FIELD INSPECTORS' CHECK LIST FOR BUILDING CONSTRUCTION

Report of Subcommittee on Structure
Central Housing Committee on Research, Design, and Construction

BUILDING MATERIALS AND STRUCTURES REPORT BMS81
FOREWORD

As an authoritative guide for the inspection of materials and workmanship in building construction, this Check List has been prepared by a representative committee of Federal agencies engaged in activities relating to the design and erection of buildings. It is based, to a large extent, upon the experience of the members of the committee collaborating in its preparation and is intended to assist a field inspector in the performance of his duties and to insure that no important step is overlooked as construction progresses.

The list is in no sense a specification outline. In arrangement it follows normal construction procedures and interlocking operations in regular order rather than by individual trades and should be a helpful daily reminder to the general field inspector.

Lyman J. Briggs, Director.
The program of Research on Building Materials and Structures carried on by the National Bureau of Standards was undertaken with the assistance of the Central Housing Committee, an informal organization of governmental agencies concerned with housing construction and finance, which is cooperating in the investigations through a committee of principal technicians.

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The Forest Products Laboratory of the Forest Service is cooperating with both committees on investigations of wood constructions.

[For list of BMS reports and directions for purchasing, see unnumbered pages at end.]
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Field Inspectors’ Check List for Building Construction

Report of Subcommittee on Structure of the Central Housing Committee on Research, Design, and Construction

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I. INTRODUCTION

The purpose of a field inspection during the construction of a building is to make sure that the materials and workmanship provided by the contractor comply with or are equivalent to the requirements of the contract documents. These documents usually include general conditions, specifications, and drawings.

The field inspector should obtain copies of all contract documents, reference specifications, codes, permits, insurance certificates; data relating to contractors and subcontractors, inspection laboratories; catalogs, approved samples, reports of tests, reference matter; and other pertinent information so far as it is available.
Before field operations become too extensive or too active, the contract documents should be carefully examined by the field inspector and this Check List amplified or condensed to conform to their provisions.

Specification requirements for large or important projects will be detailed and specific; for smaller or less important jobs they may be less exacting. The extent of deviation from rigid inspection to be allowed must be determined by existing conditions. The type and purpose of the structure should be given reasonable consideration in the application of the requirements of the contract documents.

The chief inspector should have an adequate staff of clerks and assistants. On large projects, work involving mechanical trades should have the benefit of specially qualified inspectors; for concrete and masonry the inspectors should be experienced in the field-testing of materials and be competent to interpret laboratory-test reports.

In undertaking a particular project, the extent to which the field inspector's duties include the approval of samples, inspections in mills and shops, and the following of laboratory or plant tests should be clearly designated by the administrative office, thus avoiding doubt and confusion as to the distribution of duties and authority between the field inspector and the administrative office.

Before actual construction begins, the field inspector should call for a survey of the site showing the location of utility and service lines and for an independent check of the lay-out of the building, including subsoil conditions, bearing pressures, and allowable soil load. Removal of existing structures should precede the awarding of a general contract.

This Check List outlines items suggested for periodic inspection. Its continual use during building operations should assure the inspection of each item as put in place and guarantee compliance with the contract and conformance to good construction practice. It is assumed that the inspector is familiar with the terms used and therefore that they require no definition.

The arrangement of the list was selected for the convenience of the field inspector and to insure that the various steps will be checked in their proper sequence. To amplify
specific items in the Check List and to avoid unnecessary repetition, the work of certain trades has been treated more fully in the appendixes.

A system for regular follow-up should be established by means of schedules, progress charts, photographs of progress, and calendar memoranda.

The committee expresses its appreciation to Francis F. Gillen of the National Park Service for the general idea of a check list and for aid in its development; to Edward J. Schell of the National Bureau of Standards and Burt M. Thorud of the United States Housing Authority for assistance in the technical preparation; and to Louise D. Card of the National Bureau of Standards for the editorial organization of the material.
II. PRELIMINARY STAGE

1. Preparatory Steps

(a) Secure copies of
   (1) Contract documents:
       General conditions
       Specifications
       Drawings
   (2) Reference specifications
   (3) Codes
   (4) Permits
   (5) Insurance certificates
   (6) Contractor's contracts

(b) Discuss entire project with
   (1) Architect:
       Design
       Effects desired
   (2) Contractor:
       Job conditions

(c) Determine
   (1) Basis of contract:
       Lump sum [see II-7 (a) (3), File Records]
       Cost plus a percentage
       Cost plus a fixed fee
       Guaranteed upset cost including fixed fee
   (2) Interpretation of contract:
       Authority and/or procedure for:
       Changes
       Additions
       Rejection of:
       Materials
       Work
       Work in place
       Dismissal of incompetent workmen
1. Preparatory Steps—Continued

(c) Determine—Continued
(2) Interpretation of contract—Continued
   Authority and/or procedure for—Con.
   Claims:
   Delay
   Damages
   Accidents
   Termination of contracts:
   Bonus or penalty

(3) Unit prices:
   Materials
   Labor

(4) Quality of:
   Material
   Work

(d) Verify selection of
   (1) Testing laboratories
   (2) Subcontractors

(e) List
   (1) Omissions, discrepancies
   (2) Requirements, special or unusual
   (3) Materials:
      Samples
      Certificates, manufacturer’s
      Guaranties, manufacturer’s
      Tests, laboratory, plant, and field:
      Inspections
      Reports
   (4) Follow-up schedule for shop drawings:
      Submitted
      Approved

2. Schedule of Progress

[Note.—Hereafter the word “check” is to be understood to precede each item.]

(a) Full-sized details, architect’s
(b) Inspections and approvals of materials and work
   prior to concealment
   (1) Dates for
   (2) Notification to architect
3. Examination of Site

(a) Preliminary items
   (1) Detailed surveys
   (2) Subsoil conditions
   (3) Removal of existing structures

(b) Protection of
   (1) Existing construction
   (2) Adjacent construction:
       Shoring
       Needling
       Underpinning
   (3) Trees or shrubs
   (4) Utilities and service lines
   (5) Sidewalks

(c) Opening of streets

(d) Water supply

(e) Location of
   (1) Structure on lot
   (2) Storage of materials
   (3) Field office

4. Layout

(a) Grades and property lines

(b) Utility lines
   (1) Existing
   (2) Proposed

(c) Angles and dimensions of structure

(d) Protective measures (as demanded by state or municipal laws, ordinances, or regulations) for
   (1) Workmen (safe equipment, scaffolding, ladders)
   (2) Public (barriers, lights)
   (3) Work (covering)

(e) Facilities for close inspection

(f) Settling tests, periodic

(g) Location of sample walls
   (1) Masonry
   (2) Stone
   (3) Other

1Items usually preceding the awarding of general contract before field inspector assumes duties.
5. Storage of Materials and Equipment

(a) Placement on premises to afford
   (1) Protection from:
      Elements
      Vandalism
   (2) Inspection accessibility

(b) Contractor’s organization
   (1) Tools and equipment
   (2) Hazard precautions for:
      Workmen
      Public
      Work

6. Inspection of Work

(a) Reference data
   (1) Specifications and methods, manufacturer’s
   (2) Shop drawings, fabricator’s
   (3) Full-sized details, architect’s
   (4) Reports of:
      Inspections, mill or plant
      Tests, laboratory or field

(b) Materials, building units, prefabricated constructions
   (1) Kinds, grades, quality
   (2) Sizes, shapes, weights
   (3) Workmanship and conformance to details
   (4) Absorption and moisture content
   (5) Physical condition
   (6) Paint or priming, shop-coat

(c) Periodic lists
   (1) Items not finished:
      For adjustment
      For withheld-payment
   (2) Removals:
      Work in place (for correction)
      Rejected materials

(d) Notifications to contractor
   (1) Materials, unacceptable
   (2) Workmanship, unacceptable
7. File Records

(a) Reports of progress: daily, weekly, monthly (summary to determine)
   (1) Degree of completion of work
   (2) Proportionate cost of completed structural elements
   (3) Breakdown schedule for lump-sum contract:
       Work categories
       Contractor’s administrative expense
   (4) Delivery and acceptance:
       Materials
       Building units
       Prefabricated constructions
   (5) Work in place:
       Operation of temporary heating
       Wetting of materials or surfaces
       Curing methods
       Protection or covering after placement
       Shoring
       Forming
       Workmanship

(b) Photographs of progress
   (1) Weekly
   (2) Monthly

8. Sample Constructions and Advance Tests

(a) Time allowance for preparation, inspection, and approval
   (1) Mixes of concrete
   (2) Masonry:
       Units
       Mortars
   (3) Walls, sample
   (4) Compounds:
       Waterproofing
       Dampproofing
       Calking
   (5) Paints, priming
III. FOUNDATION STAGE

1. Soil Load Tests, Specified or Additional
   (a) Test area
      (1) Size (approximate average proposed footing)
   (b) Test apparatus
      (1) Capacity
      (2) Sensitivity
      (3) Bracing
      (4) Settlement measuring devices
      (5) Bearing plates
   (c) Test procedure
      (1) Load increments
      (2) Settlement
      (3) Duration
      (4) Rebound
   (d) Recording and analysis
      (1) Time-settlement chart
      (2) Tabulated results (interpretation)

2. Site Preparation
   (a) Salvage
      (1) Buildings or parts
      (2) Trees and shrubs
      (3) Topsoil for storage
   (b) Clearing
      (1) Old foundations:
         Break up
         Removal
   (c) Protection of
      (1) Public:
         Barriers
         Lights
         Other methods (when blasting, tree cutting, etc.)
      (2) Existing utilities and structures
      (3) Pavements
      (4) Trees and shrubs:
         Boxing or well
3. Earthwork

(a) Permit

(b) Layout
   (1) Batter board:
      Set-back

(c) Excavation
   (1) Test borings or test pits
   (2) Cesspools or cisterns
   (3) Strata
   (4) Footing depths:
      Earth
      Rock
      Not requiring forms
   (5) Undersoil for storage

(d) Drainage
   (1) Temporary
   (2) Permanent

(e) Trenches
   (1) Frost-line
   (2) Original bed
   (3) Protection (bracing)

(f) Blasting safeguards for
   (1) Life
   (2) Property

(g) Existing structures, foundations, utilities:
   Shoring
   Needling
   Underpinning

(h) Outside face of walls
   (1) Clearances for inspection

(i) Grades
   (1) Specified
   (2) Extras, earth and rock:
      Estimates
      Authorization
      Quantity

(j) Fills
   (1) Backfill
   (2) Grading
   (3) Tamping
4. Utilities
   (a) Excavations for service lines
   (b) Boxing or sleeves for pipe lines
       (1) Location
   (c) Drainage
       (1) Lines, grades
       (2) Soil pipe
       (3) Tile installation

5. Footings, Foundation Walls, Piers

See Appendix:
   A—Concrete
   B—Masonry
   C—Waterproofing, dampproofing, and calking

(a) Piling
   (1) Wood:
       Species
       Size
       Treatment
   (2) Concrete:
       Precast:
       Mix
       Tests
       Curing
       Handling
       Cast-in-place:
       Shell design and condition
       Mixes and slumps
   (3) Driving equipment:
       Type
       Penetration per blow
   (4) Driving procedure:
       Location and plumbness:
       Tolerances
       Protection of underground utilities
       Excavation to cutoff levels
       Test piles
       Uniformity and continuity
       Subsurface obstructions
       Redriving
5. Footings, Foundation Walls, Piers—Continued

(a) Piling—Continued

(4) Driving procedure—Continued
  Use of follower
  Mandrel for driving steel shells
  Jetting

(5) Records:
  Ground-water levels
  Pile location and penetration
  Driving noncontinuity
  Bearing capacities

(6) Rejections:
  Damage
  Nonconformance

(7) Replacements:
  Redesign of pile caps
  Rearrangement of pile groups
  Shells for cast-in-place piles:
    Watertight condition

(8) Withdrawn-piling spaces:
  Fill

(9) Cutoffs:
  Levels
  Splices
  Cast-in-place:
    Volume of concrete to fill shell
    Treated wood:
      Immediate coating after cutting off

(b) Concrete

(1) Footings

(2) Formed spaces:
  Installation:
    Inserts
    Anchors
    Bulkheads
    Sleeves
    Steel for reinforcement
  Removal of debris
  Wetting of sandy bottom
5. Footings, Foundation Walls, Piers—Continued
   (c) Reinforcing
       (1) Footings over pipe lines and utility trenches
       (2) Walls around temporary openings
       (3) Lower-level walls and piers:
           Splicing
           Anchoring
   (d) Municipal approval

6. Backfilling
   (a) Prior to backfilling
       (1) Subsurface masonry
       (2) Drain tile
   (b) Material for backfill
       (1) Drainage characteristics
   (c) Track for heavy equipment
   (d) Trees
       (1) Breathing space
       (2) Drainage
   (e) Topsoil protection
IV. STRUCTURAL-FRAMING STAGE

1. General Preparations

Review section II, Preliminary Stage, preparatory to superstructure framing.

(a) Prior to starting work

(1) Approvals and instructions:
    Construction program and equipment
    Shop drawings
    Sample materials
    Concrete mixes
    Masonry mortars
    Sample walls (masonry, stone, stucco)

(2) Full-sized details

(3) Quality of:
    Brick
    Tile
    Concrete blocks
    Facing stone

(b) Removal of rejected materials

2. Superstructure Framing

See Appendix:

A—Concrete
B—Masonry
C—Waterproofing, dampproofing, calking
D—Structural-steel
E—Carpentry

(a) Framing

(1) Plumb, lines, levels
(2) Temporary bracing
3. Utilities

(a) Provision for services
   (1) Heating lines to central plant
   (2) Electricity, gas
   (3) Telephone
   (4) Openings through framework for:
       Plumbing
       Electricity, gas
       Other lines
   (5) Pipe sleeves

(b) Pipe lines and connections for fixtures
    [See V-6 (b), Piping]
    (1) Roughing in
    (2) Erection
    (3) Interferences

(c) Framing members
    (1) Cutting
    (2) Patching

(d) Chases for pipe lines in masonry walls

(e) Anchors for hanging fixtures and radiators in
    (1) Solid-masonry walls
    (2) Hollow-unit walls

4. Concluding Check Up of Stage IV

(a) Prior to covering
    (1) Work in place
    (2) Correction of faulty work

(b) Removal of debris and rubbish

(c) Municipal approval
V. INTERMEDIATE STAGE

1. General Requirements

   Review section II, Preliminary Stage, preparatory to proceeding.
   
   (a) Ventilation to prevent condensation of moisture before covering
       
       (1) Walls
       (2) Floors
       (3) Roof
   
   (b) Heating during installation of work in damp or freezing weather
   
   (c) Removal from ground within building walls of
       
       (1) Waste lumber and concrete forms
       (2) Surface water or snow
   
   (d) Protection of work in place from damage by
       
       (1) Other trades
       (2) Fire
       (3) Other agents
   
   (e) Storage on floors
       
       (1) Prevention of:
           Overloading
           Interference with curing
   
   (f) Surfaces to be covered
       
       (1) Cleaning
   
   (g) Pipes and conduits prior to concealment
       
       (1) Location
       (2) Testing of
   
   (h) Backing-up members for fixtures
       
       (1) Referencing
   
   (i) Metals in contact
       
       (1) Electrolytic action
2. Thermal Insulation
   (a) Materials
      (1) Dry
      (2) Undamaged
   (b) Moisture barrier
      (1) Material
      (2) Placement on inside of insulating layer
   (c) Wall and ceiling
      (1) Board insulation:
          Alinement
          Expansion space
          Fastening
      (2) Fill insulation:
          Side wall:
          Space full to top
          Ceiling:
          Evenness of distribution
      (3) Batt and blanket insulation
          Fastening
          Joints

3. Sheet-Metal Work
   (a) Standing seams
      (1) Effects of temperature changes (expansion and contraction)
   (b) Other seams
      (1) Tinning
   (c) Painting
      (1) Surfaces prior to painting:
          Removal of:
          Grease
          Flux
          Foreign matter
      (2) Undersurfaces (except copper) prior to concealment:
          Coating
   (d) Electrolytic action
   (e) Gutters and downspouts
      (1) Straightness and pitch
      (2) Tightness
      (3) Bracket fastenings
4. Weatherproofing
   (a) Flashing of
       (1) Roof
       (2) Parapet walls
       (3) Windows
       (4) Doors

5. Roofing
   (a) Built-up
       (1) Condition of deck
       (2) Insulation:
           Placing
       (3) Felt:
           Placing
       (4) Pitch or asphalt:
           Application:
           Temperature
           Consistency
           Amount in each mopping
       (5) Surfacing material:
           Condition
           Quantity per square

   (b) Tile
       (1) Condition of deck
       (2) Underlay material
       (3) Lapping
       (4) Fastenings

   (c) Slate
       (1) Condition of deck
       (2) Underlay material
       (3) Lapping
       (4) Staggering of joints
       (5) Nails and nailing
       (6) Bedding in slater’s cement adjacent to:
           Valleys
           Ridges
           Chimneys
           Dormers
5. Roofing—Continued

(d) Cement-asbestos shingles
   (1) Condition of deck
   (2) Underlay material
   (3) Starter course at eaves
   (4) Exposure
   (5) Headlap and sidelap (Dutch lap and hexagonal methods)
   (6) Nails and fastenings

(e) Wood shingles
   (1) Grade
   (2) Staining
   (3) Exposure
   (4) Double first course at eaves
   (5) Staggering of joints
   (6) Nailing

(f) Asphalt-prepared roofing
   (1) Asphalt shingles:
       Condition of deck
       Underlay material
       Edging at eaves and rake
       Starting strip or double course at eaves
       Exposure
       Nailing
   (2) Asphalt-prepared roll roofing:
       Condition of deck
       Edging at eaves and rake
       Starter strip at eaves
       Vertical and horizontal seams:
       Lap
       Nailing

(g) Metal roofing
   (1) Surface treatment
   (2) Expansion joints
   (3) Nailing and fastening
6. Plumbing

See other stages for introduction of utilities and piping to avoid interferences. Equipment and installation to be checked by special plumbing inspector or coordinating mechanical engineer.

(a) General
   (1) Materials:
       Manufacturer's certificates
       Laboratory test reports

(b) Piping
   [See IV–3 (b) Pipe lines and connections for fixtures]
   (1) Prior to concealment:
       Clearance
       Alinement
       Pitch
       Head room
       Expansion due to temperature changes

(c) Welding
   (1) Qualifications of welding operators
   (2) Joints

(d) Supports
   (1) Risers
   (2) Pipe hangers:
       Design
       Spacing
       Anchors
       Rustproofing
   (3) Tanks
   (4) Generators

(e) Cleanouts
   (1) Accessibility

(f) Pipe covering
   (1) Protection by:
       Air circulation
       Sizing or priming
6. Plumbing—Continued

(g) Radiators
   (1) Connections:
       Supply and return
   (2) Location
   (3) Settings:
       Strains on cast-iron fittings

(h) Plumbing fixtures
   (1) Clearances

(i) Fittings
   (1) Stop-valve connections:
       Sill cocks or hose bibs
   (2) Risers and fixtures:
       Air chambers at top
   (3) Drainage piping:
       Long sweep for changes in direction
   (4) Scale pockets
   (5) Drip points:
       Threaded caps

(j) Pressure-reducing valves, pumps, equipment with moving parts
   (1) Strainers on inlet side

(k) Traps and vents
   (1) Building drain
   (2) Fixture traps:
       Water seals
       Continuous-waste-and-vent
   (3) Vents:
       Back
       Group

(l) Workmanship
   (1) Qualifications of plumbers
   (2) Screwed pipe:
       Reaming

(m) Bell and spigot joints
   (1) Calking
   (2) Leading

(n) Conduits
   (1) Trapping
   (2) Drain provision:
       Sump and drain pumps
6. **Plumbing**—Continued
   (n) Conduits—Continued
   (3) Plugging of ends
   (o) Municipal approval

7. **Heating**

   See other stages for introduction of utilities and piping to avoid interferences. Equipment and installation to be checked by special heating inspector or coordinating mechanical engineer.

   (a) General

   (1) Materials:
   - Manufacturer's certificates
   - Laboratory test reports

   (b) Boiler or furnace settings

   (1) Baffles:
   - Freedom from cracks and leaks

   (2) Firebrick and silicon-carbon blocks:
   - Dipping in high-temperature or fire clay mortar

   (3) Brick or tile:
   - Whole
   - Unwarped
   - Freedom from cracks

   (4) Allowances for expansion

   (5) Curing

   (6) Tightness

   (7) Clearance for stoker mechanism

   (c) Boilers

   (1) Prior to operation:
   - Free of water, openings sealed
   - Or
   - Completely filled with water

   (2) Plates over top row of boiler tubes:
   - Anchorage for prevention of buckling

   (3) Insulating brick above plates:
   - Prevention of gas leakage by staggering of joints
7. **Heating**—Continued

(c) Boilers—Continued

(4) Peepholes:
   - Accessibility
   - Maximum view

(5) Air passages and dampers in air-cooled settings:
   - Removal of foreign matter

(d) Stokers
   (1) Movable parts:
      - Operation
      - Lubrication

(e) Guards or pipe coverings
   (1) Prevention of damage by valve-operating chains

(f) Supports under piping to reciprocal pump
   (1) Elimination of vibration

(g) Coal scales
   (1) Calibration by local department of weights and measures

(h) Cleanout facilities
   (1) Size
   (2) Accessibility

(i) Gages and thermometers
   (1) Visibility

(j) Steam plant
   (1) Cleaning:
      - Under steam pressure
   (2) Operation of vacuum pumps and trap elements:
      - Delay until completion of pressure cleaning
   (3) Preliminary operation of boilers:
      - Prior to municipal inspection:
        - Compliance with codes and specifications
        - Adjustments by factory representative
        - Tightness of joints and connections
        - Noiseless functioning
7. Heating—Continued

(j) Steam plant—Continued
(3) Preliminary operation of boilers—Con.
    Prior to acceptance:
    Traps
    Strainers
    Sediment pockets
    Mud drums
    Removal of accumulations from interior of settings and hoppers
    Municipal approval

(k) Oil burners
    (1) Electric wiring
    (2) Bonnetstat or boiler thermostat
    (3) Stackstat
    (4) House thermostat
    (5) Oil tank:
        Capacity
        Location
    (6) Filler pipe and cap
    (7) Supply pipe
    (8) Oil lift pump
    (9) Combustion chamber

(l) Warm-air furnaces
    (1) Flue
    (2) Flue lining
    (3) Thimble
    (4) Firepot and firebrick
    (5) Grate and shaker mechanism
    (6) Ducts and grilles:
        Supply and return
    (7) Smoke pipe:
        Damper
        Damper control
    (8) Humidifier
    (9) Circulating fan:
        Connections
        Electric wiring
        Belts
8. Air Conditioning

See other stages for introduction of utilities and piping to avoid interferences. Equipment and installation to be checked by special air-conditioning inspector or coordinating mechanical engineer.

(a) General
   (1) Materials:
       Manufacturer’s certificates
       Laboratory test reports
   (2) Cooling load of structure

(b) Units
   (1) Size
   (2) Manufacturer’s catalog rating

(c) Compressors
   (1) Size
   (2) Manufacturer’s catalog rating

(d) Compressor motor
   (1) Horsepower

(e) Fan motor
   (1) Horsepower

(f) Wire
   (1) Size

(g) Duct
   (1) Size
   (2) Thickness of material

(h) Grilles
   (1) Location
   (2) Supply and return

(i) Thermostat or hygrostat
   (1) Location

(j) Dampers
   (1) Controls:
       Type

(k) Refrigerating machine
   (1) Controls:
       Type

(l) Service guaranty
9. Electrical Work

See other stages for introduction of utilities and piping to avoid interferences. Equipment and installation to be checked by special electrical inspector or coordinating mechanical engineer.

(a) General
   (1) Materials:
       Manufacturer's certificates
       Laboratory test reports

(b) Wiring and fixtures
   (1) Feeder and subfeeder cables:
       Color coding
   (2) Switches and receptacles:
       Installation:
       Anchorage
       Alinement
       Plumbness
       Operation

(3) Electrical outlet boxes:
   Size
   Setting
   Clearance

(4) Motors and control equipment:
   Installation
   Operation
   Sound insulation and isolation

(5) Fuses:
   Size
   Spares

(6) Outlets:
   Polarity

(7) Municipal or other approval

10. Miscellaneous Metal Work

(a) Metal items
   (1) Anchorage for attachment

(b) Recesses for
   (1) Letter box
   (2) Mail chute
10. Miscellaneous Metal Work—Continued

(c) Pipe-rail posts
   (1) Calking into sleeves

(d) Metal bucks
   (1) Bracing
   (2) Alinement
   (3) Protection, especially on main travel aisles

(e) Stairs
   (1) Stringers
   (2) Treads and risers
   (3) Bearing at supports
   (4) Levels of top and bottom treads
   (5) Fillers in tread pans for protection of nosings

(f) Connections
   (1) Tightness
   (2) Lock or set of nuts on bolts

(g) Painting
   (1) Prior to erection:
      Inaccessible parts
   (2) Shop-paint abrasions

(h) Milled surfaces in contact
   (1) Oiling

11. Metal Windows

(a) Setting
(b) Calking
(c) Priming
(d) Attachment of trim
(e) Adjustment of friction hinges
(f) Prior to final plastering or painting
   (1) Curtain or shade mounting
   (2) Drilling of jambs

12. Lathing

(a) Metal-lath application
   (1) Angles
   (2) Ribs
   (3) Joints at sides and heads of openings
   (4) Corner beads
12. Lathing—Continued
   (a) Metal-lath application—Continued
      (5) Covering:
         Narrow spaces between openings
         Internal corners
         Joints between wood and masonry
         Pipe and conduit chases
         Beams
         Lintels
         Archways
         Cornices
   (b) Wood-lath application
      (1) Spacing
      (2) End joints:
         Solid bearing
         Staggering

13. Plaster and Stucco
   (a) Preparation
      (1) Grounds:
         Thickness:
         Nailing strength for trim
         Support for hanging fixtures
      (2) Lime prior to mixing:
         Slaking
         Soaking
      (3) Masonry surfaces:
         Scoring
         Cleaning
         Wetting
      (4) Wood lath:
         Wetting
      (5) Gypsum and insulating lath:
         Dry
   (b) Application
      (1) Mix
      (2) Color and texture
      (3) Alinement and levels
   (c) Curing
      (1) Wetting
      (2) Drying
13. **Plaster and Stucco**—Continued

(d) Patching
   (1) Cleaning of exposed lath
   (2) Raking of cracks to form clean key
   (3) Wetting of edges

(e) Finishing of stucco surfaces
   (1) Cement wash for water-cement paint
   (2) Lead-and-oil mixture for oil paint

14. **Sash and Doors**

(a) Priming
   (1) Prior to or immediately after delivery:
      Frames
      Sash
      Recesses for glazing

(b) Hanging
   (1) Hardware in place
   (2) Clearance at head and jambs
   (3) Operation

(c) Staff beads
   (1) Alinement
   (2) Calking:
      Allowance for

(d) Refitting after installation of weatherstripping
   (1) Snug-easy operation

15. **Weatherstripping**

(a) Quality
   (1) Temper of spring metal
   (2) Cut:
      Cross-grain

(b) Installation
   (1) Application after fitting of wood members
   (2) Joints:
      Tight
      Smooth
   (3) Fastening
   (4) Seal
   (5) Operation of units

(c) Thresholds
   (1) Calking
16. Glazing  
(a) Glass  
   (1) Type:
      Ordinary:
      Sticker
      Special, ray transmitting or resisting:
         Manufacturer’s certificate of compliance or Laboratory test report  
   (2) Quality:
      Flawless
      Flat (not sprung into place)  
   (3) Size:
      Tolerances for openings  
   (4) Installation:
      Mechanical fastenings  
(b) Putty or mastic  
   (1) Quality:
      Elasticity
      Adhesion
      Hardening  
   (2) Application:
      Bed and face
      Bevels  
   (3) Recesses for glazing:
      Priming  
(c) Replacement of broken or scratched glass  
(d) Cleaning  

17. Millwork  
(a) Trim  
   (1) Priming or back priming (same bases as final finish)  
   (2) Storage:  
      Dry
17. Millwork—Continued
   (a) Trim—Continued
      (3) Installation:
         Cutting:
         Mitering
         Splicing (permitted only in running trim):
         Halving
         Application after plaster dries:
         Running trim:
         Plumb
         Level
         Straight
         End joints:
         Over solid bearings
         Thresholds:
         Full length
         Nailing:
         Size
         Amount
         Manner
         Set
   (b) Stationary cabinets
      (1) Anchoring
      (2) Scribing
   (c) Drawers, doors, sliding boards
      (1) Operation
      (2) Elimination of warp and check
   (d) Finish surfaces
      (1) Removal of tool marks and abrasions

18. Finish Flooring
   (a) Wood
      (1) Storage:
         Dry
      (2) Installation:
         Baseboards:
         Clearance for expansion
         Joints:
         Tight fit
18. Finish Flooring—Continued
(a) Wood—Continued
(3) Nailing:
  Bearings
  End joints (unless matched)
  Avoidance of tongue damage
(4) Protection after laying:
  Covering until waxed or finished
(b) Linoleum, rubber, felt-base, or asphalt, in sheet or tile form
  Moisture and temperature equilibrium normal for location to be established before proceeding with the installation.
(1) Subfloor surface:
  Dryness
  Rigidity
  Levelness
  Cleaning
(2) Installation:
  Manufacturer’s instructions
  Underlay over strip-wood floor:
    Type
    Adhesives:
    Type
    Application
    Removal of trapped air
(3) Protection after laying:
  Covering until waxed or finished
(c) Ceramic tile
(1) Type
(2) Setting bed:
  Rigidity
  Levelness
(3) Joints:
  Uniformity
(4) Surface:
  Evenness
18. Finish Flooring—Continued

(d) Concrete
   (1) Mix
   (2) Placing:
       Compactness
   (3) Surface:
       Evenness
       Finish

(e) Stone
   (1) Type
   (2) Setting bed:
       Rigidity
       Levelness
   (3) Joints
   (4) Surface:
       Evenness

19. Screening

(a) Installation
   (1) Screen cloth:
       Tightness
       Fastening
   (2) Frames:
       Wood:
       Fit
       Operation
       Metal:
       Electrolytic action
   (3) Openings and removable screens:
       Identification tags

(b) Cleaning
(c) Paint splashes
   (1) Removal
VI. FINISHING STAGE

1. Hardware
   (a) Materials
      (1) Approved samples:
          Identifying tags
          Classifying and filing
      (2) Bolts, nuts, screws, other hardware:
          Removal of sharp edges and projections
   (b) Workmanship
      (1) Installation:
          Qualifications of mechanics
      (2) Operating parts:
          Adjustment and functioning
          Clearance for door closers
          Latches and locks
      (3) Keys:
          Fitting
          Marking
          Provision of adequate supply
      (4) Door stops:
          Clearances
          Resistance to impact
      (5) Fastenings:
          Nuts:
            Lockwashers
            Upset thread on bolt
          Screws:
            Bite into wood
            Prevention of hammer driving
      (6) Surface plates and items on sash, doors, etc.:  
          Fitting
          Protection
2. Painting and Decorating

(a) Materials

(1) Contractor's written statement:
   - Brand
   - Composition
   - Manufacturer's certificate of compliance
   - Approvals

(2) Tests:
   - Composition
   - Conformance with standard panels:
     - Color
     - Texture
     - Hiding power
     - Cleanability

(3) Linseed-oil, enamel, and other paints:
   - Ready-mixed:
     - Containers:
       - Original
       - Unopened
     - Labeling:
       - Manufacturer's name
       - Brand
       - Composition
     - Mixed-on-job:
       - Competency of workmen
       - Uniformity of color:
         - Size of batches

(4) Coatings for radiators and hot pipes:
   - Heat-resistance

(b) Surface preparation

(1) Removal of stains caused by:
   - Dampproofing
   - Calking compound
   - Plaster

(2) Nail heads:
   - Set
   - Puttying
   - Smoothing and sanding of dry putty
2. Painting and Decorating—Continued
   (b) Surface preparation—Continued
      (3) Priming (base material same as finish):
         Surfaces inaccessible after installation:
         Trim, backs of
         Frames, door and window
         Double-hung-window jambs
         Casings
         Doors, top and bottom of
         Baseboards
         Drip caps
         Staff beads
         Roofing sheets, metal
         Flashings, metal (except copper)
         Radiators
         Flooring for porches, wood
      (4) Sizing, neutralizing, or special treatment:
         Insulating board
         Plaster
         Concrete
         Zinc-coated metal
      (5) Protection, by removal or covering:
         Finish hardware
         Switch plates
         Surfaces likely to be damaged by other trades
   (c) Application
      (1) Weather conditions:
         Suitability
      (2) Varnishes and enamels:
         Smoothness
      (3) Lead-and-oil paints:
         Thorough working out
         Smears and spatters:
         Removal
         Successive coats:
         Sanding
         Buffing
         Different shades (to facilitate inspection)
2. Painting and Decorating—Continued
   (c) Application—Continued
      (3) Lead-and-oil-paints—Continued
         Successive coats—Continued
         Time allowance for drying between coats
         Uniform coverage for similar surfaces
         Full coverage for partially concealed spaces:
         Pipes and radiators:
         Back
         Top
         Underside
         Doors
         Door bucks
         Window stools
         Wood rails and strips
         Returns of trim
      (4) Cement paints for masonry surfaces:
         Wetting of surfaces to be painted
         Scrubbing on with stiff bristle brush
         Damp curing
   (d) Protection from damage
      (1) Work in place
      (2) Wet paint
   (e) Cleaning
      (1) Final coat when thoroughly dry

3. Lighting Fixtures
   (a) Wiring
      (1) Switches
      (2) Connections:
         Soldering
         Welding
      (3) Municipal approval
   (b) Bulbs
      (1) Lighting
      (2) Cleaning
      (3) Protection from damage
Finishing Stage

4. Masonry
   (a) Pointing
      (1) Holes and cracks:
          Mortar filling (same composition as facing)
      (2) Defective mortar:
          Cutting out
          Solid refilling
      (3) Removal of:
          Nails
          Devices for forming weep holes
      (4) Tooling
   (b) Cleaning
      (1) Protection of:
          Metal
          Stone
          Other
      (2) Methods:
          Sandblasting
          Muriatic acid wash
          Water wash
          Abrasive stone
          Wire brush
          Steam

5. Concluding Check Up of Stage VI
   (a) Cleaning of
      (1) Crawl and pipe spaces
      (2) Pipe chases
      (3) Attics
      (4) Vents in walls
      (5) Floors
      (6) Chimney bottoms
      (7) Accessible spaces
      (8) Decorated or finished surfaces
      (9) Glass, hardware, and fixtures
   (b) Removal of debris
   (c) Closing off of floor openings around piping
5. **Concluding Check Up of Stage VI**—Continued

(d) Accessibility of crawl spaces
(e) Replacement of broken glass
(f) Operation of doors and windows
(g) Removal of equipment
VII. FINAL RECORDS

Copies of the following records to be assembled and delivered to owner or manager of building.

1. Guaranties
   (a) Specified
   (b) Additional
      (1) Correction of construction defects

2. Reports of Final Inspections

3. Instructions
   (a) Mechanical equipment
      (1) Operation
      (2) Maintenance

4. Recommendations of Contractor or Manufacturer
   (a) Periodic check up
      (1) Materials
      (2) Repairs
      (3) Refinishing
      (4) Replacement

5. Settlement
   (a) Frequent observations

6. Changes
   (a) Design
   (b) Actual
7. File Copies
   (a) Contracts
   (b) Specifications
   (c) Drawings
   (d) Test reports
   (e) Certificates
   (f) Job correspondence

8. Waivers of Lien

9. Contractors' Affidavits

10. Utility Approvals

11. Occupancy Certificate
APPENDIX A—CONCRETE

1. Records for Concrete Work, Daily or Periodic
   (a) Moisture content
      (1) Aggregates
   (b) Test reports
      (1) Mixes
      (2) Cements
      (3) Aggregates
      (4) Steel
   (c) Samples and brands
      (1) Approved
      (2) Variations
   (d) Daily pour
      (1) Location
      (2) Amount
   (e) Forms
      (1) Leakage of concrete
      (2) Removal
   (f) Cracks
      (1) Initial
      (2) Progressive changes
   (g) Surface
      (1) Finish
   (h) Walls
      (1) Repairing of leaks:
         Method
         Effectiveness
   (i) Weather conditions
      (1) Temperature:
         Maximum
         Minimum

2 Refer to ACI Manual of Concrete Inspection, Report of Committee 611, issued by the American Concrete Institute, 7400 Second Boulevard, Detroit, Mich. (1941).
1. Records for Concrete Work, Daily or Periodic—Con.
   (i) Weather conditions—Continued
       (2) Rainfall
       (3) Wind

2. Forms for Concrete
   (a) Construction
       (1) Location
       (2) Alinement:
           Provision for settlement
       (3) Elevation
       (4) Tightness
       (5) Strength
       (6) Bracing:
           Ties and spacers:
               Removal or cutting back
               Prevention of mortar leakage
   (b) Enclosures in concrete, placement of:
       [Verify with subcontractors]
       (1) Conduits
       (2) Anchors
       (3) Inserts
       (4) Other
   (c) Vibrated concrete
       (1) Tightness at:
           Panel joints
           Corners
           Connections
   (d) Surfaces
       (1) Wood:
           Cleanliness
           Smoothness
           Shrinkage:
           Adjustment by wetting or drying
       (2) Metal:
           Abrasion (not abraded to bright metal)
           Deterioration, prevention by:
           Oiling and exposing to sun
           or
           Rubbing with liquid paraffin
Appendix A—Concrete

3. Reinforcement
   (a) Accessories
   (b) Shop details
      (1) Conformance
   (c) Surfaces
      (1) Cleanness
      (2) Freedom from rust scale
   (d) Bars
      (1) Spacing
      (2) Secure placement
   (e) Splices
      (1) Length
      (2) Spacing
      (3) Firmness

4. Materials
   (a) Storage
      (1) Cement:
         Dry
         Protection from elements
         Removal of absorbed moisture by air jetting
      (2) Aggregates, fine and coarse:
         Segregation of sizes
   (b) Measuring
      (1) Cement:
         Units of whole sacks unless weighed
      (2) Aggregates:
         Within tolerance of 1 to 2 percent
      (3) Water:
         Within tolerance of 1 percent (free moisture in aggregates = part of required water)
   (c) Batched aggregates or ready-mixed concrete
      (1) Assembling and arrival:
         Uniformity of batches

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3 On projects where bin storage, hoppers, mechanical conveyors, etc., are used, refer to Proposed Recommended Practice for Measuring, Mixing, and Placing Concrete, Report of Committee 614, issued by the American Concrete Institute, 7400 Second Boulevard, Detroit, Mich. (1941).
5. Mixing at Job

(a) Mixer
   (1) Leaks
   (2) Waste of material
   (3) Mixing blades
   (4) Discharge of concrete (1-inch slump)
   (5) Starting and stopping under full load
   (6) Removal of hardened concrete or mortar accumulation

(b) Batch
   (1) Size:
       Guaranteed capacity of mixer
       Reduction when combined with preceding batch

(c) Mixing procedure
   (1) Provision for easy flow of dry ingredients
   (2) Continuous flow of water (maximum, 25 percent of mixing time)

(d) Consistency control
   (1) Maintenance of constant proportions:
       Cement (for strength)
       Water and fine aggregates (for workability)
   (2) Adjustments in mix

(e) Mixing time (measured after all solid materials have entered drum)
   (1) For mixers of 1 cubic yard or less: \(^4\)
       Minimum, 1 minute
   (2) For mixers larger than 1 cubic yard:
       15 seconds added for each additional \(\frac{1}{2}\) cubic yard

(f) Retempering
   (1) Restoration of workability by carefully controlled addition of water to delayed batches complying with specified water-cement ratio

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\(^4\) For mixes having less than 6 sacks of cement per cubic yard, mixed to dry consistencies or containing harsh aggregates; time increased 25 to 50 percent.
5. Mixing at Job—Continued

(g) Sources of error in mixing
(1) Loading and discharging:
   Overlap of batches
(2) Loss of material:
   Transferring batches to skips of portable mixers
(3) "Hang-up":
   Combining portion of one batch with another

6. Ready-Mixed Concrete (Centrally Mixed, Truck-Mixed, "Shrink-Mixed")

(a) Consistency
(1) Expeditious delivery (for prevention of loss of slump)
(2) Adjustments after delivery:
   If too dry:
      Addition of water within specification limits
      Addition of proportionate quantities of water and cement
   If too wet:
      Addition of proportionate quantities of cement and aggregate

(b) Truck mixing
(1) Mixer speed:
      Manufacturer's recommendations (2 to 6 drum rpm)

7. Mixing Efficiency

(a) Thoroughness
(1) Sand-cement and water-cement ratio in any part of batch at end of mixing period (tolerance 10%)
(2) Coarse aggregate-mortar ratio (uniform by visual inspection)
(3) Mixing time (increased if necessary)

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5 U. S. Bureau of Reclamation, Concrete Manual (1938); or Iowa State College, Bul. 113, A Proposed System for the Analysis and Field Control of Fresh Concrete (1933).
8. Discharging Operation
   (a) Continuous flow
   (b) Time allowance (in addition to mixing time)
   (c) Drop of concrete
       (1) Vertical
   (d) Weights of aggregate per batch

9. Placing of Concrete
   (a) Equipment
       (1) Type (for expeditious transportation)
       (2) Arrangement
   (b) Methods
       (1) Fill:
           Uniformity
           Denseness
       (2) Separation:
           Coarse aggregate from mortar:
           Reduction to safe minimum
           Established mixes:
           Maintenance of constant proportions
       (3) Deposit:
           Layers:
           Depth
           Bond
           Water gain
           Rock pockets

10. Vibrating of Concrete, Internal
    Vibrating, except for special sections such as thin slabs, improves concrete quality and durability and reduces shrinkage and subsidence, permitting use of concrete less wet than usual "medium" consistency. It is recommended for all large concrete projects and is well worth considering for small projects.6
    (a) Equipment
        (1) Power
        (2) Frequency

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6 For detailed recommendations, refer to Recommendations for Placing Concrete by Vibration, Report of Committee 609, issued by the American Concrete Institute, 7400 Second Boulevard, Detroit, Mich. (1936).
10. Vibrating of Concrete, Internal—Continued
   (a) Equipment—Continued
      (3) Efficiency
      (4) Standby units and parts for continuous operation
   (b) Workmanship
      (1) Operators:
         Experience
         Competency
      (2) Vibration:
         Short insertions of vibrators:
         Systematic and narrow intervals
         Avoidance of overvibration (particularly slumps of more than 4 inches)

11. Construction Joints
   (a) Location
      (1) Horizontal or vertical
      (2) In slabs and beams:
         At points of minimum shear
   (b) Forms
      (1) Tight placing (to avoid mortar disfigurement)

12. Surface of Concrete in Place
   (a) Bonding
      (1) Laitance, surface film, mortar:
         Removal by strong jetting of air and water, stiff wire brush scrubbing, or sandblasting
      (2) Soft mortar (1 inch) preceding new concrete:
         Proportions same as concrete
         Application on cleaned and wetted surface
         Scrubbing in with wire broom
   (b) Covering of exposed surfaces
      (1) Wet burlap or saturated sand kept continuously moist
13. Cold-Weather Construction

(a) Sections not classed as mass concrete
   (1) Concrete placement:
      At maximum temperature of 70° F
      Uniform heating of:
      Water
      Aggregates
   (2) Protection from prolonged freezing by:
      Heating
      Insulation
   (3) Curing:
      Normal rate of set:
      Maintenance of temperature of concrete and surrounding air at 50° to 100° F
      Avoidance of:
      Overheating
      Rapid setting
      If frozen prior to set:
      Maintenance of heating after thaw until set

(b) Sections classed as mass concrete
   (1) Concrete placement:
      At minimum of 40° F where protected from freezing
      Hydration heat loss:
      Rate (slow)

14. Hot-Weather Construction

(a) Placement at low temperature by
   (1) Use of cold mixing water
   (2) Sprinkling or cooling of aggregate
   (3) Avoiding hot cement
   (4) Placing at night

(b) Cooling by
   (1) Prompt whitewashing of black sealing compounds (to retard sun’s rays)
   (2) Covering with burlap
   (3) Continuous sprinkling
15. Finishing of Surfaces Made Without Forms
   (a) Initial operation
       (1) Screeding, floating, first troweling: Limited working of concrete
   (b) Finishing operation
       (1) Prolonging of intervals between each step
   (c) Surface water
       (1) Removal of accumulation before use of finishing tool
   (d) Surface texture
       (1) Obtaining of finish by one troweling

16. Curing
   (a) Application of specified curing immediately concrete is placed
   (b) Surface protection
       (1) Prevention of drying out by:
       - Keeping continuously moist
       - Protection from drying winds and sun’s rays
       (2) Initial surface inspection:
       - Within 6 hours

17. Removal of Forms
   (a) Strength of concrete prior to removal of supporting forms
       (1) Construction loads
       (2) Reshoring at critical points
   (b) Prevention of damage
   (c) Surfaces immediately after form removal
       (1) Elimination or prevention of:
       - Damage
       - Sand streaks
       - Rock pockets
       - Honeycombing
       - Other defects
   (d) Surfaces exposed during curing period
       (1) Continuously moist
18. Correction of Defects

(a) Cutting out of affected areas
   (1) Depth:
       At least 1 inch
   (2) Sides:
       Perpendicular
   (3) Face:
       Cleaned thoroughly
       Roughened

(b) Pockets or grooves
   (1) Wetting:
       To area of 12 inches
   (2) Bonding:
       ¼ inch 1:1 cement-sand mortar
   (3) Mortar:
       Building up (same composition as concrete):
       Coats ⅛ inch thick
       Patching:
       Consistency, dry enough for:
       Ready placement
       Maintenance in place
   Mixing:
   Thorough
   Allowance for standing (one hour with occasional stirring)
   Remixing (without addition of water)

(c) Color matching of adjoining surfaces
   (1) Trial batches
   (2) Addition of white portland cement

(d) Deep areas
   (1) Forming
   (2) Surfaces:
       Cleaning
       Wetting
       Application of bonding mortar

(e) Tie holes passing through walls
   (1) Filling with mortar from back face by:
       Plunger-type gun
       Other device
18. Correction of Defects—Continued

(e) Tie holes passing through walls—Continued

(2) Stopping at exposed face by:
   Burlap or canvas

(3) Surface holes in walls:
   Solid filling

(4) Face:
   Excess mortar struck off flush

(f) Each coat

(1) Thorough compacting

(2) Prior to application of next coat:
   Wood-floating or cross-scratching
   Allowance for set (one or two days, continuously wet)

(3) Final coat:
   Slight projection to offset initial shrinkage
   Struck off flush
   Patched
   Maintained wet

(g) Treatment for minor flaws:

(1) Preparation of surface:
   Brushing and cleaning
   Wetting to saturation

(2) Grout coating:
   1:1 cement and fine sand
   Consistency (for application with stiff bristle brush)

(3) Complete filling of:
   Indentations
   Air bubbles
   Pin holes

(4) Removal of excess grout and film by:
   Steel troweling when partially set
   Vigorous rubbing with burlap after some drying

(h) Cleaning

(1) Removal of incrustations of mortar, fins, offsets, etc., by:
   Rubbing with carborundum stone
18. Correction of Defects—Continued

(h) Cleaning—Continued

(1) Removal of incrustations of mortar, fins, offsets, etc., by—Continued
Scouring with:
Steel wool
Fine steel brushes
Chipping off and patching

(2) Surface of patch and adjoining areas:
Removal of stains and discolorations
Making smooth and flush by:
Rubbing
Other approved methods
APPENDIX B—MASONRY

1. Records for Masonry Work, Daily or Periodic

(a) Test reports
   (1) Masonry units
   (2) Mortars:
       Materials
   (3) Anchors
   (4) Ties
(b) Samples and brands
   (1) Approved
   (2) Variations
(c) Daily construction
   (1) Location
   (2) Amount
(d) Cracks
   (1) Initial
   (2) Progressive changes
(e) Leakage
   (1) Tests
   (2) Repairs:
       Method
       Effectiveness
(f) Weather conditions
   (1) Temperature:
       Maximum
       Minimum
   (2) Rainfall
   (3) Wind

2. Construction

(a) Workmanship
   (1) Alinements
   (2) Elevations
   (3) Number of courses
2. Construction—Continued

(a) Workmanship—Continued
   (4) Moisture content of units:
      Wetting of clay bricks
      Drying of concrete brick and block
   (5) Forming of weep holes
   (6) Cavity spaces:
      Freedom from mortar droppings

(b) Anchors and inserts
   (1) Correct location
   (2) Solid placement

(c) Mortar
   (1) Plastic quality
   (2) Use within 2 hours after mixing
   (3) Frequent retempering

(d) Joints
   (1) Bedding
   (2) Filling
   (3) Uniform thickness

(e) Tooling
   (1) Thumbprint hardness
   (2) Exposed surfaces of joints:
      Smooth
      Untorn

(f) Pointing
   (1) Raking of joints:
      Plaster bond
      Calking
   (2) Repairing of exposed shrinkage cracks by:
      Wetting walls
      Raking cracks
      Solid refilling
   (3) Nail and other holes

(g) Parging
   (1) Uniform thickness
   (2) Continuous application
   (3) Parged units:
      Undisturbed during parging
   (4) Setting of dislodged units:
      Relaid to line in fresh mortar
2. Construction—Continued

(h) Bond between old and new work
   (1) Covering of day's work:
       Top of walls
   (2) Joints:
       Removal of exposed dried-out mortar
   (3) Prior to placing fresh mortar:
       Cleaning
       Wetting

(i) Flashings
   (1) Position
   (2) Joints (for drainage):
       Tightness
       Freedom from wrinkles, breaks, and tears
       Lap
   (3) Counterflashings:
       Repointing (after completion of roof)

(j) Steel lintels
   (1) Exposed edges:
       Depth of face-joint tooling
   (2) Beds under lintel or beam bearings:
       Spacing of joints
   (3) Brick on lintels:
       Full-bed bearing

(k) Freezing-weather construction
   (1) Protection by:
       Heating of mortar materials

3. Finished Surfaces

(a) Protection from damage (especially at corners, sills, belts)
   (1) Stone:
       Prohibition of Dugan patching
   (2) Glazed brick or tile
   (3) Terra cotta

(b) Prevention of mortar stains
   (1) Periodic disposal of masonry refuse
4. Chimneys

(a) Brick and tile
   (1) Plumbness
   (2) Taper
   (3) Tile flue linings:
       Laying:
       One section ahead of surrounding brick
       Gas-tight
   (4) Joints:
       Completely filled
       Flush on flue side
   (5) Flues and air spaces:
       Clear of mortar droppings and projections
   (6) Reinforcing bands and iron:
       Installation

(b) Fire-clay brick
   (1) Laying:
       Dipping in mortar
       Joints:
       Thickness
       Tightness
       Bonding mortars, fire-clay or air-setting refractory:
       Freedom from grit
       Consistency
       Plasticity

(c) Cleaning
(d) Pointing
APPENDIX C—WATERPROOFING, DAMPPROOFING AND CALKING

1. Materials for Waterproofing, Dampproofing, Calking
   (a) Quality
      (1) Brand
      (2) Compounds in sealed containers
      (3) Weight
      (4) Asphalt content
      (5) Suitable thinners
   (b) Tests
      (1) Calking in exposed joints:
          Adhesion
          Shrinkage
          Ductility
          Sag
          Ability to take paint
          Color when dry

2. Workmanship
   (a) Coverage
      (1) Number of full coats
      (2) Avoidance of skimping
      (3) Flashings over spandrels and lintels:
          Consistency of coatings
      (4) Window and door members:
          Prevention of:
          Oozing
          Staining
      (5) Laps
      (6) Moppings
      (7) Flashings
2. Workmanship—Continued
   (b) Calking
      (1) Application:
           Prior to attachment of staff beads
      (2) Joints:
           Dry
           Raked out clean
           Preparation according to manufacturer’s directions
           Oakum packing
           Consistency of compounds
           Filling
      (3) Exposed surfaces:
           Smoothness
           Firmness (for painting)
   (c) Protection of adjacent work from staining (especially by sprayed-on materials)
APPENDIX D—STRUCTURAL STEEL

1. Materials for Structural Steel Work
   (a) Grades and properties
      (1) Approved certificates
      (2) Mill reports
   (b) Sizes and shapes
      (1) Specified or approved equivalent
      (2) Tolerances
   (c) Handling and delivery
      (1) Protection from damage

2. Fabrication and Erection

   (a) Equipment
      (1) Bracing
      (2) Location and set of:
          Anchor bolts
          Other inserts
      (3) Prior to attaching steel:
          Adjustments to fit inaccuracies
   (b) Welding
      (1) Approval of:
          Materials
          Equipment
      (2) Qualifications of welders
   (c) Riveting
      (1) Hazard precautions
      (2) Holes for rivets or bolts:
          Location (not at strength joints)
          Spacing
          Alinement

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7 In accordance with Standard Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings; revised 1937, reprinted 1939 in part IV of Steel Construction, issued by the American Institute of Steel Construction.
2. Fabrication and Erection—Continued
   (c) Riveting—Continued
      (3) Holes for turned bolts:
         Drilling:
            Accurate match
            Tight fit
         Oiling before tightening bolts
      (4) Rivets:
         Driving heat
         Heads:
            Concentric
            Tight fit
      (5) Nuts on bolts:
         Tight full grip
         Locking
   (d) Surfaces not accessible after erection
      (1) Painting
   (e) Milled surfaces in contact
      (1) Oiling
   (f) Grout for pedestals
      (1) Stiffness
      (2) Ramming under bearings
   (g) Cuts in steel work for passage of pipes and conduits
      (1) Location (only where authorized)

3. Prefabricated Units
   (a) Sheet steel or shapes for joists, studs, panels
      (1) Installation:
         Conformance with manufacturer’s instructions
      (2) Corrosion protection
   (b) Prior to field painting
      (1) Cleaning
   (c) Field painting
      (1) Shop-coat abrasions:
         Touching up
      (2) Each coat:
         Full coverage
APPENDIX E—CARPENTRY

1. Materials for Framing
   (a) Lumber
      (1) Species
      (2) Grade:
          Certificate of inspection
      (3) Preservatives for protection from:
          Moisture
          Termites
   (b) Shims
      (1) Unshrinkable material:
          Metal
          Slate
          Cement
          Grout
   (c) Building paper
      (1) Weight
      (2) Impregnation
      (3) Sizing

2. Lumber
   (a) Protection from
      (1) Moisture damage
   (b) Exposed members to be painted
      (1) Prior to or immediately after delivery:
          Priming

3. Framing
   (a) Sills and wall plates
      (1) Anchoring
      (2) Leveling
      (3) Spiking
      (4) Bolting to bearing plates
3. Framing—Continued

(b) Posts and studs
   (1) Plumb
   (2) Square

(c) Girders
   (1) Size (for strength)
   (2) Supports:
       Load
       Level bearing

(d) Built-up members
   (1) Spiking
   (2) Bolting
   (3) Joints:
       Spacing (only over supports)

(e) Joists and rafters
   (1) Joists:
       Span
       Spacing (for stiffness)
       Setting (with crown up)
       Top (for level; adjustments by trimming at bottom)
       Splicing (only over supports)

   (2) Porch joists:
       Pitch

   (3) Rafters:
       Accurate fit
       Splicing to:
           Plates
           Ridges

   (4) Hip and valley rafters:
       Mitered fit (head and toe)

(f) Bridging
   (1) Nailing (prior to applying lath):
       Lower ends loose (until subfloor in position)
       Secure

(g) Fire stops
   (1) Installation:
       At each floor level
       Tight fit
3. Framing—Continued
   (h) Joints in double plates
       (1) Staggering
   (i) Door and window frames
       (1) Plumb
       (2) Blocking
       (3) Fastening or anchoring
       (4) Staff beads:
            Ease of removal for calking

4. Sheathing
   (a) Wall
       (1) Joints:
            Tight
            Spacing of end joints
       (2) Nailing
       (3) Extension over:
            Sill
            Plates
   (b) Subfloor and roof
       (1) Joints:
            Tight
            Centered over joists, rafters, and other supports
       (2) Prevention of buckling
       (3) Nailing
   (c) Paper over subflooring and sheathing
       (1) Condition
       (2) Lapping
       (3) Tacking
       (4) Fit (around openings)
   (d) Underfloor spaces (no basement)
       (1) Ventilation

5. Siding
   (a) Workmanship
       (1) Square end cuts
       (2) Tight fit against:
            Corner boards
            Doors
            Window casings
5. Siding—Continued
   (a) Workmanship—Continued
       (3) Snug fit (to properly shed water) over:
           Drip caps
           Water tables
           Sills
       (4) Blocked out to drip (if no water table)
       (5) Nailing:
           Near ends
           Slanted
           Set for putty
       (6) Miters
       (7) Exterior edges:
           Tight fit
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