

City Specification

No. 429

Reference to HBMC Sections 17.04.085, 17.56.100, and 17.56.730

Huntington Beach Fire Department

Methane Mitigation Requirements

The City of Huntington Beach Fire Department (HBFD) strongly recommends **NOT** building structures over or near abandoned oil/gas wells or hydrocarbon contaminated soil. If abandoned wells can be proven safe and/or hydrocarbon contaminated soils conform to Huntington Beach City Specification No. 431-92, Soil Quality Standard, construction may be allowed at the discretion of the Fire Code Official. The presence of abandoned oil/gas wells and **approved non-remediated soils** shall be disclosed to future property owners.

This City Specification defines the requirements for methane gas testing, potential methane sources, documentation of oil/gas wells within the vicinity of the project, the applicability of a methane mitigation system, and the requirement for methane mitigation design, including oil/gas well abandonment and building protection.

APPLICABILITY OF THIS CITY SPECIFICATION

- This City Specification is applicable to all proposed construction projects with the potential for subsurface methane.
- Compliance with this City Specification is required as per the Huntington Beach Municipal Code (HBMC) Sections 17.04.085 (Methane District Regulations), 17.56.100 (Geological Studies, Evaluations, Reports), and 17.56.730 (Well Drilling and Operating).

DEFINITION OF TERMS

Abandoned Oil/Gas Well – A well that has been plugged and abandoned to State of California, Division of Oil, Gas, and Geothermal Resources (DOGGR) standards.

Administrative Boundary – The boundary delineating the surface area which is underlain or reasonably appears to be underlain by one or more oil and/or gas pools as defined by the State of California, Division of Oil, Gas, and Geothermal Resources (DOGGR).

Division of Oil, Gas, and Geothermal Resources (DOGGR) – State of California regulatory agency for the enforcement for oil/gas wells and geothermal wells.

Gas Membrane Barrier – A barrier installed beneath a structure's slab/foundation for the purpose of limiting the intrusion of combustible soil gas.

Gas Seepage Zone – Any location where natural gas emerges at the surface from a subsurface source.

Huntington Beach Methane Overlay District – See Huntington Beach 1994 General Plan (page V-EH-19) or its most current update.

Hydrocarbon Free Oil/Gas Well – Any well drilled with the expectation of, but not finding, hydrocarbon accumulations in any quantity.

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Methane Source – Potential methane sources include the following:

- Inactive oil/gas well – well no longer used to recover oil/gas
- Abandoned oil/gas well – well abandoned per DOGGR standards
- Active oil/gas well – well in use for recovery of oil/gas
- Oil/gas field – property currently or formerly used for oil/gas recovery
- Naturally occurring methane – methane in the subsurface produced by biological or chemical methanogenesis
- HBFD determined other sources
- Note: Landfill source is regulated under California Code of Regulations (CCR) Title 27

Mitigation Plan – A site specific plan for the purpose of addressing potential hazards due to the presence of combustible soil gases. The Mitigation Plan must be approved by the HBFD prior to construction.

Registered Professional – A California Registered Professional Engineer or Registered Professional Geologist. The HBFD may accept other credentialed professionals if they can demonstrate proficiency in the subject of soil gas investigation and mitigation.

Soil Gas Investigation – A scientific investigation reviewed and approved by HBFD, conducted by a Registered Professional for the purpose of determining the locations and concentrations of combustible soil gas.

Sub-Slab Passive Venting – A non-powered system of components located beneath and/or within a structure and designed to vent accumulations of combustible soil gas to the atmosphere.

Well – Any well defined in California Public Resources Code Division 3, Chapter 1, section 3008(a)(b) and Chapter 4, section 3703, as described below:

- 3008 (a): "Well" means any oil or gas well or well for the discovery of oil or gas; any well on lands producing or reasonably presumed to contain oil or gas; any well drilled for the purpose of injecting fluids or gas for stimulating oil or gas recovery, repressuring or pressure maintenance of oil or gas reservoirs, or disposing of waste fluids from an oil or gas field; any well used to inject or withdraw gas from an underground storage facility; or any well drilled within or adjacent to an oil or gas pool for the purpose of obtaining water to be used in production stimulation or repressuring operations.
- 3008 (b): "Prospect well" or "exploratory well" means any well drilled to extend a field or explore a new, potentially productive reservoir.
- 3703. "Well" means any well for the discovery of geothermal resources or any well on lands producing geothermal resources or reasonably presumed to contain geothermal resources, or any special well, converted producing well or reactivated or converted abandoned well employed for reinjecting geothermal resources or the residue thereof.

Methane Mitigation Requirements

REQUIREMENTS

1. TESTING AND MITIGATION MEASURES FOR OIL AND HYDROCARBON IMPACTED DEVELOPMENT, OR DEVELOPMENT OVER OR NEAR NATURALLY OCCURRING METHANE SOURCES

All proposed oil or hydrocarbon impacted divisions of land, subdivisions and/or property developments shall be reviewed by the HBFD. The Fire Code Official may require a site-soil testing work plan to determine the presence of methane gas and/or soil contamination. The Fire Code Official may require other actions as deemed necessary to ensure development and/or building site safety.

1.1 Methane Mitigation Required

Methane mitigation **is required** for any building or enclosed structure proposed for the following locations:

1.1.1 Within a distance less than or equal to 100 feet from any active or abandoned oil/gas well. Exception: This guideline shall not apply to any hydrocarbon free oil/gas well as defined above when complete surface to total depth data has been provided to DOGGR for review and certification and such certification is provided to the HBFD.

1.1.2 A distance of less than or equal to 300 feet from any gas seepage zone.

1.2 Methane Mitigation May Be Required

Methane mitigation **may be required** for any building or enclosed structure proposed for the following locations:

1.2.1 A distance greater than 100 feet from any active or abandoned oil/gas well and within a distance less than or equal to 100 feet of the administrative boundary of an oil/gas field that has been defined by DOGGR. An administrative boundary can be determined by visiting the website for DOGGR.

1.2.2 Within the Huntington Beach Methane Overlay District.

1.2.3 A distance less than or equal to 1,000 feet from the refuse footprint of any existing or new landfill or disposal site as described in the California Code of Regulations (CCR) Title 27. The landfill or disposal site may be operating or closed, abandoned or inactive. Refer to Section 1.7 for details.

1.2.4 Any other location identified by the HBFD as being subject to gas migration from a potential source of a combustible gas.

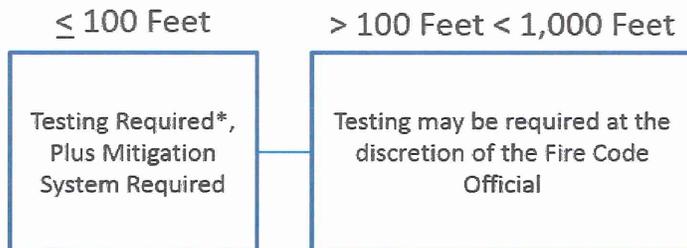
1.3 Testing Required

Testing for the presence of methane gas will be required by the Fire Code Official for a new development as specified below:

1.3.1 Distance from oil/gas well:

Methane Mitigation Requirements

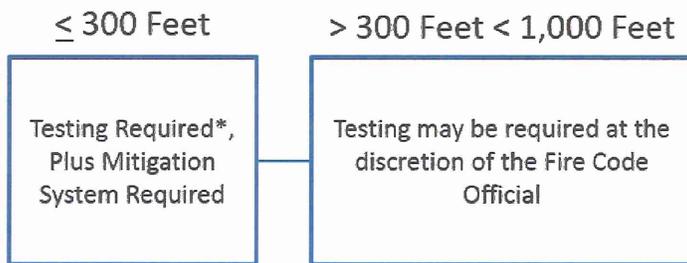
DISTANCE FROM OIL/GAS WELL



* The requirement for testing may be waived if the project is a one- or two-family home less than 5,000 total square feet, at the discretion of the Fire Code Official

1.3.2 Distance from gas seepage zone:

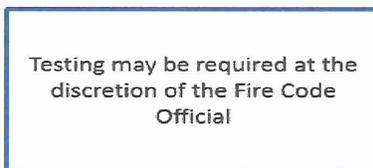
DISTANCE FROM GAS SEEPAGE ZONE



* The requirement for testing may be waived if the project is a one- or two-family home less than 5,000 total square feet, at the discretion of the Fire Code Official

1.3.3 Locations specified in Section 1.2:

LOCATIONS SPECIFIED IN SECTION 1.2



1.3.4 If testing is required, a site-specific soil gas investigation work plan should be developed by the project proponent and submitted to the Hbfd for review and approval, in accordance with the details specified below:

1.3.4.1 Methane testing shall be performed in accordance with the Los Angeles Department of Building and Safety (LADBS) Public/Building Code 2002-101 "Site Testing Standards for Methane" or its most current update.

1.3.4.2 The work plan, site investigation, and final reporting shall be performed under the direct supervision of a Registered Professional.

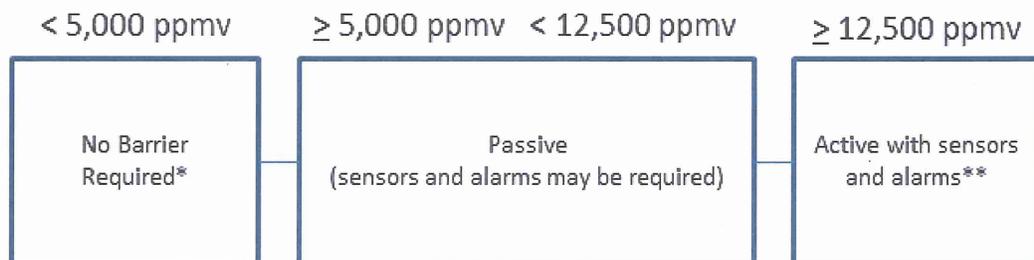
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- 1.3.4.3 The work plan shall contain a detailed description of the proposed site investigation including (at a minimum): site background and operational history; results of any existing soil gas or soil testing data; proposed investigation, gas probe installation, and sampling methodologies; map showing existing and proposed structures; locations, numbers, and depths of proposed soil gas sampling points; data collection techniques utilized.
- 1.3.4.4 Following HBFD approval of the work plan and completion of the investigation, a soil gas investigation report shall be submitted to the HBFD for review and approval. To the degree possible, the source(s) of any anomalous levels of methane shall be identified. The project proponent should provide a recommendation for the proposed level of methane mitigation warranted, pursuant to this guideline.
- 1.3.4.5 The HBFD review of project work plans, reports, and methane barrier / mitigation plans may require the use of City consultants. The Huntington Beach City Council approved fee schedule allows the HBFD to recover consultant fees from the applicant, developer, or other responsible party.
- 1.3.4.6 Methane soil gas testing results are valid for five years from date tested. Additional testing may be required if construction of the methane mitigation system is not complete within five years of initial testing.
- 1.3.4.7 The requirement for testing may be waived if the project is a one- or two-family home less than 5,000 total square feet, at the discretion of the Fire Code Official

1.4 Methane Concentration

If methane concentration testing is required, the mitigation system design will be required based on the following:

METHANE GAS CONCENTRATION



ppmv – parts per million by volume

* A passive methane mitigation system will be required for any building or enclosed structure proposed within a distance less than or equal to 100 feet of any active or abandoned oil/gas well, or within a distance of less than or equal to 300 feet from any gas seepage zone

** Exception: An active methane mitigation system will not be required for one- and two-family homes less than 5,000 total square feet

Methane Mitigation Requirements

1.5 Grading Permit Required

If grading is required as part of soil and/or soil gas testing and/or remediation, the applicant must first submit a grading plan to the HBFD and the Public Works Department. All grading associated with soil and/or soil gas testing and/or remediation shall be performed in accordance with City grading and excavation codes. A grading permit fee may be required.

1.6 Geological Studies

The HBFD may require submittal of geological studies, evaluations, and report for remedial recommendations in accordance with HBMC 17.56.100.

1.7 Nearby Landfill or Disposal Site

If the proposed development is within 1,000 feet from the refuse footprint of any existing or new landfill or disposal site, then the project proponent is required to contact the Local Enforcement Agency (LEA; i.e., Orange County Health Care Agency) to obtain direction on applicable CCR Title 27 requirements for the proposed development. The LEA may require methane testing and the design of a methane protection system in accordance with CCR Title 27 requirements. Methane protection systems designed in accordance with CCR Title 27 within Huntington Beach City limits shall also be reviewed by the HBFD. Should the LEA elect to not require methane mitigation in accordance with CCR Title 27 requirements for the proposed development, the HBFD and/or other City of Huntington Beach departments will evaluate whether methane mitigation is still required under this specification.

1.8 Source Removal

After testing for the presence of petroleum hydrocarbons and site remediation, if all sources of combustible soil gas, such as crude oil impacted soil or oil field sumps, have been removed, isolated, or remediated such that no potential threat to buildings due to methane generation or migration remains, then no further mitigation in that area shall be required unless recommended by a Registered Professional. All remediation shall be performed in accordance with Huntington Beach City Specification No. 431-92, Soil Quality Standard.

1.9 Passive Venting of Abandoned Oil/Gas Wells

Abandonment of oil/gas wells shall be documented in accordance with Section 2 below. All abandoned oil/gas wells within 100 feet of any proposed building shall be vented.

All wells within 300 feet of a proposed building that are also under or within 5 feet of a paved road, paved parking lot, or other continuous impermeable surface barrier where the continuous impermeable surface barrier is within 25 feet of the proposed building, shall be vented.

Oil/gas well venting shall be performed in accordance with Section 3.1 below.

NOTE: Mitigation systems may not be installed within the public right of way without prior approval from the Public Works Department and/or other applicable agencies.

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2. PROJECT WELL DOCUMENTATION AND REVIEW

2.1 DOGGR Site Plan Review

An approved DOGGR construction project Site Plan Review shall be on file with the HBFD. All oil/gas wells within or potentially within property boundaries must meet current DOGGR abandonment requirements and be reviewed by the HBFD. A DOGGR Site Plan Review application may be obtained from:

**Department of Conservation
Division of Oil, Gas and Geothermal Resources (DOGGR)
5816 Corporate Avenue, Suite 200
Cypress, CA 90630-4731
(714) 816-6847
<http://www.consrv.ca.gov/>**

2.2 DOGGR Closure Letter

A DOGGR closure letter indicating that all site oil/gas wells have been abandoned or re-abandoned to the current adopted DOGGR requirements shall be provided to the HBFD at the time of submittal for the HBFD well abandonment permit.

2.3 HBFD Well Abandonment Application and Permit

A well abandonment application and permit is required as per Huntington Beach City Specification No. 422, Oil Well Abandonment Permit Process. The permit must be approved by the HBFD prior to building plan approval.

3. MANDATORY PROCEDURES FOR MITIGATION

Design and installation criteria for soil gas mitigation systems have been established and are described herein. However, these criteria are not intended to limit the engineered design for any specific site. Prior to the installation of a soil gas mitigation system, plans shall be submitted to the HBFD for review/approval. All proposed designs shall be reviewed/stamped by a Registered Professional.

3.1 Oil/Gas Well Vent Cone

- 3.1.1 Plans shall be submitted and approved by the HBFD and shall indicate all cones, vertical piping, horizontal well-vent pipe runs, and vent terminations. Plans shall be to scale. A well vent/cone permit must be issued by the HBFD prior to work commencing.
- 3.1.2 All cone and vent systems shall be of a type and design approved by the HBFD. The design and installation shall be in conformance with applicable codes, such as the current adopted edition of the California Building Code, Mechanical Code, Plumbing Code, and Details 8.0, 9.0, and 12.0 of this City Specification. Any design not in conformance with this specification must be designed and stamped by a Registered Professional.
- 3.1.3 Horizontal PVC well-vent pipe runs must be placed in a sanded trench with a minimum of 3 feet of cover. Additionally, these horizontal runs shall be provided with a 14 gauge solid-strand yellow insulated utility locator wire installed directly above the well-vent pipe (Details 8.0 and 9.0).

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- 3.1.4 Horizontal PVC well-vent pipe shall be continuously sloped at a minimum of 1 percent down to the vent cone to provide for drainage and clean-out of pipe (Details 8.0 and 9.0).
- 3.1.5 Horizontal PVC well-vent pipe shall be connected to an oil well-vent riser consistent with Details 8.0 and 9.0.
- 3.1.6 Vertical oil well-vent riser pipe shall be a minimum of 2-inch galvanized steel. Riser pipe below the slab, and up to 3 inches above the slab, shall be PVC (Details 8.0 and 9.0).
- 3.1.7 Any oil well-vent riser pipe located within an open yard connected to a light standard shall terminate at a height of not less than 16 feet above adjacent grade as indicated in Detail 9.0. Riser pipe shall terminate at a distance of at least 10 feet from any building opening or air intake and at least 3 feet from any property line.
- 3.1.8 Oil well vent cone and temporary vent stub-up shall be installed as per Detail 12.0.

3.2 Passive Mitigation System

A passive mitigation system shall consist of a gas membrane barrier and a sub-slab venting system:

3.2.1 Gas Membrane Barrier

- 3.2.1.1 A gas membrane barrier must consist of a manufactured geomembrane designed to prevent the transmission of methane. A gas membrane barrier must be a minimum dry thickness of 15 mils and have a gas transmission rate (GTR) of less than 40 milliliter per square meter day (ml/m² D) when tested in accordance with American Society for Testing and Materials (ASTM) D1434. A specific geomembrane must be proposed on the plans by the project proponent for review and approved by the HBFD. A methane barrier permit must be issued by the HBFD prior to work commencing.
- 3.2.1.2 A gas membrane barrier shall be installed horizontally beneath the building slab and foundations (Detail 10.0) and vertically along subterranean building elements (Detail 11.0).
- 3.2.1.3 The membrane installation contractor must be certified by the membrane manufacturer for installation, if such a certification program is provided by the manufacturer.
- 3.2.1.4 The horizontal gas membrane barrier shall be installed per the manufacturer's recommendations and shall be protected above and below the membrane by a 2-inch thick sand layer or other manufacturer-approved protection course (Detail 10.0). Manufacturer's approval shall be included with the HBFD submittal.
- 3.2.1.5 The vertical gas membrane barrier shall be installed per the manufacturer's recommendations and shall be protected on both sides by the manufacturer-approved protection material (Detail 11.0). Manufacturer's approval shall be included with the HBFD submittal.
- 3.2.1.6 All membrane barriers shall be checked and repair smoke tested for installation defects (e.g., puncture) prior to final inspection. Testing must follow manufacturer's quality control testing recommendations.

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- 3.2.1.7 All systems shall be final smoke tested under the observation of the HBFD inspector after check and repair smoke testing.
- 3.2.1.8 Penetrations of the gas membrane barrier shall be sealed with a membrane boot per the manufacturer's recommendations.

3.2.2 Venting

The design for the sub-slab venting system shall be approved by a Registered Professional. The design and installation shall be in accordance with the California Building Code, Mechanical Code, and Plumbing Code, and meet the following criteria:

- 3.2.2.1 Unless otherwise approved by the HBFD, sub-slab vent piping shall be placed such that no portion of the foundation is more than 25 feet from a vent pipe. Vent piping shall not be spaced greater than 40 feet horizontally and a vent riser pipe shall be included for every 120 feet of vent pipe length or 4,800 square feet of building footprint. Each 90 degree elbow will equal 4 feet of pipe length.
- 3.2.2.2 Vent piping shall be a minimum 3-inch diameter polyvinyl chloride (PVC) or high density polyethylene (HDPE) perforated pipe or equivalent (Detail 4.0). Strip composite with a minimum width of 12 inches and minimum thickness of 1 inch may be used as an equivalent to the perforated pipe. Equivalency must be demonstrated by the design Registered Professional in the submittal. Strip composite shall be connected to horizontal pipe and riser pipes with manufactured connections. Vent piping details shall be provided by the project proponent, including product specifications and connection details.
- 3.2.2.3 Vent piping shall be embedded in a pipe trench (Detail 5.0) with cross section dimensions not less than 12 inches by 12 inches, or approved equivalent. Vent trenches shall be backfilled with pea gravel (approximately 3/8 inch in diameter) or other material of similar size and porosity.
- 3.2.2.4 Manifolding of vent piping is prohibited without prior approval from the HBFD.
- 3.2.2.5 Where piping transitions through building foundations, the penetration shall be accomplished in compliance with the California Building Code and with the approval of the Building Official as approved by the project structural engineer. Piping that penetrates building foundations shall be performed in compliance with Details 3.0 through 3.4. Alternatively, as approved by the project structural engineer, piping may transition under the building foundation in compliance with Detail 3.5.
- 3.2.2.6 Perforated pipe shall be connected to vertical vent riser pipe (Details 6.0 and 7.0) with a California Plumbing Code approved transition/adaptor. Vertical vent riser pipe shall be not less than 2 inches in diameter and shall be constructed of materials using methods specified by the California Plumbing Code and Mechanical Code. All joints shall be tightly sealed with approved materials. Riser pipe may be located within walls/chases or shall be similarly protected from physical damage. Riser pipes shall terminate at a height determined acceptable by the designing engineer but not less than 6 inches above the adjacent roof level (Details 6.0 and 7.0). Riser pipe terminations shall be located at least 3 feet from a parapet wall. Riser pipe shall terminate at a distance of at least 10 feet from any building opening or air intake and at least 3 feet from any property line.

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- 3.2.2.7 Vent riser pipe shall be a minimum of 2-inch galvanized steel. Riser pipe below the slab, and up to 3 inches above the slab, shall be PVC (Details 6.0 and 7.0).
- 3.2.2.8 The termination of all vent riser pipes shall be provided with a "T" connection or other approved rain cap to prevent the intrusion of rainwater. The rain cap shall be non-restricting to air flow.
- 3.2.2.9 Vent riser pipe shall not be installed within 5 feet from electrical panels, water heaters, fireplaces or other sources of heat or ignition.
- 3.2.2.10 A test tee shall be designed and installed in the vent riser pipe. The test tee shall be accessible, and in the exterior wall surface near ground level for the purpose of testing the vent system and providing an access opening for future vent system monitoring. The tee shall be provided with a threaded, raised hex-head plug or cap of like material. No flush plugs are allowed. Hex-head plugs and caps shall be painted red and maintained in red for the structure's duration. A square metal brass tag or rigid plastic engraved sign identifying the tee as a methane collection system vent shall be installed adjacent to the test tee. See Section 3.5.4.5 for details.
- 3.2.2.11 Vent pipe shall be clearly marked with a Caution Sign to indicate that the pipe may contain combustible gas. The Caution Sign should be in compliance with Detail 1.0.
- 3.2.2.12 The vent risers above ground should be labeled with a Caution Sign near the top, every 5 feet of vent pipe, and at least once per floor.
- 3.2.2.13 A Warning Sign should be placed at the main building entrance or in a location approved by HBFD. The Warning Sign should be in compliance with Detail 2.0.
- 3.2.2.14 All underground electrical conduit penetrating the slab or foundation of the building shall be provided with a seal-off device as normally found on classified electrical installations. This device is intended to prevent the travel of gas into the occupied portion of the structure through conduit runs. Any device installed shall meet the applicable requirements of the California Electrical Code.
- 3.2.2.15 All utility piping (dry utilities, wet utilities, and floor drains) shall consist of gas tight pipe in compliance with California Mechanical Code and Plumbing Code.

3.3 Alarm and Sensor Mitigation System

- 3.3.1 An alarm and sensor mitigation system, if required, shall be designed and installed in accordance with the passive mitigation system described above with the addition of alarms and sensors. Plans must be designed by a Registered Professional, and submitted to the HBFD for review and approval. A methane detection and alarm permit must be issued by the HBFD prior to work commencing.
- 3.3.2 If required, sensors shall be installed within the enclosed areas of the building to detect the possible presence of methane in the air. The sensors shall be able to detect explosive gas at concentrations between 0 and 100 percent (%) of the Lower Explosive Limit (LEL) for methane (5% methane by volume).

Methane Mitigation Requirements

- 3.3.3 Sensors shall be placed at the ceiling line of the lowest building level as per their listing, and as per LADBS requirements for location and spacing in a building without heating, ventilation, and air conditioning. Sensors should also be placed in each separate enclosed area of the building.
- 3.3.4 The sensor(s) shall be connected to a methane alarm system. Alarms should be set for a low level and high level alarm. The low level alarm shall be for methane concentrations greater than 10% of the LEL for methane. The high level alarm should be for methane concentrations greater than 25% of the LEL for methane. The low level alarm shall trigger the building owner or engineering consultant to investigate the source of the alarm and implement an engineering solution to resolve the condition. The high level alarm shall sound an audible/visible alarm on the lowest building level, evacuating that floor / area, and alerting the HBFD. Backup power for control panel shall be provided for a minimum of 24 hours for standby mode plus 5 minutes of alarm under full load condition; backup should be available within 60 seconds of power loss.
- 3.3.5 Methane alarm systems, when initiated, shall send a supervisory signal to the building fire alarm system, if so equipped.

3.4 Active Mitigation System

An active mitigation system, if required, shall be designed and installed in accordance with the specifications for a passive mitigation system (Section 3.2) and alarm and sensor mitigation system (Section 3.3), and with the addition of forced air venting. A forced sub-slab air venting system shall be designed by a Registered Professional. The forced sub-slab air venting system shall be capable of providing a minimum of 4 air changes per hour of the vent piping and the gravel trench continuously. Unless the porosity of the gravel is established by a test prepared by a Registered Professional, the porosity of the gravel shall be taken as 25%. Plans must be submitted to the HBFD for review and approval. An active methane mitigation system permit must be issued by the HBFD prior to work commencing.

3.5 Installation and Inspection

The HBFD requires inspection for all of the system installations. The Contractor shall provide access for HBFD inspections.

- 3.5.1 Vent Collectors/Cones – Shall be inspected prior to backfilling the excavation and after the collector is placed over the well casing top plate.
- 3.5.2 Below Slab Inspections
 - 3.5.2.1 Foundation – Before placement of the methane barrier, an integrity check of the vent collector and inspection of the sub-slab vent pipe routing shall be conducted. The elbow connecting perforated pipe to solid pipe beneath the riser pipe shall be left unconnected for this check and connected after the inspection prior to backfill.
 - 3.5.2.2 Methane Barrier – Smoke testing of the methane barrier shall be performed before placement of the concrete slab or protection layer above the methane barrier.
- 3.5.3 Vent Riser Inspections
 - 3.5.3.1 Exterior Wall Vent Riser (Prior to Drywall) – A visual inspection of vent pipe joint integrity and routing through the walls shall be conducted. The inspection is conducted after framing and prior to drywall installation.

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3.5.3.2 Vents – PVC piping shall be installed with listed pipe, primers and cements. Galvanized piping shall be installed using threaded pipe with a listed pipe compound or California Plumbing Code approved NO HUB fittings.

3.5.3.3 Air Test – Installer shall provide an air test at 5 psig for a period of not less than 15 minutes. The test is only for the piping above the test tee through the roof. After the testing is approved, the threaded plug or cap shall be installed back into the tee.

3.5.3.4 Caution Sign – Caution signs shall be located on the pipe every 5 feet of pipe length and at least once per floor (Detail 1.0).

3.5.4 Final Inspections

3.5.4.1 Caution Sign – Caution signs shall be located on the vent riser above the roofline (Detail 1.0).

3.5.4.2 Warning Sign – A warning sign shall be located at the main building entry or per HBFD direction (Detail 2.0).

3.5.4.3 Rain Cap – Rain caps shall be fitted to the top of the vent risers (Details 6.0 through 9.0).

3.5.4.4 Test Tee – A 2-inch diameter test tee with plug (no flush plugs) shall be installed and painted red (Details 6.0 through 9.0).

3.5.4.5 Test Tee Signage – Install a permanent metal or rigid plastic placard adhered to the wall immediately above or adjacent to the test tee plug or cap (Details 6.0 through 9.0). Sign to be red with white letters and read "Methane Vent Test Location."

APPROVED:



David A. Segura, Fire Chief

DATE:

10/4/14

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HUNTINGTON BEACH FIRE DEPARTMENT

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STANDARD PLAN

0.0

CAUTION METHANE GAS IN PIPE

IF DAMAGED NOTIFY FIRE DEPT. (911)

NO SMOKING

NO SPARKS OR FLAMES

WITHIN 25 FEET

3" X 4" WIDE, ALL SIGNS PLASTIC WITH ADHESIVE BACKING, LARGE LETTERS MIN. 1/2" HIGH
WHITE LETTERS ON RED BACKGROUND.

THIS SIGN SHALL BE POSTED ON EACH VENT RISER NEAR THE TOP, AND ALSO ON ALL
RISER PIPING EVERY 5' AND AT A MINIMUM ONCE PER FLOOR

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HUNTINGTON BEACH FIRE DEPARTMENT

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CAUTION SIGN AT VENT PIPE

STANDARD PLAN

1.0

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WARNING

THIS BUILDING IS PROTECTED WITH A VAPOR CONTROL BARRIER. ANY PROPOSED PENETRATION OR ALTERATION OF FLOOR SLAB REQUIRES NOTIFICATION OF THE FIRE MARSHAL AND INSPECTION BY A QUALIFIED ENGINEER.

IT IS ILLEGAL TO REMOVE THIS SIGN.

ALL SIGNS SHALL BE ENGRAVED 2-COLOR 2-PLY PLASTIC LAMINATE.
ALL LETTERS MIN. 1/2" HIGH, WHITE LETTERS ON RED BACKGROUND.

POST AT MAIN ENTRY OR PER FIRE DEPARTMENT DIRECTION



HUNTINGTON BEACH FIRE DEPARTMENT

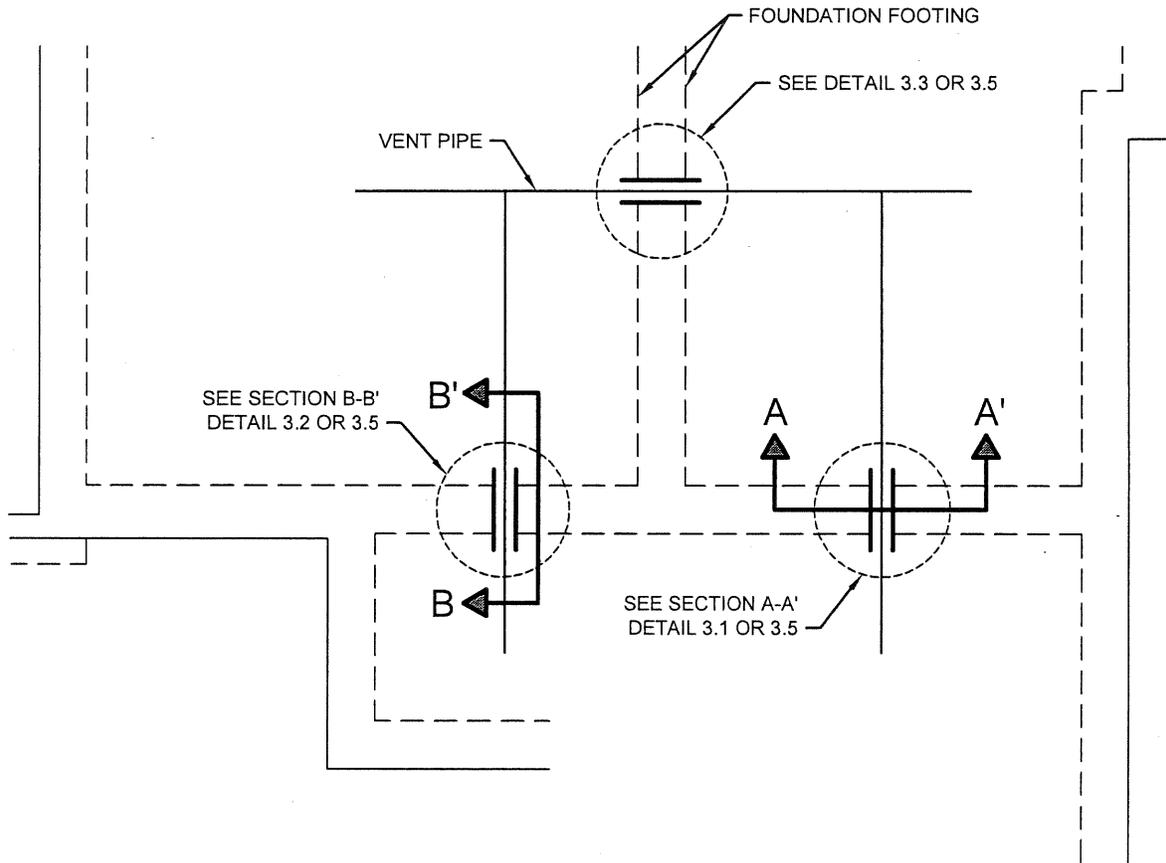
CITY SPECIFICATION #429

WARNING SIGN

STANDARD PLAN

2.0

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NOTE: CONSULT PROJECT STRUCTURAL ENGINEER FOR USE OF DETAILS 3.1-3.4 OR 3.5.



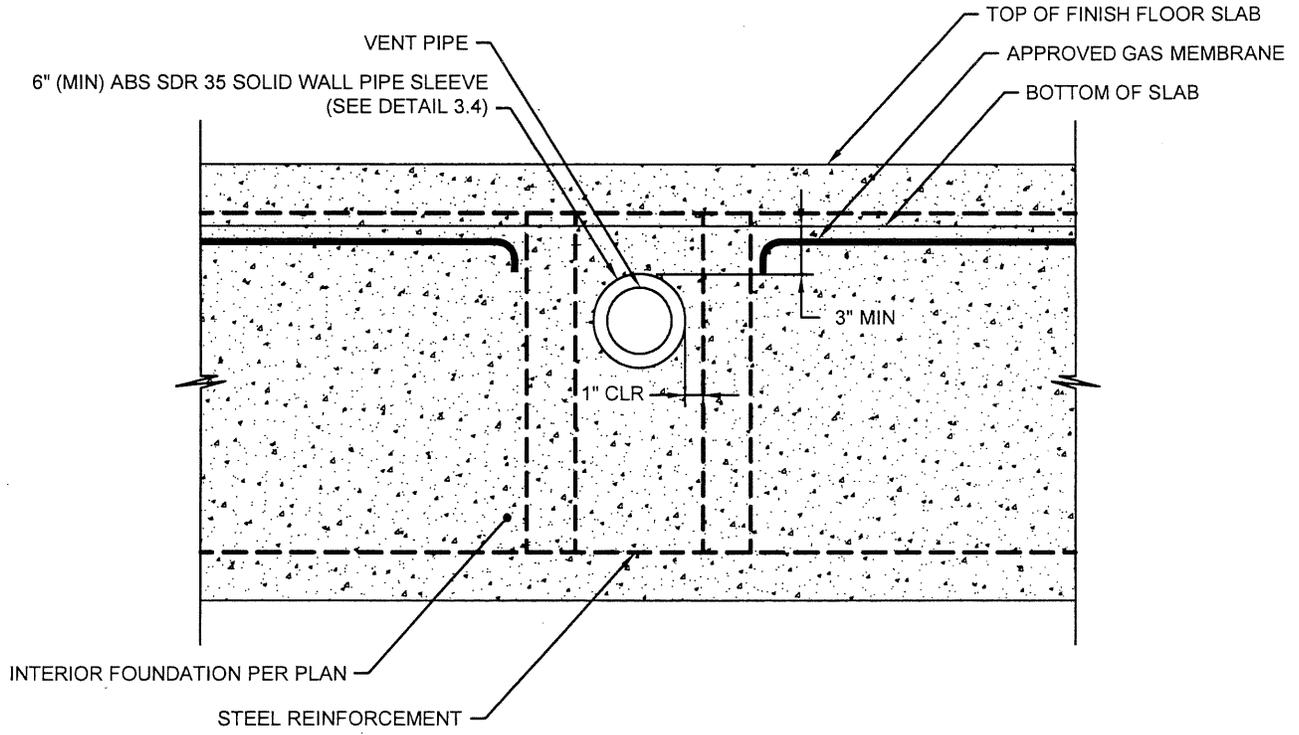
HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

VENT PIPE FOUNDATION CROSSING

STANDARD PLAN

3.0

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SECTION A-A'
NOT TO SCALE

NOTE: CONSULT PROJECT STRUCTURAL ENGINEER FOR USE OF DETAILS 3.1-3.4 OR 3.5.

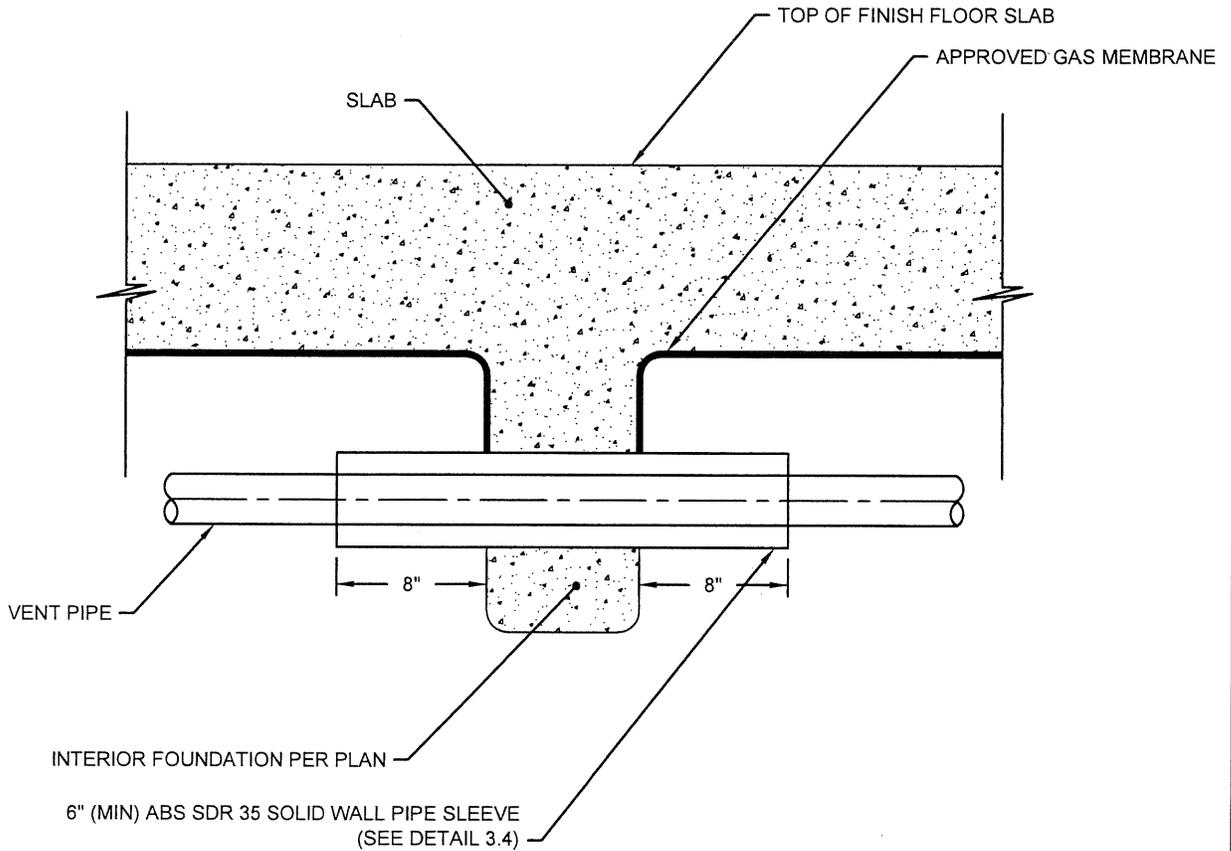


HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

VENT PIPE THROUGH FOUNDATION

STANDARD PLAN
3.1

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SECTION B-B'

NOT TO SCALE

NOTE: CONSULT PROJECT STRUCTURAL ENGINEER FOR USE OF DETAILS 3.1-3.4 OR 3.5.



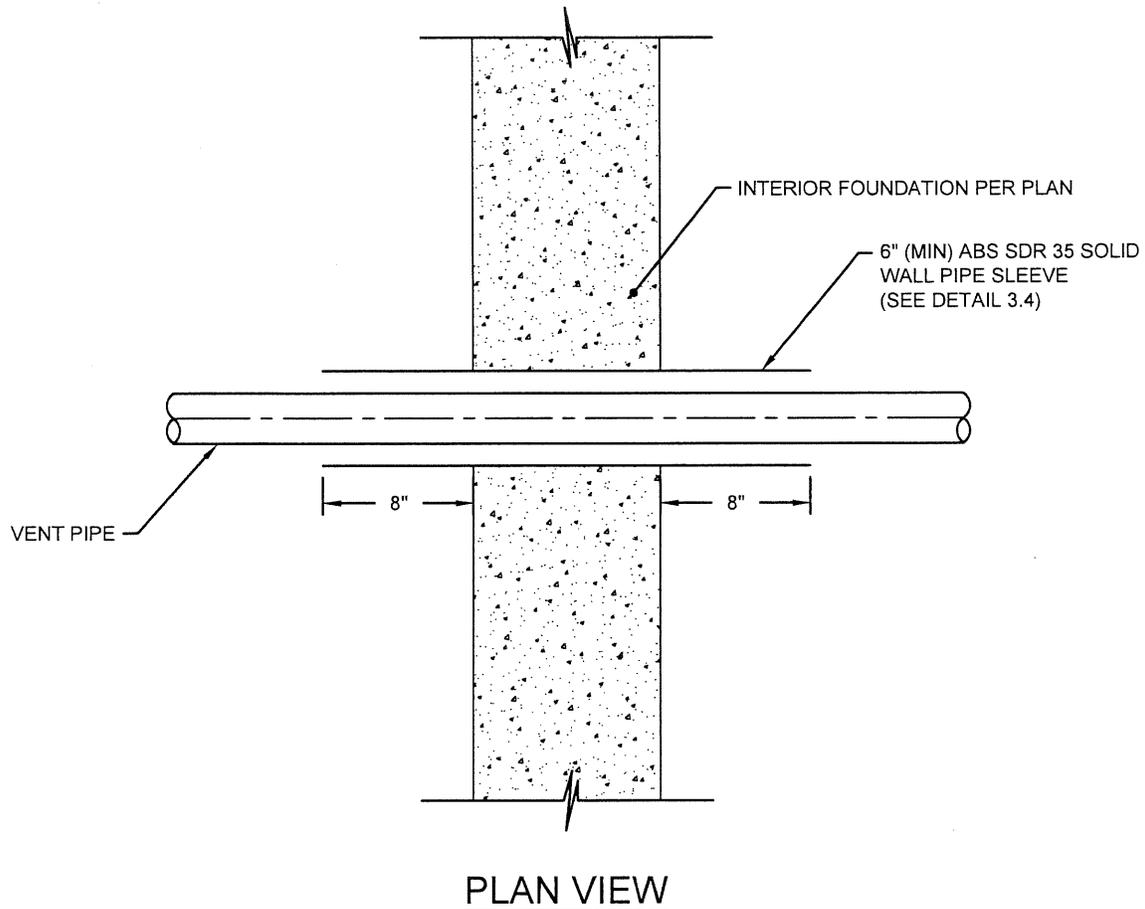
HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

VENT PIPE THROUGH FOUNDATION

STANDARD PLAN

3.2

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NOT TO SCALE

NOTE: CONSULT PROJECT STRUCTURAL ENGINEER FOR USE OF DETAILS 3.1-3.4 OR 3.5.



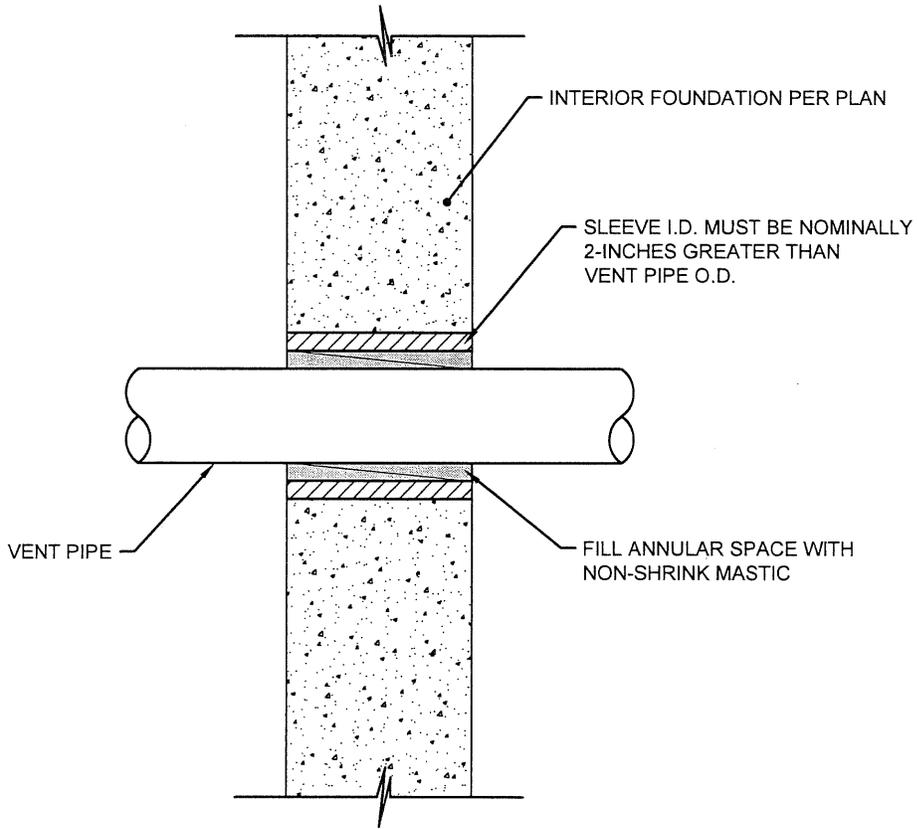
HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

VENT PIPE THROUGH FOUNDATION

STANDARD PLAN

3.3

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NOT TO SCALE

NOTE: CONSULT PROJECT STRUCTURAL ENGINEER FOR USE OF DETAILS 3.1-3.4 OR 3.5.



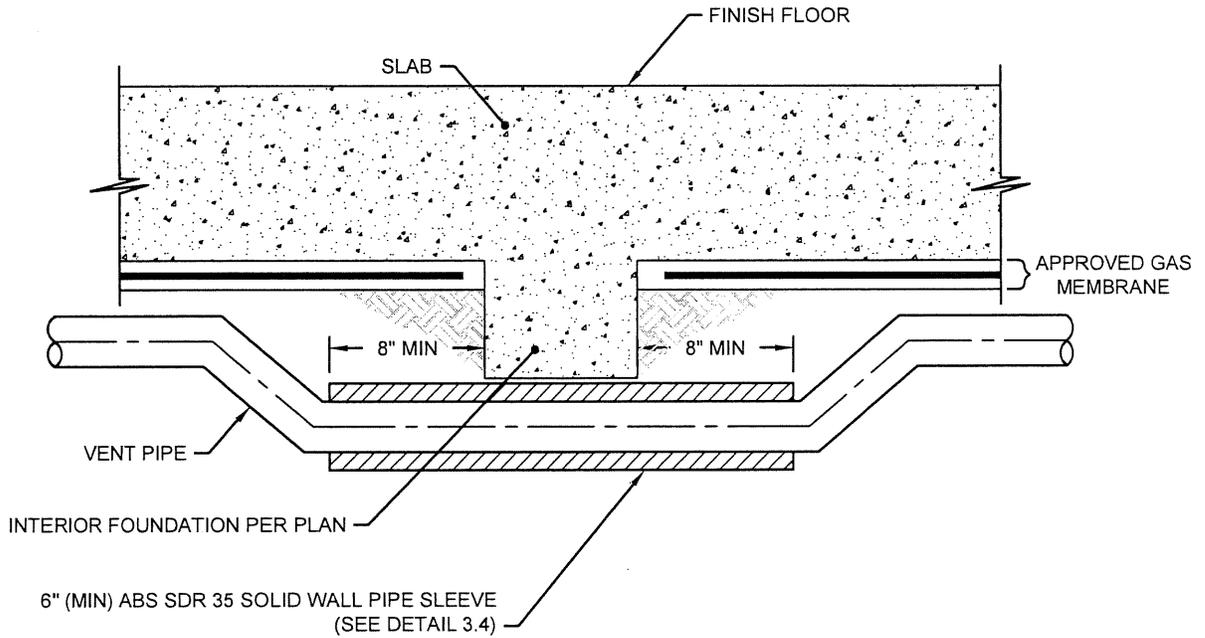
HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

SLEEVE

STANDARD PLAN

3.4

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NOT TO SCALE

NOTE: CONSULT PROJECT STRUCTURAL ENGINEER FOR USE OF DETAILS 3.1-3.4 OR 3.5.



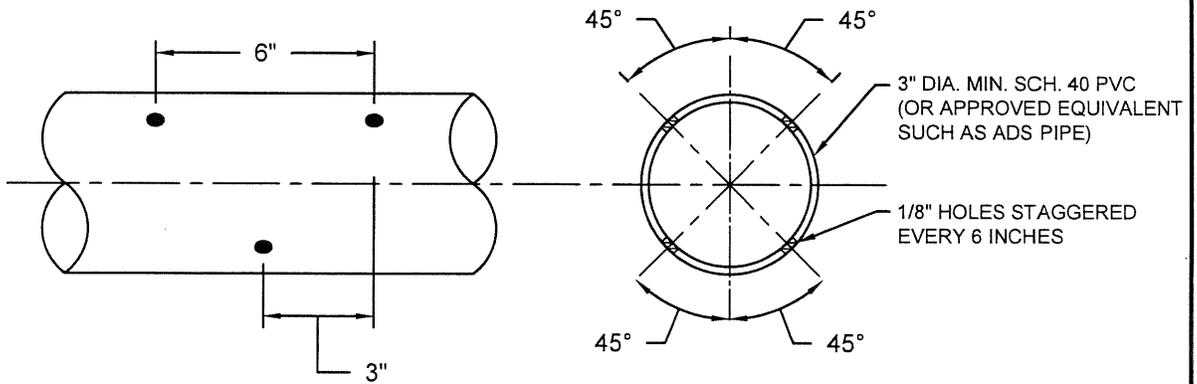
HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

VENT PIPE AT INTERIOR FOOTING

STANDARD PLAN

3.5

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NOT TO SCALE



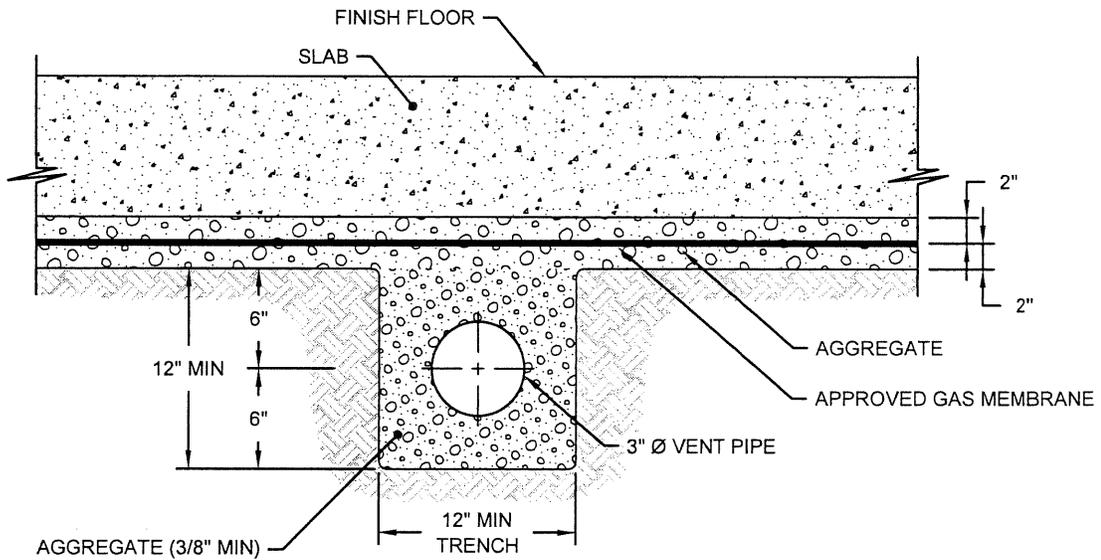
HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

VENT PIPE

STANDARD PLAN

4.0

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NOT TO SCALE

NOTE:

1. PIPE IN TRENCH AT CROSSING MUST BE INSPECTED PRIOR TO MEMBRANE INSTALLATION AND SLAB POUR.



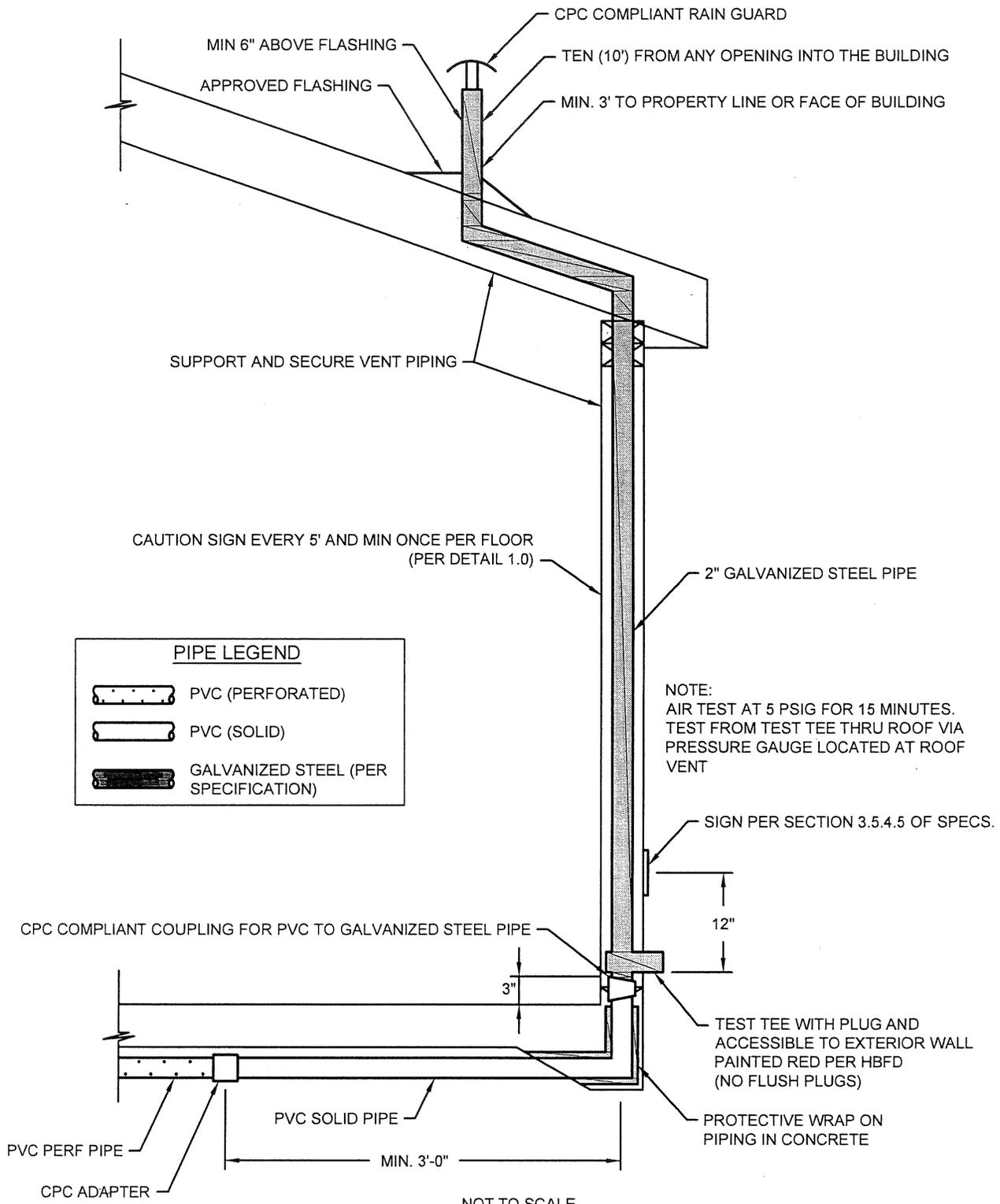
HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

VENT PIPE TRENCH UNDER SLAB

STANDARD PLAN

5.0

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PIPE LEGEND

	PVC (PERFORATED)
	PVC (SOLID)
	GALVANIZED STEEL (PER SPECIFICATION)

- NOTES:
1. VENT PIPE AND RISER INSTALLATION PER CURRENT ADOPTED CPC.
 2. CPC - CALIFORNIA PLUMBING CODE.



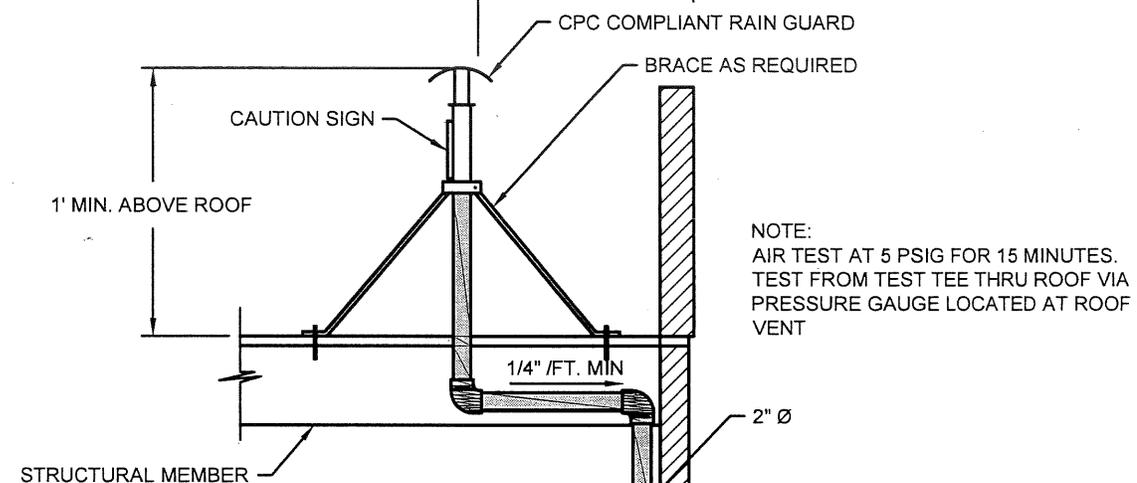
HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

VENT RISER (TYPICAL RESIDENTIAL)

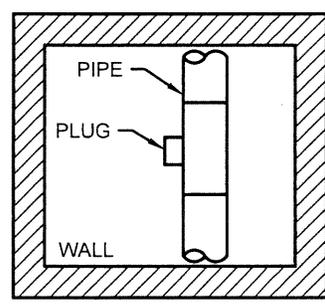
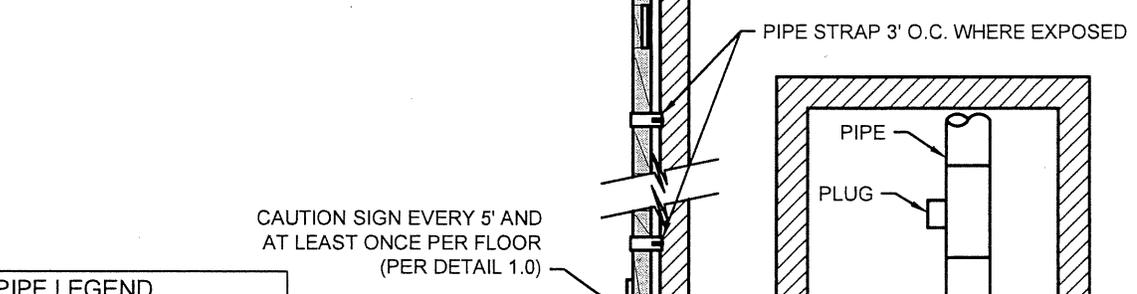
STANDARD PLAN
6.0

10' AWAY FROM ANY AIR INTAKE INTO BUILDING

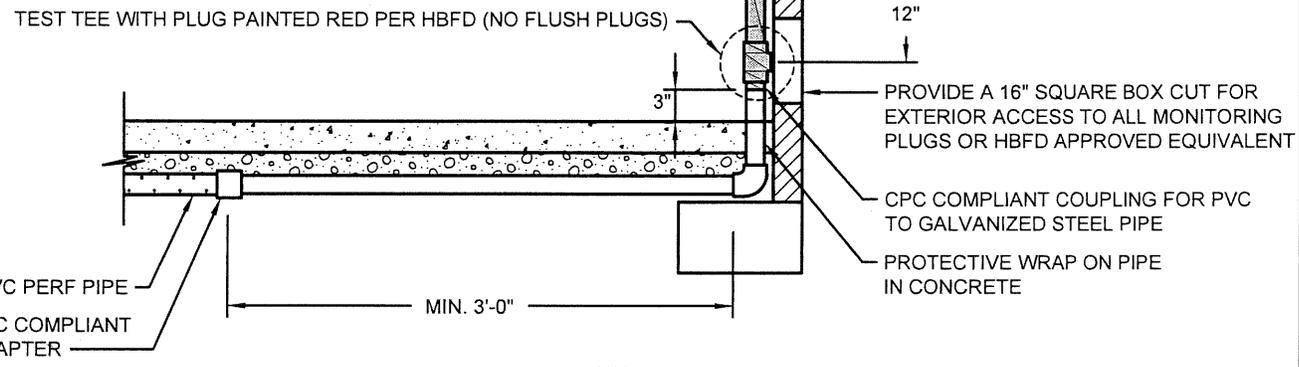
3' MIN FROM ANY ADJACENT PROPERTY LINE OR BLDG. FACE



NOTE:
AIR TEST AT 5 PSIG FOR 15 MINUTES.
TEST FROM TEST TEE THRU ROOF VIA
PRESSURE GAUGE LOCATED AT ROOF
VENT



PIPE LEGEND	
	PVC (PERFORATED)
	PVC (SOLID)
	GALVANIZED STEEL (PER SPECIFICATION)



- NOTES:
1. VENT PIPE AND RISER PER CURRENT ADOPTED CPC.
 2. CPC - CALIFORNIA PLUMBING CODE.

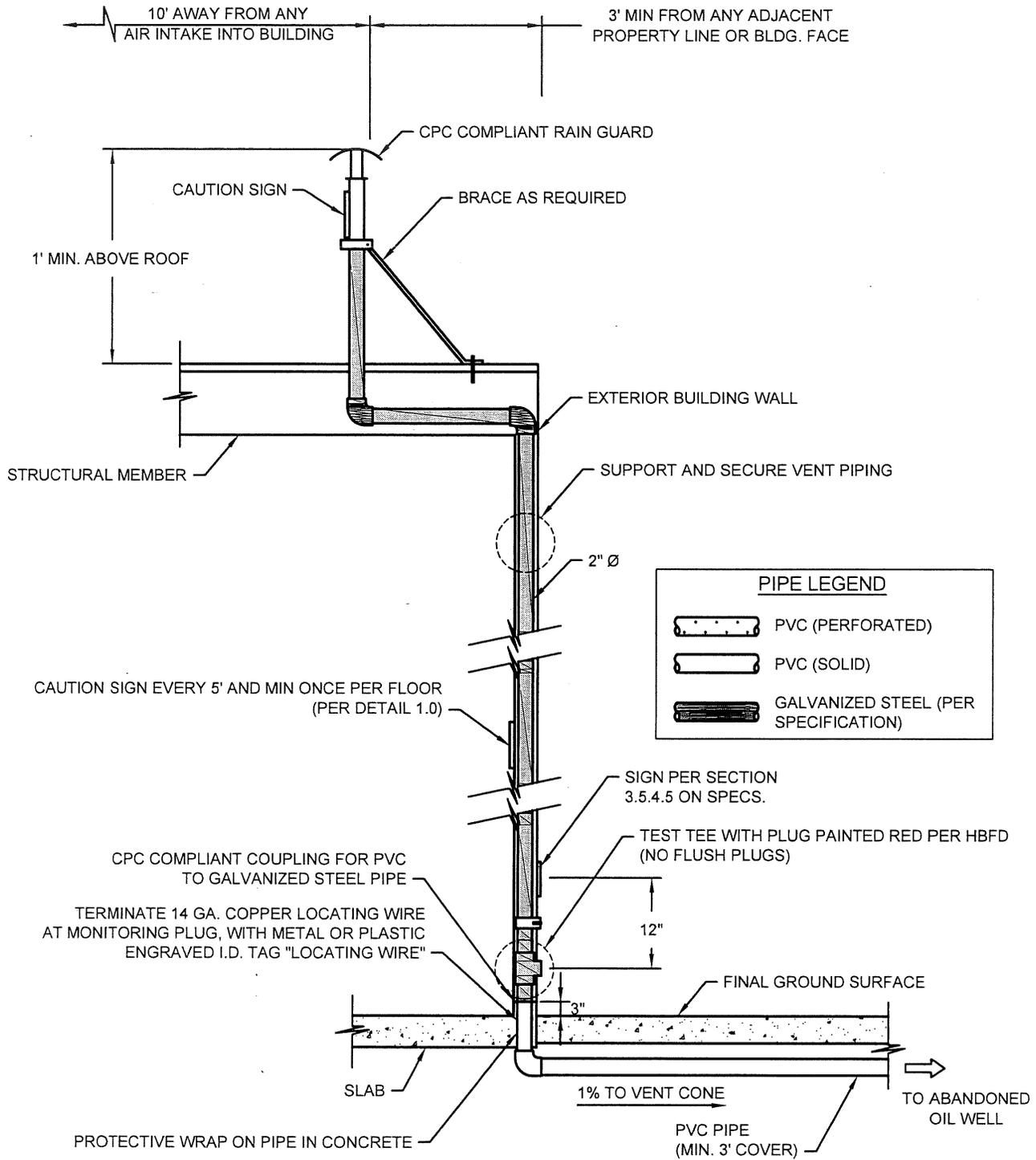
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HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

VENT RISER (TYPICAL COMMERCIAL)

STANDARD PLAN
7.0



CAUTION SIGN EVERY 5' AND MIN ONCE PER FLOOR (PER DETAIL 1.0)

PIPE LEGEND	
	PVC (PERFORATED)
	PVC (SOLID)
	GALVANIZED STEEL (PER SPECIFICATION)

CPC COMPLIANT COUPLING FOR PVC TO GALVANIZED STEEL PIPE
 TERMINATE 14 GA. COPPER LOCATING WIRE AT MONITORING PLUG, WITH METAL OR PLASTIC ENGRAVED I.D. TAG "LOCATING WIRE"

SIGN PER SECTION 3.5.4.5 ON SPECS.
 TEST TEE WITH PLUG PAINTED RED PER HBFD (NO FLUSH PLUGS)

- NOTES:
1. VENT PIPE AND RISER PER CURRENT ADOPTED CPC.
 2. CPC - CALIFORNIA PLUMBING CODE.

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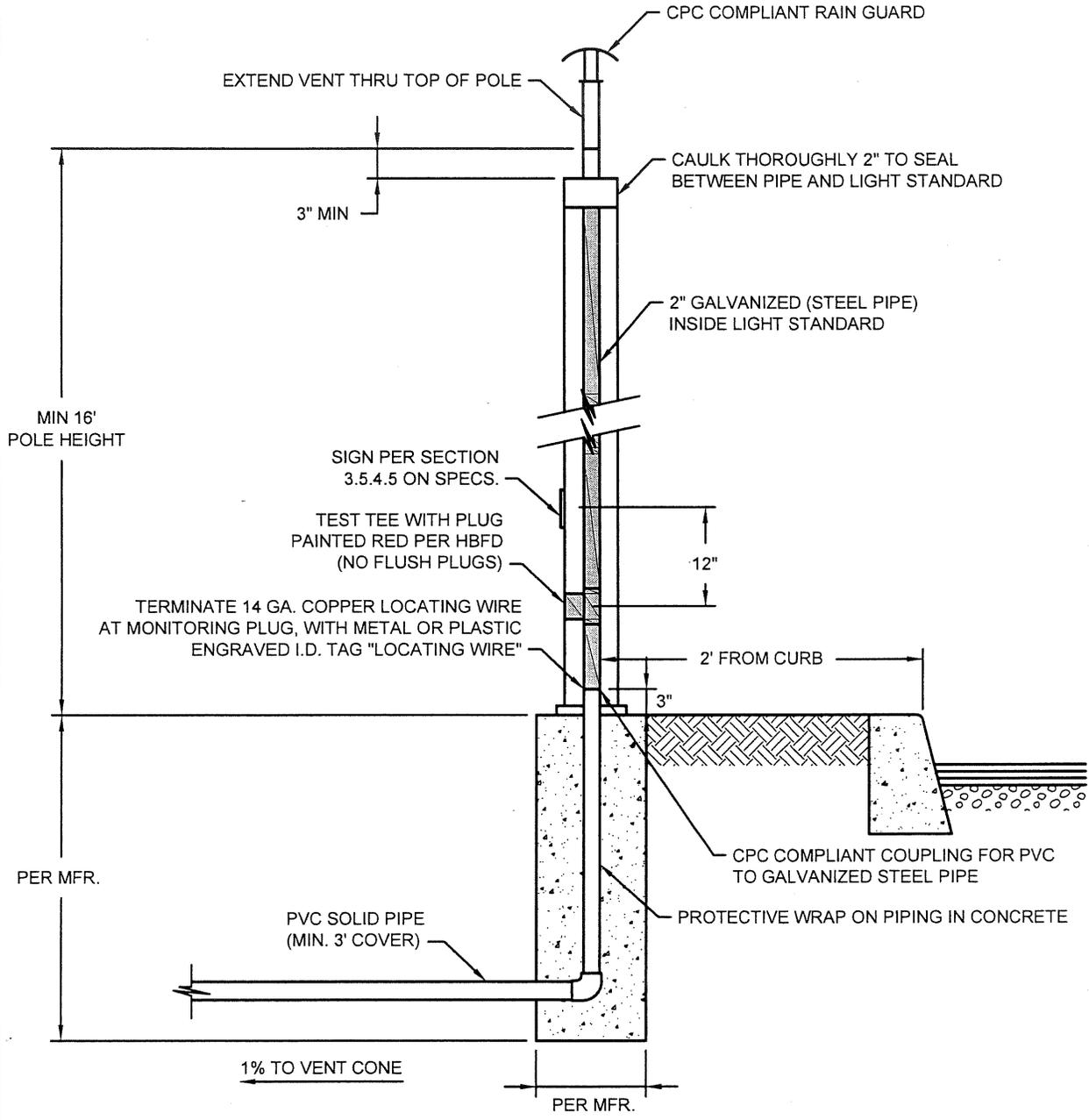


HUNTINGTON BEACH FIRE DEPARTMENT
 CITY SPECIFICATION #429

OIL WELL VENT RISER

STANDARD PLAN
8.0

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NOT TO SCALE

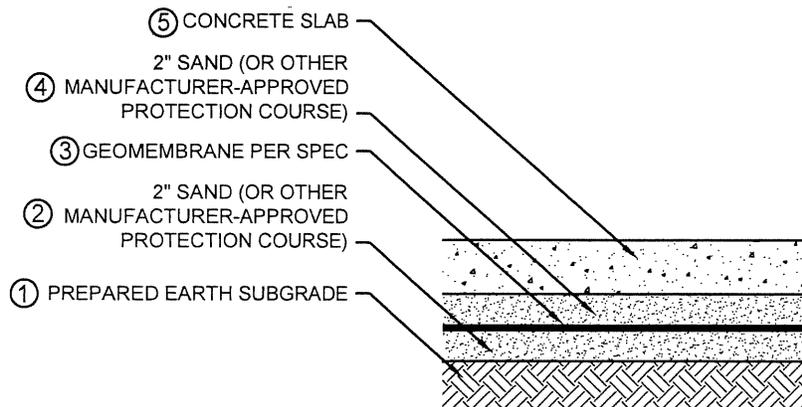
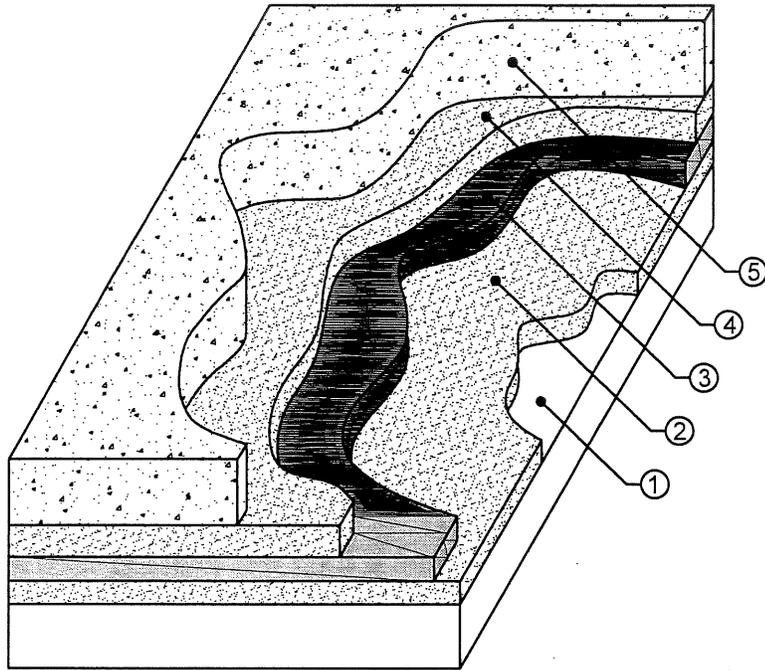


HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

OIL WELL VENT RISER TO LIGHT STANDARD

STANDARD PLAN
9.0

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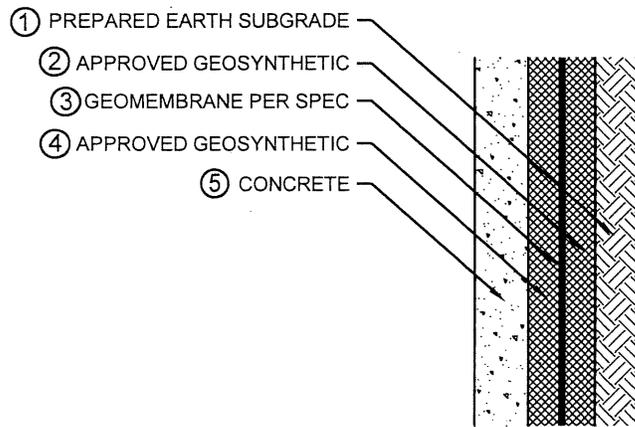
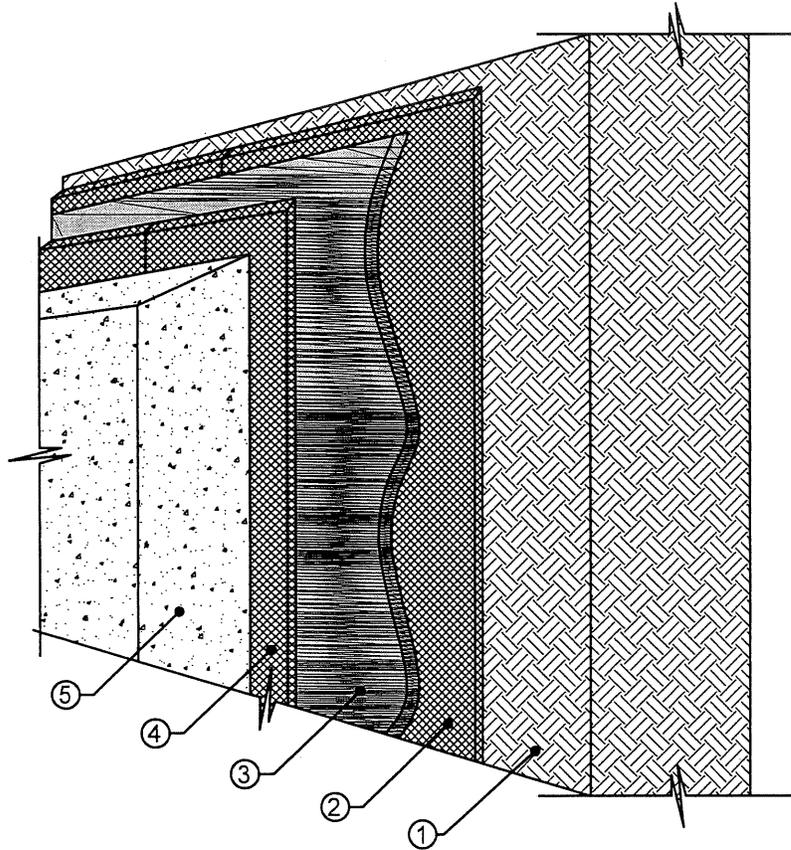
HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

HORIZONTAL MEMBRANE

STANDARD PLAN

10.0

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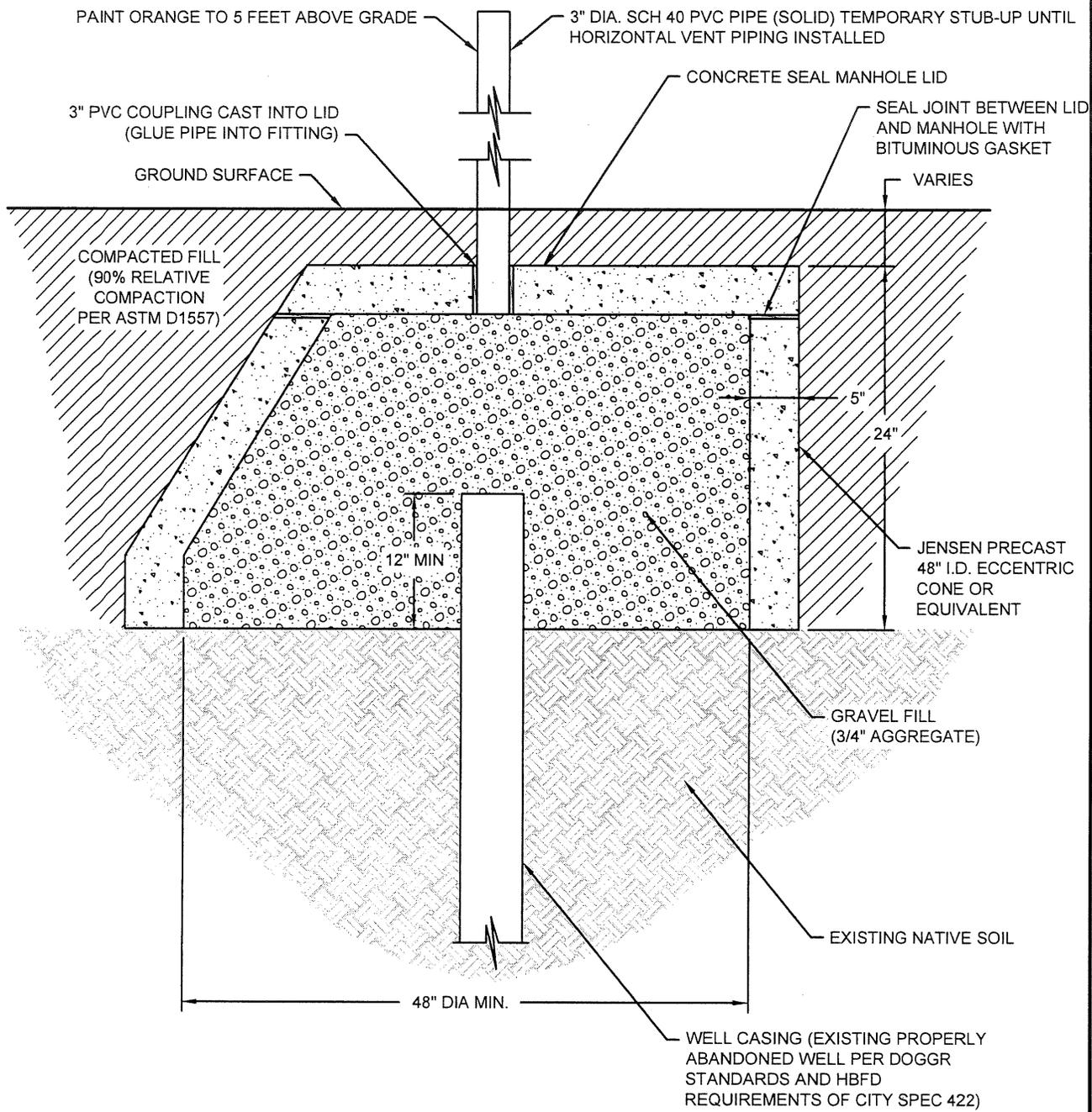
HUNTINGTON BEACH FIRE DEPARTMENT

CITY SPECIFICATION #429

VERTICAL MEMBRANE

STANDARD PLAN

11.0



NOTES:

1. TEMPORARY STUB-UP PIPE TO BE ATTACHED TO PERMANENT HORIZONTAL WELL VENT PIPE SHOWN IN DETAILS 8.0 AND 9.0 AND DESCRIBED IN SECTION 3.1.
2. TOP OF WELL CASING REQUIRED TO BE 6 TO 10 FEET BELOW THE FINAL GRADE PER HBFD CITY SPEC 422.

NOT TO SCALE

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HUNTINGTON BEACH FIRE DEPARTMENT
CITY SPECIFICATION #429

WELL VENT

STANDARD PLAN
12.0