National Home Inspector Content Outline

for the Inspector of Structures Examination

Content Outline effective January 1, 2019

This content outline based on the role delineation study, is intended to provide candidates with topics for study that may appear on the National Home Inspector Examination. The percentage of questions on the examination for each content area is indicated below. The contents of this document are neither a complete listing of all topics covered by the examination nor all skills necessary to perform a competent inspection.

DOMAIN 1: PROPERTY AND BUILDING INSPECTION/SITE REVIEW (63%)

Task 1: Identify and inspect **site conditions** to assess defects and issues that may affect people or the performance of the building. (5%)

a. Vegetation, Grade, Drainage, and Retaining Walls

i. Common types, materials, and terminology
ii. Applicable standards, installation methods, and clearance
iii. Typical defects (e.g., negative grade, earth to wood contact, overgrown vegetation, missing drainage/ drains)
iv. Common safety issues

b. Driveways, Patios, and Walkways

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., root damage, large cracks, improper slope)
iv. Common safety issues (e.g., trip hazards, slippery surface)

c. Pool and Spa Access Barriers

i. Applicable safety standards and terminology
ii. Common safety issues

Task 2: Identify and inspect **building exterior components** to assess defects and issues that may affect people or the performance of the building. (5%)

a. Wall Cladding, Flashing, Trim, Eaves, Soffits, and Fascia

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., water infiltration, decay)

b. Exterior Doors and Windows

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., decayed wood, missing flashings, cracked glass)
iv. Common safety issues (e.g., safety glazing, sash support)

c. Decks, Balconies, Stoops, Stairs, Steps, Porches, and Applicable Railings

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., improper deck ledger attachment, improper rail or stair construction, missing flashing)
iv. Common safety issues (e. g., loose handrails and guards, handrails not graspable, uneven riser height)

d. Garage Vehicle Doors and Operators

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., damaged rollers, broken springs)
iv. Common safety issues (e.g., missing/failing/ malfunctioning safety sensors, improper adjustment of pressure reverse)

Task 3: Identify and inspect **roof components** to assess defects and issues that may affect people or the performance of the building. (6%)

a. Roof Coverings

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical repair methods and materials
iv. Typical defects (e.g., improper installation, cracking, damage, decay)
v. Characteristics of different roofing materials
vi. Sheathing and underlayment requirements for different types of roof coverings

b. Roof Drainage Systems

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., ponding, improper slopes, clogging/leaking)

c. Roof Flashings

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., separation, improper installation, missing flashing)

d. Skylights and Other Roof Penetrations

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., leakage, improper installation, deteriorated boot)

Task 4: Identify and inspect **structural components** to assess defects and issues that may affect people or the performance of the building. (4%)

a. Foundation

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical modifications, repairs, upgrades, and retrofit methods and materials
iv. Typical defects (e.g., cracks, settlement) and their common causes and effects
v. Soil types and conditions and how they affect foundations
vi. Applied forces and how they affect foundation systems (e.g., wind, seismic, loads)
vii. Water management (e.g., waterproofing, foundation drains)

b. Floor Structure

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical modifications, repairs, upgrades, and retrofit methods and materials
iv. Typical defects (e.g., improper cuts and notches in structural members, decayed or damaged structural members)
v. Applied forces and how they affect floor systems (e.g., wind, seismic, loads)

c. Walls and Vertical Support Structures

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical modifications, repairs, upgrades, and retrofit methods and materials
iv. Typical defects (e.g., decayed or damaged structural members, earth to wood contact, structural deformation)
v. Seismic and wind-resistant construction methods and hardware

d. Roof and Ceiling Structures

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical modifications, repairs, upgrades, and retrofit methods and materials
iv. Typical defects (e.g., moisture stains, sagging rafters, modified/damaged trusses)
v. Applied forces and how they affect roof/ceiling structures (e.g., wind, seismic, loads)

Task 5: Identify and inspect **electrical systems** to assess defects and issues that may affect people or the performance of the building. (6%)

a. Electrical Service: Service Lateral, Service Drop, Service Entrance, Service Equipment, and Service Grounding

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical modifications, repairs, upgrades, and retrofit methods and materials
iv. Typical defects (e.g., height, deteriorated conductor sheathing)
v. Electrical service amperage
vi. Service grounding and bonding
vii. Common safety issues (e.g., exposed conductors, improper cover fasteners, missing dead front cover)

b. Interior Components of Service Panels and Subpanels

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical modifications, repairs, upgrades, and retrofit methods and materials
iv. Typical defects (e.g., double-tapping, over-fusing)
v. Panel grounding and bonding
vi. Panel wiring
vii. Theory of operation and purpose of over-current protection devices (e.g., circuit breakers and fuses, GFCI, AFCI)
viii. Inspection safety procedures
ix. Known problem electrical panel boards (e.g., Federal Pacific/Stab-Lok)
x. Common safety issues (e.g. open knock outs, discoloration at conductor connections, multiple neutrals under one screw)

c. Wiring Methods

i. Common types (e.g., non-metallic sheathed cable, conduit), materials, and terminology
ii. Applicable standards and installation methods
iii. Typical modifications, repairs, upgrades, and retrofit methods and materials
iv. Typical defects (e.g., improper use of or lack of junction boxes, unprotected non-metallic sheathed cable, lack of proper support)
v. Concerns and considerations about solid-conductor aluminum wiring
vi. Obsolete electrical wiring system (e.g., knob and tube wiring, cloth-covered NM cable)
vii. Common safety issues (e.g., open splices, no cable clamps at penetrations, exposed conductors)

*d. **Devices, Equipment, and Fixtures (e.g., switches, receptacles, lights, fans)***

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical modifications, repairs, upgrades, and retrofit methods and materials
iv. Typical defects (e.g., reverse polarity, open equipment grounds, non-functional GFCI or AFCI protection)
v. Equipment grounding
vi. Wiring, operation, and location of typical devices and equipment (e.g., receptacles and lights, appliances, ground fault circuit interrupter protection, arc fault circuit interrupter protection)
vii. Common safety issues (e.g., absence of GFCI)

*e. **Alternative Energy Systems***

i. Common types, materials, and terminology (e.g., solar, wind)
ii. Applicable standards and installation methods
iii. Disconnect location
iv. Common safety issues (e.g., improper connection to other systems, lack of disconnect method)

Task 6: Identify and inspect **cooling systems** to assess defects and issues that may affect people or the performance of the building. (4%)

*a. **Cooling***

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., suction line insulation missing, condensation and/or rust on components, restriction of air flow at the condensing unit)
iv. Theory of refrigerant cycle (e.g., latent and sensible heat, air conditioning, heat pumps)
v. Testing methods
vi. Condensate control and disposal
vii. Alternative energies

*b. **Distribution Systems***

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., damaged or disconnected ducts, incorrect installation)

Task 7: Identify and inspect **heating systems** to assess defects and issues that may affect people or the performance of the building. (5%)

*a. **Heating***

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., dirty fan, misfiring oil burner)
iv. Theory of heating system operation
v. Testing methods
vi. Condensate control and disposal
vii. By-products of combustion (e.g., H2O, CO2, CO, NO2), their generation, and how and when they become a safety hazard
viii. Common safety issues
ix. Alternative energies

*b. **Distribution Systems***

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., damaged or disconnected ducts; clogged, missing or damaged filters; leaking pipes)

*c. **Vent Systems***

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., separated vent, back drafting, clearance to combustible materials)
iv. Theory of vent system operation
v. Common safety issues

Task 8: Identify and inspect **insulation, moisture management systems, and ventilation systems in conditioned and unconditioned spaces** to assess defects and issues that may affect people or the performance of the building. (4%)

*a. **Thermal Insulation***

i. Common types, materials, and
ii. Applicable standards and installation methods
iii. Typical defects (e.g., missing, uneven, or damaged insulation, flame spread concerns, improper clearances)
iv. Theory of heat transfer and energy conservation
v. Recommended insulation levels (e.g., R-value)
vi. Common safety issues (e.g., fire hazards)

*b. **Moisture Management***

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., improper vapor retarder installation)
iv. Theory of moisture generation, relative humidity, and moisture movement in buildings
v. Effects of moisture on building components, occupants, and indoor air quality
vi. Moisture control systems (e.g., humidifiers/ dehumidifiers, vapor retarders)

*c. **Ventilation Systems of Attics, Crawl Spaces, and Roof Assemblies***

i. Common types, materials, and terminology
ii. Applicable standards and installation methods

iii. Typical defects
iv. Theory of air movement in building assemblies (e.g., stack effect, pressure differences)
v. Closed attics and crawl spaces
vi. Screening, sizing, and location requirements for ventilation openings

Task 9: Identify and inspect **mechanical exhaust systems** to assess defects and issues that may affect people or the performance of the building. (5%)

a. Mechanical Exhaust Systems (e.g., bath, kitchen, dryer)

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical modification, repair, upgrade, and retrofit methods and materials
iv. Typical defects (e.g., improper termination, plastic dryer ducts)
v. Relationship between mechanical systems and ventilation systems
vi. Common safety issues (e.g., fire hazards)

b. Indoor Air Management Systems (e.g., heat recovery ventilators)

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical modification, repair, upgrade, and retrofit methods and materials
iv. Typical defects (e.g., inoperative, no bypass ducting)

Task 10: Identify and inspect **plumbing systems** to assess defects and issues that may affect people or the performance of the building. (5%)

a. Water Supply Distribution System

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical modification, repair, upgrade, and retrofit methods and materials
iv. Typical defects (e.g., cross-connection, back flow, dissimilar metals)
v. Common water pressure/functional flow problems and how they affect the water distribution system (e.g., hard water build-up, old galvanized piping, pressure reducer valves)

b. Fixtures and Faucets

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical modification, repair, upgrade, and retrofit methods and materials
iv. Typical defects (e.g., leaks, fixture attachment
v. Common safety issues (e.g., absence of anti-scald valve, hot/cold reverse)

c. Drain, Waste, and Vent Systems

i. Common types, materials, and terminology
ii. Applicable standards and installation methods (e.g., supports/spacing)
iii. Typical modification, repair, upgrade, and retrofit methods and materials (e.g., joining dissimilar piping materials)
iv. Theory and usage of traps and vents
v. Identification of public or private disposal (when possible)
vi. Typical defects (e.g., flex pipe, deterioration, leakage, venting or drain slope)

d. Water Heating Systems

i. Common types, materials, and terminology
ii. Applicable standards and installation methods (e.g., storage tank, tankless)
iii. Typical defects (e.g., vent/flue issues, fuel connection and temperature pressure relief system defects)
iv. Accessory items (e.g., seismic restraints, expansion tanks, recirculation systems)
v. Connections to and controls for energy source
vi. Combustion air requirements
vii. Common safety issues (e.g., no temperature pressure relief valve, missing or improperly connected vents)

e. Fuel Storage and Fuel Distribution Systems

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., missing piping supports, missing shut-off, leaking storage tank)
iv. Common safety issues

f. Drainage Systems, Sump Pumps, Sewage Ejection Pumps, Related Valves and Piping

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., inoperative sump pump, improperly installed system, broken lid)
iv. Pump and discharge locations

Task 11: Identify and inspect **interior components** to assess defects and issues that may affect people or the performance of the building. (4%)

a. Walls, Ceiling, Floors, Doors, and Windows, and Other Interior System Components

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects in interior surfaces caused by defects in other systems (e.g., structural movement, moisture stains)
iv. Typical defects in interior surfaces NOT caused by other systems (e.g., defective operation of doors and windows, damage, absence of safety glazing)

v. Egress requirements (e.g., window security bar release, basement windows, sill height)
vi. Applicable fire/safety and occupancy separation requirements (e.g., fire walls, fire rated doors, and penetrations)
vii. Smoke alarms and carbon monoxide alarms

b. Steps, Stairways, Landings, and Railings

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., improper riser height and tread depth, baluster spacing, loose guards)
iv. Common safety issues (e.g., loose treads, missing handrails)

c. Installed Countertops and Cabinets

i. Common types, materials, and terminology
ii. Applicable standards and installation methods
iii. Typical defects (e.g., damaged components)
iv. Common safety issues (e.g., improperly secured cabinets and countertops)

d. Smart Homes

i. Emerging smart home technologies, applications, terminology and operation

Task 12: Identify and inspect **fireplaces, fuel-burning appliances, and their chimney and vent systems** to assess defects and issues that may affect people or the performance of the building. (6%)

i. Common manufactured solid-fuel burning fireplaces and solid
ii. Common manufactured solid-fuel chimney, vent connector, and vent types, materials and terminology
iii. Common masonry fireplace types, masonry flues, materials, applications, terminology, and installation methods
iv. Chimney foundation, height, clearance requirements and terminations (e.g., spark arrestors, chimney cap, clearances to combustible materials)
v. Common gas and liquid-fuel burning appliance types (e.g., vented, direct vent, unvented), vent connector and vent types, materials, and terminology
vi. Applicable standards and installation methods
vii. Fuel types, combustion characteristics, and combustion air requirements
viii. Typical defects (e.g., hearth defects, clearance requirements, smoke chamber and flue issues)
ix. Operation of equipment, components, and accessories
x. Common safety issues

Task 13: Identify and inspect common **permanently installed kitchen appliances** for proper condition and operation. (4%)

i. Applicable standards, installation methods, and terminology
ii. Basic operation using normal controls
iii. Typical defects (e. g., inoperative burner, drain loop on dishwasher missing)
iv. Common safety issues (e.g., absent anti-tip bracket)

DOMAIN 2: ANALYSIS OF FINDINGS AND REPORTING (25%)

Task 1: Inform the client what was inspected and describe building systems and components by their distinguishing characteristics (e.g., purpose, type, size, location). (6%)

i. Minimum information required
ii. Describing the type of systems and the location of system components

Task 2: Describe inspection methods and limitations in the inspection report to inform the client what was not inspected and why. (4%)

i. Minimum and critical information required in an inspection report (e.g., environmental factors, inspection safety limitations, inaccessible areas or components)
ii. Common methods used to inspect particular components (e.g., walk on roof, observe attic or crawl space from hatch)
iii. Common and emerging test instruments and their proper use for qualitative analysis (e.g., moisture meters, carbon monoxide meters, infrared cameras)

Task 3: Describe systems and components inspected that are not functioning properly or are defective. (5%)

i. Expected service life of building and mechanical components
ii. Common indicators of potential failure (e.g., rust and corrosion, excessive or unusual noise/ vibration, lack of routine maintenance)
iii. Common defects and their descriptions
iv. Common safety issues

Task 4: Describe systems and components in need of further evaluation or action. (5%)

i. Correct professional or tradesperson required to effect repairs or perform further evaluations
ii. Relationships between components in the building
iii. When to immediately inform building occupants of a life-threatening safety hazard (e.g., gas leak, carbon monoxide accumulation, exposed energized wires)

Task 5: Describe the implication of defects so that the client understands what could occur if the defects are not corrected. (5%)

i. Association of related defects or areas where systems interact (e.g., water damaged ceiling with damaged plumbing vent collar above)

ii. Common defects and their implications

DOMAIN 3: PROFESSIONAL RESPONSIBILITIES (12%)

Task 1: Discuss the elements of and obtain a written inspection contract (e.g., scope, limitations, terms of services) with the client or client's representative to establish the rights and responsibilities of the inspector and client. (7%)

i. Purpose of a contract

ii. Elements of a contract (e.g., exclusions and limitations, limits of liability, dispute resolution, jurisdictional requirements)

iii. Timing of delivery and signing of contract

Task 2: Maintain quality, integrity, and objectivity of the inspection process. (5%)

i. Fundamental legal concepts (e.g., fiduciary and contractual responsibility, negligence, applicable governing regulations)

ii. Conflicts of interest (e.g., inspector interest in the property, third-party stakeholders with financial interest in the outcome of the inspection

iii. Types and purpose of financial protection (e.g., general liability, professional errors and omissions, warranties)

iv. Protection of the client's interest