman* contradicts himself by giving the minimum distance as both the height of the wall (page 552), and 1½ times the height of the wall (page 552), and then states that 1½ times the height of the wall is too short for an explosion collapse (page 554), so *Norman* cannot be relied upon.

In reply, the appellants argue for 1½ times the height of the wall, which was not an option. They selected the option of the same as the height of the building, which is clearly incorrect. The IC cannot predict the type of collapse that might occur, and bricks and heavy masonry stone can fall and scatter with deadly force well beyond a distance the same height of the building. On page 554, *Norman* states that at times, even a collapse zone that is 1½ times the height of the wall is too short. Collapse initiated by an explosion is the obvious instance where this is true. A collapse zone of the distance at least the same as the height of the building is too short. As such, the keyed response is the best response.

Question 62 asked which is **NOT** a valid way to ensure that residents of the nearby apartment complex are notified that the area should be immediately evacuated. The keyed response was option b, tone-alert radios. The appellants argue for option d, social networking. In support, they state that social media is not the best way as the question is written incorrectly; page 587 of *Norman* states that a portable radio or cellphone should not be used within 300 feet of the possible presence of a bomb, and cell phones are part of social networking; most people to not immediately check social media or have it, deeming it unreliable; not everyone is in touch with smartphones or computers, while radio and TV broadcasts are effective for public notifications; *Noll* provides a list of alert methods with advantages and disadvantages, and states that tone alerting radios is a valid method, and does not say that it is only for large plants and cannot be used for a courthouse; there is a

preplanned alert system set up in areas with courthouses and jails, and no text indicates that the radio system cannot be used or that social networking should not be used; and, it is not common practice for an IC at an emergency scene to use social networking.

In reply, page 129 of *Noll* states that "some fixed facilities such as chemical plants, and oil and gas plants, have special tone-alerts for the radios of residents living near their facility. These operate on the same principle as a volunteer firefighter's pager or radio. A radio signal sent from the control room at the plant that sets off an alerting tone inside each home's radio. A live, real-time message can then be broadcast." As there is no such tone-alert radio system set up for courthouses, making this option an invalid way to ensure that residents of the nearby apartment complex are notified that the area should be immediately evacuated. The keyed response is correct.

Question 63 asked what the candidate should do concerning the elevator on Side C of the building if interior operations are deemed safe at some point during the incident. The keyed response was option d, do not use the elevator for the duration of this incident. Mr. Auble argues for option a, attempt to use the elevator to gain fast access to all floors. In support, he argues that the elevator was not compromised by smoke or fire and, according to *Dunn*, can be used for manpower.

In reply, the question indicated that interior operations are deemed safe, but it did not state that the elevator was not compromised by smoke or fire. The appellant does not supply a page source in *Dunn*. Page 340 of *Dunn* indicates three ways that an elevator can kill firefighters including doors suddenly opening directly into a flaming lobby, elevators becoming stuck between floors, and elevators falling down the shaft way. Page 135 of *Dunn* explains the dangers of being taken to the cellar by an elevator. A reference cannot be found in *Dunn* for using the elevator for manpower if the elevator is not compromised by smoke or fire. On the other hand, page 458 of *Norman* states that if fire is within eight floors of the lobby, firefighters should walk up seven flights of stairs. Safe interior operations does not ensure that an elevator is safe to use. The keyed response will not be changed.

Question 65 asked which action should the candidate have the engine companies take to extinguish the fire on Side B based upon the scenario description and diagrams. The keyed response was option c, master streams from a distance. The appellants argue for option b, stretch multiple 2½ inch hand lines through Side A, and option d, protect in place until the bomb squad arrives. In support of option b, they argue that page 591 of *Norman* states that all hand lines should be 2½ inches for added reach and volume "if a structure is affected," and heavy streams can be used from a distance where a large area or room fires are involved, and the author considers a 2½ inch hand line to be a heavy stream; there are confirmed viable victims inside the building which warrants 2½ inch attack lines for reach and

penetration, to cool the steel, and to protect rescue operations pursuant to *Norman*; there could be dozens or hundreds of people in a fully occupied building, some of which are probably stunned or injured from the explosion or trapped by debris, which outweighs the safety of fire fighters by their use of a master stream to extinguish fire from the exterior and push fire further into the interior; a master stream would not control the fire due to the layout of the building, as it would not be able to adequately reach it; there is an exposure building on side B which prevents set-up of a portable master stream at the best possible location; an interior wall near and parallel to side B would prevent water from reaching the room with the main body of fire; use of a master stream would write off all the people who could not self-evacuate and there is inadequate exterior access to extinguish the fire; and interior line would cut off the fire spread; pages 50 and 51 of *Norman* state that when human life is at stake, an offensive attack is mandatory, and do not use an outside stream in an occupied building as it will push the fire and its by-products back into the structure where you expect to find live victims; there is only a 10-foot separation on side B between the fire building and the exposure, and cars in the lot on side B could have more trapped victims; page 31 of *Dunn* states that the first thing is to stretch a hoseline to protect rescuers from sudden explosion or flash fire; page 559 of *Norman* states that if there are trapped or disabled victims in a collapse in the vicinity of fire, one should bring as many hose streams to bear in that area as possible to keep them from burning to death; pages 556 and 557 of *Norman* state that, in responding to building collapses caused by terrorist bombings, initial actions must be to protect occupants or rescuers against the threat of fire using protective and precautionary hose lines; and, diagrams indicated that the structure was intact and smoke was emanating from side B in an occupied building during working hours, which does not warrant a conditional defensive tactic. In support of option d, they argue that this option is most relevant and accurate as the bomb squad must be notified and a reposition of manpower and hose streams is obvious; and, page 591 of *Norman* states that this situation would be a crime scene and personnel must be guided by instructions from the bomb squad, and not wash evidence down the street with the force and power of a master stream.

In reply, this is a terrorist incident, and one bomb has already gone off. It is very likely that a secondary device may be there. The question does not indicate that interior operations are safe, but asks for actions based on the scenario and diagrams. As secondary devices may be in the building, the building is a hot zone and interior operations are not endorsed. Thus, option b is incorrect. According to page 591 of *Norman*, when further explosions are expected or deemed possible and where large–area or room fires are involved, heavy steams may be used from a distance or from behind substantial shielding, using the reach of the stream to increase the safety factor. A defensive operation should be considered in light of a possible second attack. Option d, protect in place until the bomb squad arrives, requires the team to know where the victims are, and the scenario does not indicate where the victims may be. Also, question 64 required rescue operations of visible

victims. Any other victims would be in the building and not visible. As such, this option is not correct. The keyed response is the best response.

Question 66 indicated that victims are being loaded into ambulances to be taken to a nearby hospital. Candidates were to complete the sentence, "You should have the victims ...," and the keyed response was option d, searched for possible evidence of involvement in the explosion. The appellants argue for option a, continue, so that they are removed from the danger area. In support, they argue that everyone on scene remains in danger as a secondary device has a possibility of detonating; the back of an ambulance is a better victim treatment area than incident grounds; steps should be taken so that there is no delay of removal of victims; it is the responsibility of law enforcement to search for evidence on victims so this should be coordinated with them under the unified command system; page 584 of *Norman* states that preserving, gathering and documentation of evidence is the consideration of law enforcement, and fire personnel should apply first aid, triage, treatment, and decontamination; *Norman* mentions searching victims for evidence as a prime consideration, but not as an action to be taken; page 593 of *Norman* states that law enforcement personnel should examine casualties at bombing scenes for evidence at the casualty collection point, but these examination should not interfere with immediate lifesaving measures; page 594 of *Norman* states that potential evidence should be recognized, but he does not say to search for it; fire personnel cannot legally search a victim, and the unified command structure would allow for police personnel to conduct searches to create a chain of custody for recovered evidence, as evidence could be suppressed due to an illegal search; and, page 593 of *Norman* states that persons leaving the incident should be searched for weapons or explosives *before* being loaded on the ambulances or brought to casualty collection points, while the questions says the victims are being loaded into ambulances, which changes the time reference, and victims being loaded into ambulances should be removed from the danger area.

In reply, page 593 of *Norman* indicates that, "All persons leaving the incident site should be treated as potential perpetrators. They should all be searched for weapons or explosives before being loaded into ambulances or being brought to casualty collection points." That page reiterates that "Casualties at bombing scenes all contain evidence. Some may include the bomber or accomplices. They should be examined by law enforcement personnel prior to being brought to casualty collection points or transported from the scene. Such examinations should not interfere with immediate lifesaving measures." The appellants are correct that it is the responsibility of law enforcement to search for evidence on victims so this should be coordinated with them under the unified command system, and the question does not specify that the IC would have firefighters perform the search for evidence. The IC would have law enforcement search the victims. Further, once they left the scene, a perpetrator or accomplice could deny being at a location, or dilute evidence by removing clothing with trace evidence or residue, or abandoning other evidence

such as guns or explosives. *Norman* states that victims should be searched before being loaded into ambulances, and he also states that victims should be searched before being transported from the scene. Whether or not the individual is in the ambulance is not a decisive factor as, clearly, individuals inside an ambulance can be searched as well as individuals outside of an ambulance. The point in the text is that the victims should be searched before they are taken away. The keyed response is the best response.

Question 67 indicated that the exterior wall on Side B of the building collapses but the interior wall stays intact. Candidates were to complete the sentence, "This would MOST likely create a ...," and the keyed response was option c, supported lean-to collapse. The appellants argue for option b, a-frame collapse. In support, they argue that the main fire was present in the courtroom where the bomb would have been placed and the most damage would have occurred, so this area would collapse and with the remaining interior wall, you would have an a-frame collapse; an a-frame collapse is made up of opposing lean-to collapses; and, page 434 of *Corbett and Brannigan* states that an a-frame collapse is where one side of the floors held by an interior wall.

In reply, the diagram indicates that there were interior walls around the courtroom on sides C, D and A. If the exterior wall on side B fell, the interior wall on side D would hold the floor. The floor would not collapse on sides A or C. As such, there would be no a-frame collapse. Page 557 of *Norman* states that the supported lean-to collapse results from the failure of the support at one end of a floor or roof. If one bearing wall blows out while the other remains intact, the floor will drop at that end. The falling end comes to rest on the ground or floor below, creating a sloping floor or roof that is supported at each end. The diagrams support the keyed response.

Question 68 asked for the FIRST action to take based upon the information stated in **question #67**. The keyed response was option d, reconnaissance. The appellants argue for option a, removal of surface victims. In support, they state that page 403 of *Norman* indicates that performing reconnaissance and removing surface victims can be done simultaneously if conditions and manpower permit; and, pages 294 and 295 of *Dunn* indicate that surveying and shutting off all utilities can be done by incoming units, which allows surface victims to be removed first; and, life hazard must be the deciding factor in determining tactics and procedures.

In reply, page 561 of *Norman* clearly states, "Actual rescue operations should be based on the following proven effective plan of action. This sequence of events has been used for more than 50 years with excellent results by FDNY in numerous collapses, both fire- and non-fire related. It is designed to provide the greatest chance of survival to the greatest number of victims while using the most efficient deployment of personnel. It consists of five separate stages of operations, which

should nearly always be carried out in order. ... The five stages of the collapse rescue plan are as follows: 1. Reconnaissance 2. Accounting for and removal of the surface victims 3. Searching voids 4. Selected debris removal and tunneling 5. General debris removal." Page 562 of *Norman* explains the second stage, and indicates that, after completing the result of the reconnaissance (or simultaneously, if conditions and personnel permit) the next item to attend to is the removal of those victims who are lightly pinned. Thus, *Norman* is not endorsing the accounting for and removal of surface victims as the first action after a collapse, but states that it could occur simultaneously depending upon conditions and personnel. Option A does not indicate that the first action should be removal of surface victims based on the conditions and the availability of personnel. Thus, it is not the best response. The keyed response will not be changed.

CONCLUSION

A thorough review of the record indicates that, except for questions 34 and 44, which were double-keyed prior to list issuance, the determination of the Division of Test Development and Analytics was proper and consistent with Civil Service Commission regulations, and that appellants have not met their burden of proof in this matter.

ORDER

Therefore, it is ordered that these appeals be denied.

This is the final administrative determination in this matter. Any further review should be pursued in a judicial forum.

DECISION RENDERED BY THE
CIVIL SERVICE COMMISSION ON
THE 19th DAY OF OCTOBER, 2016

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