FIREFIGHTER AIR
YOUR AIR. YOUR LIFE.

Big-Box Preconstruction Planning Guide

The time to prepare is not when the tones drop - it is long before the first shovel hits the ground.

aircoalition.org
contact@aircoalition.org

Purpose: This document provides a structured, actionable checklist for fire departments and municipal planners to use during the preconstruction planning phase of any proposed large-scale distribution center, fulfillment warehouse, or big-box facility exceeding 500,000 square feet. Print this guide, bring it to planning meetings, and ensure each item is addressed before the first shovel breaks ground.

PHASE 1: SECURE YOUR SEAT AT THE TABLE

Objective: Ensure the fire department is an active participant in the development and planning process from the earliest stage - not a late-stage reviewer.

 # Action Item Status

1.1 Identify the municipal department or individual responsible for issuing building permits and notify them that the fire department must be included in all preconstruction review meetings for facilities over 500,000 sq ft. [ ]

1.2 Request formal notification from the planning board, zoning board, or city council whenever a large-scale commercial development application is submitted. [ ]

1.3 Establish a single point of contact within the fire department (Chief, Fire Marshal, or designated officer) to serve as the liaison to developers and planners. [ ]

1.4 Schedule an initial meeting with the developer, architect, and municipal planner before site plans are finalized. [ ]

1.5 Educate local elected officials on why fire department involvement in the planning process is critical for public safety and long-term community risk reduction. [ ]

PHASE 2: WATER SUPPLY ASSESSMENT

Objective: Confirm that adequate water supply exists -- or will be built -- to support firefighting operations in a facility of this scale. A significant fire in a one-million-square-foot building will demand enormous quantities of water.

 # Action Item Status

2.1 Determine whether the site is served by a municipal water main or a dead-end main. If dead-end, what is the available flow and volume? [ ]

2.2 If the site relies on a yard hydrant system, verify the system's gallon-per-minute capacity and confirm it meets or exceeds ISO and NFPA standards for the proposed hazard classification. [ ]

2.3 Request a current water flow test from the water authority. Do not rely on dated or estimated data. [ ]

2.4 Identify all fire hydrant locations on the site plan and confirm spacing, access, and clearance from anticipated stockpile or trailer parking areas. [ ]

2.5 If municipal water supply is inadequate, require the developer to install on-site water storage tanks, drafting points or a dedicated fire pump system as a condition of approval. [ ]

2.6 Map and document the water supply plan and ensure it is integrated into the department's preincident planning system. [ ]

PHASE 3: PERSONNEL & RESOURCE CAPACITY ANALYSIS

Objective: Honestly assess your department's ability to mount an effective initial response and sustained operation at a facility of this size.

 # Action Item Status

3.1 Conduct a realistic assessment of how many interior-certified firefighters your department can deploy within the first 10 minutes of a daytime incident. Repeat for a nighttime/weekend incident. [ ]

3.2 If yours is a volunteer or combination department, survey members to determine how many can and will respond to a working commercial structure fire. Do not assume 100% availability. [ ]

3.3 Calculate the number of firefighters riding on each apparatus. Ensure first-due engine and ladder companies meet NFPA 1710 or 1720 minimum staffing recommendations for high-hazard occupancies. [ ]

3.4 Identify the gap between available department personnel and the anticipated resource needs for a defensive fire in a large-footprint building. If the gap is significant, document it in writing to municipal leadership. [ ]

3.5 Determine whether additional career staff, per-diem coverage, or stipend-based volunteer incentives are needed to ensure a viable response. Advocate for these resources during the planning and budget process. [ ]

PHASE 4: MUTUAL AID & REGIONAL COORDINATION

 # Action Item Status

Objective: Gather, verify, and document every fire protection system in the facility before the certificate of occupancy is issued.

4.1 Identify all neighboring departments -- career, combination, and volunteer -- that would be called for mutual aid. Share the proposed site plan and facility details with each. [ ]

4.2 Convene a regional tabletop exercise focused specifically on a working fire scenario at the proposed facility. Include all mutual aid partners. [ ]

4.3 Develop a written mutual aid plan that specifies which departments respond, what apparatus respond and where they stage. Update automatic aid agreements as needed. [ ]

4.4 Address dispatch coordination: ensure the regional dispatch center can handle a multi-agency response and has preprogrammed run cards for the facility. [ ]

4.5 Identify any specialized regional assets (aerial apparatus, tankers, mobile air units, collapse rescue teams) and confirm their availability and response times. [ ]

PHASE 5: DISPATCH CENTER INTEGRATION

Objective: Prepare the communications center to handle an incident at this facility efficiently and accurately.

 # Action Item Status

5.1 Provide the dispatch center with the facility address, legal property description, and any access gate codes or security contact information for entry. [ ]

5.2 Work with dispatch to update computer-aided dispatch (CAD) systems with critical premises notes: building size, construction type, hazardous material storage locations, utility shutoffs, and key holder contact. [ ]

5.3 Develop a script or question tree for dispatchers to use when a 911 call originates from the facility. Questions should help identify the nature and exact location of the emergency quickly. [ ]

5.4 Train dispatchers on the facility's layout, including any internal zone designations, dock numbers, or mezzanine levels that callers may reference. [ ]

5.5 Test the dispatch center's mass-notification capability for summoning off-duty personnel and mutual aid partners simultaneously. [ ]

PHASE 6: FACILITY SAFETY LIAISON & EMERGENCY COMMUNICATIONS

Objective: Ensure the facility operator has designated personnel and systems in place to support incident command during an emergency.

 # Action Item Status

6.1 Require the facility to designate an Employee Safety Director or Emergency Communications Director who will serve as the on-site liaison to the Incident Commander. This must be a named individual, not a rotating title. [ ]

6.2 Establish a predetermined location (Command Post) where the facility liaison will report and brief the Incident Commander upon arrival. This location should be marked on all preplan documents. [ ]

6.3 If the facility prohibits employees from carrying personal cell phones (a common warehouse policy), require the operator to provide and maintain an alternative means of immediate emergency reporting from all areas of the building. [ ]

6.4 Confirm that the facility's internal public-address or mass-notification system can reach all occupants, including those in break rooms, restrooms, mezzanine offices, and exterior loading areas. [ ]

6.5 Require quarterly or semi-annual communication drills between the facility liaison and the fire department to verify contact procedures remain current. [ ]

PHASE 7: FIRE PROTECTION SYSTEMS DOCUMENTATION

Objective: Address the critical air management challenge posed by buildings with horizontal travel distances that can exhaust an SCBA cylinder before a firefighter even reaches the seat of the fire.

 # Action Item Status

7.1 Obtain complete plans and specifications for the automatic sprinkler system, including coverage areas, design density, fire pump location, and test documentation. [ ]

7.2 Identify the type of standpipe system (wet, dry, manual, automatic), the location of all fire department connections (FDCs), and hose outlet locations throughout the building. Verify FDC thread compatibility with department equipment. [ ]

7.3 Document the fire alarm system: panel location, annunciator location, detection type (smoke, heat, beam), and zone maps. [ ]

7.4 Identify any smoke management, smoke exhaust, or stairwell pressurization systems and confirm operational sequences. [ ]

7.5 Determine whether an air standpipe system (Firefighter Air Replenishment System) will be installed. If not, advocate for its inclusion per International Fire Code Appendix L.

7.6 Compile all systems documentation into a facility preplan accessible to all responding companies, both in hard copy and in mobile data terminal format. [ ]

PHASE 8: FIREFIGHTER AIR REPLENISHMENT SYSTEMS (FARS)

Objective: Address the critical air management challenge posed by buildings with horizontal travel distances that can exhaust an SCBA cylinder before a firefighter even reaches the seat of the fire.

 # Action Item Status

8.1 Calculate the maximum travel distance from the nearest point of entry to the farthest interior point of the building. Multiply by two (round trip). Compare this to a 14-minute working air supply. [ ]

8.2 Present the air management analysis to the developer, architect, and planning board. Make clear that without the firefighter air standpipe system or a substantial air logistics plan, sustained interior operations may not be feasible. [ ]

8.3 Advocate for adoption of International Fire Code Appendix L at the municipal level, which provides a framework for requiring FARS in large-footprint buildings. [ ]

8.4 If FARS is included in the design, verify that fill stations are positioned at intervals that allow firefighters to replenish air without exceeding safe travel distances. [ ]

8.5 If FARS is not feasible, develop and document a detailed air cylinder logistics plan: how many spare cylinders will be staged, where, and how they will be shuttled to interior crews. Include this in all preplan documents. [ ]

PHASE 9: PREOCCUPANCY TRAINING ACCESS

Objective: Secure guaranteed, scheduled access to the facility for department training before the building becomes operational.

 # Action Item Status

9.1 Negotiate a written agreement with the developer or facility operator that guarantees a specified number of department training sessions prior to the certificate of occupancy. [ ]

9.2 Schedule training at times when maximum department participation is feasible. Avoid holidays or other dates that will suppress turnout, particularly for volunteer agencies. [ ]

9.3 Conduct walk-through familiarization tours for all department personnel, including mutual aid partners. Ensure every firefighter sees the interior layout, standpipe locations, FDC locations, and utility shutoffs firsthand. [ ]

9.4 Run at least one full-scale drill covering hose line deployment, water supply establishment, FDC connection, and command-post setup. [ ]

9.5 Document all training sessions and compile after-action notes for incorporation into the final preincident plan. [ ]

PHASE 10: ALL-HAZARDS PREPLANNING

Objective: Recognize that fire is not the only emergency this facility may experience and prepare accordingly.

 # Action Item Status

10.1 Identify weather-related risks: tornadoes, hurricanes, heavy snow loads, flooding. Confirm that the building's structural design and emergency plans address each. [ ]

10.2 Assess the risk of prolonged power outage. Determine whether backup generators exist, what systems they support, and how long fuel will last. [ ]

10.3 Identify any hazardous materials stored or used on site (batteries, chemicals, fuels) and their locations. Ensure hazmat response protocols are documented. [ ]

10.4 Consider adjacent highway or rail corridor incidents that could impact the facility or require facility resources as part of the response. [ ]

10.5 Address civil unrest, active threat, or mass-casualty scenarios. Coordinate with law enforcement on response protocols and unified command structure. [ ]

10.6 Include all all-hazards scenarios in the comprehensive facility preplan shared with mutual aid partners and the dispatch center. [ ]

PHASE 11: FINAL PREPLAN COMPILATION & DISTRIBUTION

Objective: Consolidate all gathered information into a single, accessible, living .

Action Item Status

11.1 Compile a single facility preplan document containing all systems information, site plans, water supply maps, contact lists, and tactical considerations. [ ]

11.2 Distribute the preplan in both printed format (station copy) and digital format (mobile data terminals, tablets). [ ]

11.3 Upload the preplan to the dispatch center's CAD system for automatic display when the facility address is entered. [ ]

11.4 Establish an annual review schedule to update the preplan with any building modifications, system changes, or contact information updates. [ ]

11.5 Conduct an annual joint walk-through with facility management and mutual aid partners. [ ]

QUICK-REFERENCE SUMMARY
THE FIVE NON-NEGOTIABLES

1. Water Supply
- Adequate, tested, and documented.

2. Personnel
- Acknowledged gap analysis with written recommendations to municipal leadership.

3. Mutual Aid
- Regional partners briefed, exercised, and integrated into the plan.

4. Firefighter Air --
- Advocate for Firefighter Air Replenishment Systems and/or air logistics plan documented if the firefighter air standpipe is not installed.

5. Training Access
- Guaranteed, scheduled, and completed before occupancy.

This planning guide was developed by Firefighter Air based on "Coming to a Town Near You!" by Tom Merrill & Michael M. Dugan, published in the 2025 FDIC Fire Engineering Supplement.