

Sample Helo High-Rise Operational Guidelines¹

Note: These guidelines are examples for use with specific helicopter models; attempt them only with a certified instructor under controlled conditions.

A. Loading:

1. HHRT approaches in reverse order. "First in, last out" (e.g. the captain or team leader will be "first out" during the deployment, so he will be the last member to load into the cabin of the copter).
2. Copter crew chief stows equipment packs under seat in well as team loads.
3. HHRT is seated in reverse order with team leader in last.
4. HHRT leader carries preset rope bag containing
 - a. 300 feet of rope.
 - b. Figure 8 on a bight.
 - c. Carabiner through the bight.
 - d. Green webbing loop attached to the carabiner.
5. All HHRT members seatbelt in or tie in to floor safety line.
6. HHRT leader goes on intercom in the copter to communicate en route with the pilot and crew.

B. Size-Up:

1. As helicopter approaches building, crew chief and pilot go through hoist/short haul checklist.
2. Below 40 knots, the door is opened.
3. As helicopter circles building, pilot, crew chief, and HHRT leader will evaluate and discuss options.

C. Rappel Setup:

1. HHRT leader hands crew chief green webbing from rope bag with carabiner and rope still attached.
2. Crew chief receives green webbing loop and wraps it once around the hoist arm (for Bell 412 external hoist models) and then connects the carabiner into the webbing bight gate down and locked, completing the rappel anchor point. (On the Bell 205, the carabiner attaches to the main anchor point on wall of well.)
3. Team leader visually double-checks the anchor point installation.

D. Rappel:

1. HHRT leader goes off intercom.
2. HHRT leader attaches 8 plate to rope in full rappel configuration and then attaches to his own harness, locks carabiner, and removes all slack.
3. HHRT leader holds up rope and his hardware for prerappel visual inspection by crew chief.
4. Crew chief hands HHRT leader a carabiner that is attached to a loop of tubular webbing or a pickoff strap. This safety is attached to the center of the large opening in the 8 plate and is used for the transition to the skid.
5. HHRT leader attaches rope bag to rescue harness for rappel or slides rope bag to crew chief to drop prior to rappel.
6. Crew chief directs pilot to target point of high-rise roof (based on their assessment of the smoke and fire conditions; the presence of citizens on the roof; the presence of antennae, penthouses, and other flight obstacles; the location of any rooftop helispot; and the best location for insertion of the HHRT).
7. Crew chief gives the signal to HHRT leader to unbuckle from the seat restraints or disconnect from pickoff strap.
8. Team leader unbuckles or disconnects and scoots (still attached to the rope via his hardware and harness) across the cabin floor, removing slack from the system as he moves to the ready position on the skid.
9. Crew chief centers the helicopter over target with direction to the pilot.
10. Crew chief deploys drop bag if not attached to rescue harness (and after assessing the presence of citizens on the roof, which may require an alternate rope deployment from the rope/back pack on HHRT leader's back).
11. Crew chief does final visual check of rappeller (in this case, the HHRT leader) and then the other HHRT members.
12. Once the team leader is in position on the skid with hand in a lockoff posi-

tion and ready for immediate deployment, the safety attached to the 8 plate will be removed.

13. Crew chief notifies pilot: "Rappeller is ready."
14. Pilot notifies crew chief: "Start rappel."
15. Crew chief gives "Thumbs up" to rappeller (HHRT leader and, on subsequent rappels, the other HHRT members).
16. Rappeller returns "Thumbs up" and starts rappel.
17. Crew chief notifies pilot: "Rappeller on roof."
18. Crew chief notifies pilot of distance to ground: "Rappeller is at # feet."
19. Rappeller slows and stops six feet above the roof momentarily to avoid ankle injury from fast rappel or sudden wind gust affecting helicopter, then finishes rappel.
20. Crew chief notifies pilot: "Rappeller on roof."
21. Once on the roof, the team leader drops to his knees to gain a bit of slack and quickly pulls more slack through the 8 plate (to avoid being pulled off the roof before he has a chance to disconnect if the copter is moved by a wind gust or has to make an emergency departure). He then disconnects the 8 plate and disconnects from rope. The rope bag is removed from harness (if it had been connected for rappel, to ensure he is completely clear of the rope in case the copter is moved by a wind gust or has to make an emergency departure).
22. Team leader holds 8 plate over helmet to signal he is "Off rappel and off rope."
23. Crew chief notifies pilot: "Rappeller off rope."
24. Crew chief gathers a bight of the rope and gives it to the next rappeller.
25. Rappeller hooks in 8 plate; insertion is the exact same process as above.
26. Crew chief deploys equipment.
27. If no equipment deployed, crew chief unlocks carabiner from anchor point, disconnects from rope, and drops rope to roof.
28. Crew chief notifies pilot: "Rope is free and clear; you are clear for flight."
29. As helicopter leaves, crew chief clears webbing and carabiner from hoist arm on Bell 412, if no further rappel operations are anticipated, and closes door.
30. Webbing and carabiner are stowed on well wall for future use (additional USAR companies to be deployed to the roof).

E. Equipment Deployment:

1. If team cannot take all equipment (including forcible entry, thermal imaging, officer's high-rise hose pack, etc.), crew chief will lower bags to team when last rappeller is on roof.
2. Crew chief unlocks carabiner attached to webbing on hoist arm on Bell 412 or from main anchor point on well wall of Bell 205 and removes rope with figure 8 on a bight knot in end.
3. Crew chief places rope in carabiner, holding knot in hand.
4. Crew chief takes knot and attaches to carabiner on equipment bag #1 (each bag is loaded with prescribed equipment).
5. While crew chief is rigging topside, team member takes 15 feet of slack and ties an inline figure 8 knot in rope.
6. Crew chief notifies pilot: "Lowering equipment" and informs pilot of progress.
7. Crew chief lowers bag #1 to roof.
8. Team member disconnects bag #1 from rope.
9. Crew chief attaches bag #2 to inline figure 8 knot.
10. Crew chief notifies pilot: "Lowering equipment" and informs pilot of progress.
11. Crew chief notifies pilot: "Equipment on roof."
12. Crew chief lowers bag #2 to roof.
13. Team member disconnects bag #2 from rope.
14. Crew chief notifies pilot: "Equipment on roof."
15. Crew chief removes rope from carabiner and drops to roof.
16. Crew chief notifies pilot: "Rope is free and clear; you are clear for flight."
17. As helicopter leaves, crew chief clears webbing and carabiner from hoist arm on Bell 412, if no further operations are anticipated, and closes door.
18. Webbing and carabiner are stowed on well wall for future use.

Continued on page 112.

F. Short-Haul High-Rise Insertion/Extraction Procedures:

1. Crew chief attaches rope to helicopter in swiftwater² or rappel configuration.
2. While on the ground, the end of the rope is stretched 100 feet to the front of the helicopter and tied off at brake bar rack or hoist arm on Bell 412 or at main anchor point on Bell 205.
3. Two HHRT members attach to end rope at a 10-foot interval.
4. HHRT attachment made with inline figure 8 knot at the 10-foot mark, and a figure 8 on a bight knot is tied at the end of the rope.
5. When the aircrew is ready to lift off, pilot asks crew: "Ready for short haul?"
6. Crew chief replies: "Ready."
7. Pilot gives team "Thumbs up" signal.
8. Both HHRT members return the "Thumbs up" signal.
9. Pilot states: "Coming up," then lifts the helicopter straight up.
10. As helicopter rises, HHRT members walk toward the helicopter, maintaining their 10-foot interval.
11. As the HHRT member at 10-foot mark centers under rope, the crew chief calls distance to pilot.
12. Crew chief notifies Pilot: "Load #1 is on line; load #1 is off ground."
13. As second HHRT member centers under helicopter, crew chief notifies pilot: "Load #2 is on line; load #2 is off ground."
14. When HHRT clears all obstacles, crew chief notifies pilot: "Load is free and clear; you are clear for flight."
15. As helicopter approaches target rooftop, crew chief calls off distance and height to pilot.
16. Crew chief tells pilot to hold forward flight when over target, then tells pilot: "Down # feet."
18. Crew chief calls distance and, when HHRT member #1 touches roof, says: "Load #1 on roof."
19. First HHRT member moves away from landing spot and disconnects from rope.
20. Crew chief calls distance and, when second HHRT member touches roof, says: "Load #2 on roof."
21. Crew chief tells pilot to continue down a few feet to allow slack in rope.
22. Second HHRT member disconnects from rope.
23. Both HHRT members hold rope away from bodies to signal crew chief that they are clear.
24. Equipment may be delivered via a second rope.
25. Crew chief informs pilot: "Team is clear; up helicopter."
26. Crew chief coils rope and stows in cabin as helicopter rises.
27. When rope is stowed, crew chief informs pilot: "Rope is stowed; you are clear for forward flight."
28. Crew chief clears hoist arm, and cabin door is closed and secured. Crew chief informs pilot: "Door is secured."

G. Emergency Evacuation of Civilians:

1. Setup is the same for short hauls except that a carabiner, a blue one-inch tubular webbing, and a victim rescue harness are attached at both the 10-foot inline

- knot and the end knot on the rope.
2. A receiving team will be needed at the landing site.
3. The rope can be set up and coiled inside helicopter.
4. Crew chief directs pilot into target area.
5. Crew chief lowers rope to full extension.
6. Crew chief calls distance.
7. Roof team readies civilians by controlling their movement on roof.
8. As line touches down, team takes control at the 10-foot inline knot and at the end knot.
9. One evacuee is attached to harness at the 10-foot knot and one at the end knot.
10. Roof team tells evacuee to hold onto rope above knot.
11. Team leader gives crew chief "OK signal."
12. Crew chief tells pilot: "Ready for short haul; up helicopter with # feet of slack."
13. Pilot raises helicopter.
14. Crew chief informs pilot: "Load is coming on line; load is off ground; load is free and clear; you are clear for forward flight."
15. Pilot acknowledges and flies to landing area; crew chief calls distance.
16. Crew chief calls distance and, when first victim touches ground, says: "Load #1 on ground."
17. When first victim reaches landing spot, the receiving team member takes physical control and moves victim away from landing spot and disconnects victim from rope; harness is removed from victim and then reattached to rope.
18. Crew chief calls distance and, when second victim touches ground, says: "Load #2 on ground."
19. Crew chief tells pilot to continue down a few feet to allow slack in rope.
20. When second victim reaches landing spot, the receiving team member takes physical control and moves victim away from landing spot and disconnects victim from rope; harness is removed from victim and reattached to rope.
21. Both team members hold rope with harness and blue webbing away from bodies to signal crew chief that they are clear.
22. Crew chief informs pilot: "Team is clear; up helicopter."
23. Crew chief coils rope and stows in cabin as helicopter rises.
24. When rope is stowed, crew chief informs pilot: "Rope is stowed; you are clear for forward flight."
25. Crew chief clears hoist arm, and cabin door is closed and secured. Crew chief informs pilot: "Door is secured." ■

Endnotes

1. County of Los Angeles Fire Department Air Operations Manual of Operations, Helicopter High-Rise Operations.

2. The LACoFD has standard protocols for deploying USAR company members and swiftwater rescue team personnel into moving water or open water using a modified short-haul system, which includes particular method for anchoring the short-haul rope in the cabin of its Bell 412 and Firehawk (Blackhawk) helicopter models.