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WEST VIRGINIA UNIVERSITY
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SPECIFICATIONS

OF

LABOR AND MATERIAL REQUIRED IN THE ERECTION
AND COMPLETION

OF THE

CAPITOL ANNEX.

FOR THE

STATE OF WEST VIRGINIA,
AT CHARLESTON,

FOR THE SUPREME COURT OF APPEALS, AND OFFICES FOR
ITS JUDGES AND CLERKS; FOR THE STATE LIBRARY,
HISTORICAL SOCIETY, AND OFFICES FOR
AUDITOR AND TREASURER.

ACCORDING TO DRAWINGS AND SPECIFICATIONS PREPARED BY
HARRISON ALBRIGHT, ARCHITECT,
CHARLESTON, WEST VIRGINIA,

June 5, 1899.

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Commission on Site and Architecture:

- G. W. ATKINSON, Governor.
- O. S. MARSHALL, Pres. Senate.
- O. S. MCKINNEY, Speaker of House of Delegates.
- R. E. FAST, Chairman Finance Com. of Senate.
- W. L. MANSFIELD, Ch'n Finance Com. House of Delegates.

Commission on Contract & Construction:
BOARD OF PUBLIC WORKS.

- G. W. ATKINSON, Governor.
 - L. M. LA FOLLETTE, Auditor.
 - M. A. KENDALL, Treasurer.
 - J. R. TROTTER, State Supt. Free Schools.
 - EDGAR P. RUCKER, Att'y Gen'l.
 - WM. M. O. DAWSON, Secretary of State, Secretary of Board.
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FORM OF PROPOSALS.

To The Board of Public Works of West Virginia:

GENTLEMEN:—

The undersigned hereby agrees to build Capitol Annex for the State of West Virginia, at Charleston, according to drawings and specifications prepared by Harrison Albright, Architect, for \$.....

..... Should any additional excavation, concrete work, dimension stone or rubble masonry be required, will do the same at following prices: Excavating per cubic yard; Concrete work, per cubic yard; Dimension stone per cubic ft.; Rubble masonry per perch of 25 cu. ft. If stucco work is included add \$..... If 3rd story ceiling is formed by beams and hollow tile add \$.....

*Time required to complete work months.

Enclosed find certified check for \$..... drawn on

*Building to be completed by Jan. 1, 1901.

..... bank of, to the order
of State Treasurer, M. A. Kendall.

Signed.....

Address.....

(Address all proposals to Wm. M. O. Dawson, Secretary of State, Charleston, West Va. Mark envelope containing proposal: "Proposal for Capitol Annex.")

NOTE.—To guard against possible misunderstandings, every contractor bidding upon the within described work, should read the entire specifications from beginning to end. Should questions arise while taking off quantities, bidders will confer a favor upon the architect by immediately calling his attention to the same.

CALL FOR PROPOSALS.

Sealed proposals for the erection and completion of the Capitol Annex for the State of West Virginia, at Charleston, in accordance with drawings and specifications prepared by Harrison Albright, Architect, will be received until 2 P. M., Eastern Standard time, Thursday, Sept. 14th, 1899, at which time all proposals will be opened.

Drawings and specifications may be seen at the Senate Chamber in the Capitol, between the hours of 9 and 11:30 A. M. and 2 and 5:00 P. M. Monday, Aug. 14th and every day thereafter, except Sundays, until Sept. 14th. Each proposal must be accompanied by a certified check for 2 per cent. of the proposal tendered, as a guarantee that the bidder will furnish bond for fifty per cent. of amount of proposal and enter into a contract with The Board of Public Works for the construction of the building. Upon failure of successful bidder to furnish bond and enter into contract, the check submitted with his proposal will be forfeited to the State. All checks will be retained until successful bidder furnishes bond and enters into contract; after which the checks of all bidders will be returned to them.

Address all communications regarding drawings and specifications to Harrison Albright, Architect, Charleston, W. Va. Make certified checks payable to the order of the State Treasurer. Address all proposals to the undersigned marked on the outside "*Proposals for Capitol Annex.*"

The right is reserved to reject any and all proposals.

WM. M. O. DAWSON,

Secretary of State.

Charleston, W. Va., August 7th, 1899.

The following act will apply to the construction of the Capitol Annex:

AN ACT regulating hours of labor on public works.

“Be it enacted by the Legislature of West Virginia.

“Sec. 1. Eight hours shall constitute a day’s work for all laborers, workmen, and mechanics, who may be employed by or on behalf of the State of West Virginia.

“Sec. 2. The service and employment of all laborers and mechanics who are now or may hereafter be employed by or on behalf of the State of West Virginia, or by any contractor or sub-contractor upon any of the public works of the State of West Virginia is hereby limited and restricted to eight hours in any one calendar day, and it shall be unlawful for any officer of the West Virginia State Government or any such contractor or sub-contractor whose duty it shall be to employ, direct or control the service of such laborers or mechanics to require or permit any such laborers or mechanics to work more than eight hours in any calendar day, except in case of extraordinary emergency.

“Sec. 3. Any officer or agent of the State of West Virginia or any contractor or sub-contractor whose duty it shall be to employ, direct, or control any laborer or mechanic employed upon any of the public works of the State of West Virginia who shall intentionally violate any provision of this act, shall be deemed guilty of a misdemeanor, and for each and every such offense shall, upon conviction, be punished by a fine not to exceed one thousand dollars or by imprisonment for not more than six months, or by both such fine and imprisonment, in the discretion of the court having jurisdiction thereof.”

NOTE.—Contractors will be permitted to work one force of men eight hours per day and to have a relay force to work the same number of hours per day.

DRAWINGS.

The drawings herein referred to are designated as follows:

- Sheet No. 1—Foundation plan.
- Sheet No. 2—1st floor plan.
- Sheet No. 3—2d floor plan.
- Sheet No. 4—Mezzanine plan and framing for Mezzanine story.
- Sheet No. 5—3d floor plan.
- Sheet No. 6—Front elevation.
- Sheet No. 7—Right side elevation.
- Sheet No. 8—One-half rear elevation.
- Sheet No. 9—Left side elevation.
- Sheet No. 10—One-half transverse section.
- Sheet No. 11—First floor framing.
- Sheet No. 12—2d floor framing.
- Sheet No. 13—3d floor framing.
- Sheet No. 14—Plan of ceiling framing.
- Sheet No. 15—Plan of roof framing.
- Sheet No. 16—Details of cast iron columns, connections, etc.
- Sheet No. 17—Details of trusses.
- Sheet No. 18—Details of stairways and stucco work.
- Sheet No. 19—Details of interior wood finish.
- Sheet No. 20—Interior details.
- Sheet No. 21—Details of front.
- Sheet No. 22—Details of dome.

GENERAL CONDITIONS.

Introduction.

The following Specifications are intended to embrace all labor and materials necessary in the erection and completion of the building, as described; the whole to be comprised within any contract or contracts that may be made for the same. Each contractor, for any distinct part of the work, is to furnish a competent foreman to remain upon the building during its progress and to its completion. Each contractor will, in all cases,

lay out his own work under the direction of the superintendent, and furnish all necessary appliances and equipments. He will provide all labor and materials necessary for the complete and substantial execution of everything described, shown, or reasonably implied in the drawings and specifications, including all transportation, scaffolding, apparatus, and utensils requisite for the same. The "erection plant" must be in character and extent sufficient to push the work in a manner befitting its magnitude. The entire work is to be constructed and finished in every part in a good, substantial, and workmanlike manner, according to the drawings and specifications to their full extent and meaning, and to the entire approval of The Board of Public Works, and the superintendent.

Materials and Inspection.

All stone, brick, cement, iron, steel, lumber, hardware, glass, and all other material of every kind entering into the construction of the building must be subject to the approval of The Board of Public Works and the superintendent.

When Building to be Completed.

The building and all work herein specified of every kind must be completed and the building turned over to The Board of Public Works not later than January 1st, 1901.

Drawings.

The drawings and specifications are to be used only for this building. They are the property of the State, and those drawings delivered to the contractor are to be returned to the State before certificate for final payment will be issued. The drawings and specifications are intended to co-operate and agree, and anything mentioned in the specifications, though not shown in the plans in particular, or shown on the plans and omitted in the specifications, is to be considered as shown or mentioned in both.

Caution.

No advantages are to be taken of any clerical errors that may have occurred in plans, specifications, or details. Discrepancies, if any, must be reported immediately to the superintendent for revision or correction, as the contractor will be held responsible for the correctness of the executed work. The contractor will therefore satisfy himself of the absolute correctness of the plans by actual calculations before ordering or executing

any part of the work, or be held responsible therefor. The figures given are correct, in accordance with the general plans, but as slight variations may have occurred in the execution of the rough work, the contractors, for all subsequent parts or finish, should verify the given dimensions by actual measurements taken from the building, and make their work accordingly.

All contractors will work in harmony with each other, and all shall have equal rights upon the premises. Each shall prosecute his work at its proper time, without unnecessary delay to others, and while each contractor, for large and important parts of the work, is expected to furnish his own scaffolding generally, this does not apply in cases where one scaffold will serve two or more purposes, without delay to the party erecting said scaffold. For instance, the stone setter will have access to, and use of, the bricklayer's scaffold as the walls go up; so shall the contractor for steel work, so far as it will serve his purpose, without delay to the brick-mason. The contractors for minor parts, such as steam fitters, electricians, etc. shall have the use of any and all scaffolds at any and all times available for the prosecution of their work, provided they take advantage of the time the scaffolding remains for its original purpose; otherwise they will provide their own.

Each contractor must provide his own means for hoisting his own materials and for conveying them about the building.

Any contractor who shall cause damage or destruction to the work of any other contractor, shall repair or make good the same at his own expense. Each and every contractor engaged upon the work must guarantee The Board of Public Works against liability for damages by reason of injury to workmen of any and all kinds that may happen during this construction, and until the final acceptance of the building.

Alterations.

It is also understood that during the progress of building, The Board of Public Works, through the superintendent, may make any alterations or additions, or require omissions of any work or materials, herein specified; or shown on the drawings, that they may find necessary or desirable, and the same shall be acceded to by the contractor, or contractors, and carried into effect without in any way violating or vitiating the contract. The valuation of such alterations, additions, or omissions shall be agreed upon in writing between The Board of Public Works and the contractor, before going into execution.

Figures.

Figures on the plans must be taken in preference to measure-

ments by scale, and when no figures or details are given, the scale must be used, calculating from the figures that are given. All writings, notes, etc., on plans or details must be considered as a portion of these specifications, and should plans and specifications disagree, preference must be given to the details.

Care of Finished Work.

As the building progresses, the contractor must take particular care of the finished work, which work must be covered up and thoroughly protected from injury or defacement during the erection, and until the completion of the building.

Finally.

Contractors will furnish all materials designated under the different heads required to build and complete the said building. The Superintendent will have the power to reject any or all materials, or to order any part of the work stopped, if not in accordance with the specifications and drawings. Each contractor, upon the completion of his work, will remove all rubbish from, in, and about the building, and from off the premises.

EXCAVATION.

The general contractor will lay out the work under the direction of the superintendent.

Excavate under the entire building to the outer line of footings, and to the level indicated by sections.

The grade line, as shown by the elevations, is, approximately, 1 foot above the curb on Lee street.

Excavate trenches for footings under all walls and piers. These must be 12 inches below the general level of excavation for each course of footings shown. These trenches must follow the exact boundary lines of the footings shown on the plans, neither more nor less, unless ordered by the superintendent.

The contractor will take all due precaution against water, and the caving in of the banks, and must level up the trenches ready for the reception of the concrete.

Contractor for the excavation will be required to deliver the trenches to the mason contractor, ready to receive the concrete, in clean sections of at least 50 feet. He will be required to keep them clean for a period of at least three days after notifying the mason, but will not be held responsible for any section after the mason contractor has taken possession of it.

As the walls are pointed up on the outside, fill in against them, tamp the earth in place, and grade up to run all water away from the building.

All earth taken from the excavation will be left upon the lot and, after the walls are up, will be graded about the building, as directed.

It will be understood by the contractor that a good and sufficient foundation is expected at bottom lines of excavation, as shown by sections. If, however, upon examination by the superintendent, after the excavation is made, a greater depth is found to be necessary, it will be provided for by The Board of Public Works.

Contractor must state in his bid the price per cubic yard, extra, for all excavation below the depth shown.

CONCRETE FOOTINGS.

All footings for foundation walls and piers, will be concrete of the form and dimensions shown on the foundation plan by dotted lines.

The contractor will understand that the trenches will be delivered to him in sections of at least 50 feet, lineal, free from dirt or debris of any kind, and the bottom leveled ready to receive the concrete.

He must take possession within three days of notification that the trenches are ready, and will be held responsible for them thereafter until the completion of his contract.

Dimensions.

The contractor will understand that the area of all footings must accord exactly with the plans, neither larger nor smaller, and should the banks cave in so as to enlarge the trench, wooden bulk heads must be provided, set to a line, to receive the concrete. Boxes or bulk heads must be provided for the second course of footings in all cases.

Composition.

The concrete will be composed of screened broken stone, clean sharp sand, and Cumberland Portland cement, mixed in the proportions of one part cement, three parts sand, and eight parts crushed stone. Concrete should be mixed in a large tight box by spreading out the exact amount of sand, pouring upon it the exact amount of cement, and mixing the whole dry until it is of an even color. Then add slowly, by sprinkling, the required amount of water while the mortar is being constantly and carefully worked up, and when thoroughly incorporated, add the exact quantity of broken stone, and continue work-

ing until the whole mass is uniform. The concrete shall contain no more water than will give it the appearance of freshly dug earth, or wet sand. It must be quickly dumped into the trenches, and well rammed or tamped in place until drops of water appear upon the surface, when it must be left and not again disturbed.

Courses.

The concrete must be laid in courses of 6 inches, each two 6 inch courses to form one course, as shown by the drawings. Each course must be allowed to stand at least two days before the subsequent course is added, and if laid in dry weather, must be kept constantly moist by sprinkling. All dirt must be cleaned off before the next course is added.

All sand must be clean, coarse and sharp, and free from loam. The stone must be sound and hard, and broken to a size that will easily pass through a 2 inch ring. The concrete must be left level and smooth for the reception of stone work. It is understood that the concrete footings and foundation stone work will be considered under different heads.

Extra Work.

The contractor will state in his bid the price per cubic yard for extra concrete footings, should any be required.

FOUNDATION WALLS.

These will include all walls and piers from the top of the concrete footings to the underside of the first floor beams, except the facing above the grade.

Rubble Masonry.

All walls will be constructed of first-class rubble work, laid in cement mortar without lime. Stone to be of good size, not less than 18 inches by 24 inches, at least 6 inches thick, with smooth, parallel beds, and with head joints closely fitted. Through stone or binders will be required in the walls at intervals of 6 feet in each alternate course. All stones must rest upon its quarry bed, and mortar joints must be as tight as practicable, thoroughly filled with mortar. Great care must be taken to make a perfect and substantial job. A perfect bond will be insisted upon, and nothing short of this will be accepted. The walls and footing courses must be properly pointed. The

mason must use care in handling large stones, as he will not be permitted to tumble them into the trench upon the concrete.

Carefully back up all facing, and build in all anchors. Level up all walls to the proper level to receive the floor beams and the base course at grade.

The contractor must allow a period of 10 days at least for concrete footings to set before beginning the stone work thereon, and he will be held responsible for the condition of the trenches after the said 10 days have elapsed. He must deliver the walls to the contractor for brick-work free from dirt or rubbish of any kind, in sections of 50 feet each, but he will not be held responsible after the brick contractor has taken possession.

Quality of Stone.

All stone for foundation work will be No. 1 hard sand stone, acceptable to The Board of Public Works and superintendent. Stone to be of large size, sound and clean. No rotten or surface rock can be used.

Mortar.

All mortar for foundation to be made of good coarse sand, sharp and free from loam and clay, and Cumberland Portland cement, in the proportions of one part cement to three parts sand. If the work is done in dry weather the stone should be dampened before being bedded in mortar. Care must also be taken to prepare only the quantity of mortar that can be used at once, as mortar that has taken a partial set cannot be re-worked and used. If necessary to remove any stone after the mortar has set, re-set with fresh mortar,

Damp Course.

Cover all walls at the grade line the full width of the wall, with a heavy coat of coal tar, obtainable at Gas Works.

Piers,

All interior piers, including the one between windows in the rear, will be constructed of dimension stone, set with a derrick, one stone to each course. They must be lifted once and the bed examined to insure an even bearing under mortar bed.

Stone for these piers to be hard sand stone, pick-dressed to the dimensions given, and the top must be chisel-dressed and carefully leveled for the reception of the work above, and set at the proper level to receive it.

Extra Work.

The contractor will state in his bid the price for extra work should any be required, as follows:

Rubble work, price per perch of 25 feet.

Dimension stone, price per cubic foot.

CUT STONE.

The exterior from the grade to the top of water table over first story windows, and all work above that so marked or described, will be constructed of cut stone.

For character and general design, see $\frac{1}{4}$ scale elevations, and $\frac{3}{4}$ inch details of the work.

Kind of Stone.

All cut stone will be first quality local sand stone, of a gray color, subject to approval of The Board of Public Works, and must be free from iron spots and streaks and defects of all kinds.

Base Course.

This will include the work from the grade to the underside of first story window frames. It will be in three courses, of the heights shown by the drawings. They will all be rock-faced, absolutely free from tool marks on the face, and the second and third courses will each have a 5 inch by 5 inch wash at the top. The first course must have a bed of at least 12 inches and will project 4 inches over the wall below, and each stone must be anchored by $\frac{1}{4}$ inch by 1 inch wrought iron anchor, extending at least 12 inches into the stone backing. This anchor must have the ends turned up, and be dipped in tar,

The other two courses must have beds of at least 8 inches, and the stone in upper courses forming window sills must extend back under the frame at least 1 inch. These windows will have a 10 inch reveal.

Basement window sills will be 4 inch by 12 inch slip sills, set with a slight fall outward. These sills will be set on a line with the wall below. The jambs of the basement windows must be chisel-dressed, and the stones forming the jambs of windows will have 16 inch beds.

Block Stone.

Furnish and set all block stone under girders, beams, etc. at the proper heights, to be of the sizes marked on the drawings. They will be hard sand stone, set in cement mortar.

Ashlar.

The first story will be faced above the base course, as shown. This will be in regular courses, rock-faced, with chisel-dressed marginal drafts, and with recessed joints. Rock-faced work must show no tool marks.

The windows will have 10 inch reveals, and the jamb stones must extend back to frames in all cases. No head joint on corners must show less than 12 inches, and voussoirs of arches must in all cases extend back to the frames. Jambs of all openings will be chisel dressed.

This work must have alternate 6 inch and 10 inch beds, with full returns, as above specified.

Front Entrance.

The front entrance extending up through the second story to the third story sill, will be of stone, as shown. Casing and finish immediately around the door and window above, and the moulded work between the two, will not be stone, but will be wood.

All mouldings must be cut true and straight, according to detail. The arch must be carefully built, and the different rings or rows of voussoirs must be bonded or tied together. All work in connection with the entrance to be chisel-dressed and rubbed.

Water Table.

Put the moulded water table around the building above first story windows, as shown. This must be in sections, as shown, the bed must equal the projection, and each stone must be anchored in place with $\frac{1}{4}$ inch by 1 inch wrought iron anchors.

Put the plain course with wash, above this water table, as shown.

Window Sills.

Second story window sills will be as shown. Windows will have 8 inch reveals, and the sill must extend under the frame at least 1 inch. Where this sill course forms the top of pedestal in columns, it must be in pieces, as shown, each extending back under the pilaster, so as to cover the entire top of pedestal. Third story sills will be of galvanized iron.

Columns.

Columns at entrance are of stone, except the cap, and must be executed to the exact contour shown by detail. The utmost

care must be taken in working out the swell of the shaft. All to be carefully set with close joints and copper dowels. Pilasters back of the columns and pilasters on the sides will be of brick, but the base will be of stone, as per detail.

Dome.

Put the water table with wash, around the base of dome, of stone, as shown.

Carving.

Do all stone carving, including the pier caps, at entrance, the key overfront entrance, the rosettes in spandrels, and the moulding around arch, in an artistic manner and in bold relief.

All carving must be done by an architectural carver, and not by a stone cutter. Models of all ornamental work must be submitted, and both the carver and models will be subject to the approval of The Board of Public Works, and the superintendent.

Cutting and Setting.

All stone must be set on its natural quarry bed. It must be of an even color, and must be free from visible spots of iron or other defects in all places in the wall. All mouldings and plain work must be sand and water rubbed perfectly smooth, and free from tool marks, saw marks, or plucks.

All bases must be true and square, and be accurately set to a line, with proper and ample apparatus. All projections in stone, whether so shown or not, must have drips cut beneath.

The stone setter will have access to the scaffold of the bricklayer, so far as it will serve his purpose without detriment to the bricklayer. Beyond this, the contractor for the stone work must furnish his own scaffolding, etc. He must not block the way of any other contractor, and must have sufficient derrick capacity to carry the work up uniformly around the entire building. He will see that all stone anchors are adjusted and bricked in, and will also watch window frames and see that they are kept plumb and square as the walls go up.

Protection.

The stone contractor will furnish and place a wood protection for all stone work, and also waterproof paper protection from mortar falls on all rock-faced and projecting work. All stone broken by accident or carelessness must be replaced by perfect work before it will be accepted.

Protect all work from storms during progress of work, and clean up and cart away all rubbish from the grounds when done.

Pointing.

When the stone setting is complete, and the roof is in place, the stone contractor shall rake out the mortar joints, clean and wash down the work, and point up the joints with cement pointing mortar, of the same color as the stone. All head joints must be well filled and made perfectly water tight.

Steps.

Entrance steps and platforms will be chisel-dressed No. 1 hard free stone from Freestone, Ky., or Portsmouth, Ohio, free from defects of all kinds. Steps and platforms will be $6\frac{1}{2}$ inches thick, and steps will have a 12 inch bed plus a 1 inch lap, and will be set with a slight fall outward. Platforms will be in as few pieces as possible, and will be set with a fall outward, as marked.

BRICKWORK.

All walls above the underside of the first floor beams, except the facing for first story walls and walls shown less than 12 inches thick, will be brick.

Verify all measurements and be responsible for all dimensions and levels in this work.

Kind of Brick.

All brick will be the very best obtainable on the market, with straight, square edges and of uniform size.

Face brick for outside walls, including the dome, will be first quality Spillman, W. Va., pressed brick, of a shade and color satisfactory to The Board of Public Works, and superintendent.

All other brick will be good, well-burned, merchantable, common brick. No washed, warped, or under-burned brick will be allowed in the work.

Mortar.

All mortar for walls supporting the dome will be made of $\frac{1}{8}$ Cumberland Portland cement and $\frac{3}{8}$ clean sharp river sand.

Care must be taken to mix only enough for immediate use, as mortar that has set cannot be used again.

All other mortar will be made of $\frac{1}{8}$ fresh slaked lime paste, and $\frac{2}{8}$ clean sharp sand, mixed in a tight box and cooled ten days before using.

Mortar for face brick will be colored a shade darker than the brick with Ricketson's or Pecora mortar stains.

Wet all brick immediately before laying them, if to be laid in dry, hot weather. If laid in damp or freezing weather, to be laid dry. Salt mortar for freezing weather.

Walls.

Build all walls above the underside of first floor beams more than 6 inches thick, of brick and mortar, as before specified.

All walls must be laid to a line on both sides, and all brick must be well bedded, bonded and slushed, with headers every 6th course, and with secret headers for face brick. The mortar must fill all joints, and the brick shall be rubbed into the bed, and must be what is known as slush work. Special care must be taken with piers. Changes in the thickness of walls will occur at the tops of beams.

Use care in starting all flues, piers, pilasters, etc., shown on the plans. See that all bond stone and bearing stone are properly set. Large stone will be set by the stone contractor.

Notify the contractor for steel work when work is ready for bearing plates, and permit the use of scaffold for setting iron and steel, so long as it does not materially interfere with the progress of the brick work.

Leave ragglings for pipes, as shown or directed, and leave holes where called for, or where directed, for the passage of water, gas or steam pipes, or electrical conduits.

See that all bearings, plates, anchors, etc., are in place and adjusted before bricking up, as the bricklayer will be held responsible, with other contractors, for this. He is therefore referred to the specifications for Cut Stone and Iron & Steel Work for information upon these points.

Build no walls more than scaffold high above others, and then rack back at an angle of 45 degrees.

Setting Plates.

The bricklayer will set and carefully bed all bearing plates for floor beams, etc., furnished by the steel contractor. Stone blocks for heavy girder will be set by the stone contractor. The tops of walls must be brought to an exact level for all floor beams and for the roof plates, and all anchors built in where required.

Arches.

Turn arches over all openings. They must be constructed in the most careful manner with cement mortar. Thorough and neat work will be insisted upon. Centers for large arches must be left in until directed to be removed by the superintendent. Where marked "Cement Mortar," brickwork must be laid in cement mortar.

Vaults.

Vault walls will be constructed, with 2 inch air space 4 inches from inside face. The size of the openings for vault doors must be obtained from the manufacturer. All work relative to the setting of doors must be done by the contractor for brickwork.

Backing Up.

The brick contractor will permit the stone setter to use his scaffold so far as it will serve his purpose during regular operations of the work, but the brick contractor is not expected to furnish special scaffolding or apparatus for any one. He will follow closely in the work of the stone setter, and back up his work as it progresses, using great care in the fastening of the stone anchors.

The carpenter will set all window frames and stay them in position, but the bricklayer must watch them during construction and see that they are kept plumb and square as the walls go up. The bricklayers will render all reasonable assistance to the stone setter, plumbers, electricians, steam fitters, etc., in the prosecution of their work, and when all scaffolding is down, fill all pudlock holes and other places necessary to prepare the work for plastering.

Face Brick.

The superstructure above the first story, including the dome, will be faced with brick, as before specified. These brick will be laid over-hand, with neat spread joints, rodded.

Build the pilasters on sides and back of columns, as shown. These must be built with a swell, same as columns, and great care must be taken to prevent the vertical joints from presenting a ragged or broken appearance.

Build the brick casing round windows, as shown. The brick over heads of windows will be set on end, and supported on iron, as shown.

Protection.

Protect all work from storms during progress of the work, and clean up and cart away all rubbish when done. Clean down all face brick with acid when done.

TILE FLOORS.

Entrance lobby 1st story, Stair Hall 1st, 2d, Mezzanine and 3rd stories, where so shown, or marked on the drawings, will be floored with tile.

The contractor for this work will understand that the fire-proofer will concrete all floors receiving tile to a point $1\frac{1}{2}$ inch below the finished floor.

All tile must be set in the best Portland cement mortar, perfectly level and smooth. Tile to be the American encaustic octagon and dot pattern, or Marbleithic tile made by Pierce Marbleithic Tile Co., with 12 inch plain borders. The color of body to be either buff or light gray.

The contractor must see that all water and gas pipes, electric conduits, etc., are in place before laying tile, and furnish ample protection for it from the time of laying until the building is finished.

Alternative bids will be received on the different tile.

PLASTER & STUCCO.

Lath.

The plasterer will understand that he is to furnish no lathing of any kind. The ceilings throughout will be plastered directly on the tile arches of the floor and ceiling construction. Light partitions are also of fire clay tile construction.

All cornices and beams dropped below the ceiling, except where finished directly on the fireproofing, will be made with metal lath on light iron framing, put in complete by the iron contractor.

Plaster.

The first, second, and third stories will be plastered throughout with the best three coat work. The contractor must furnish and place a temporary enclosure of muslin for all openings before beginning plastering, which must not be removed until the work is thoroughly dry.

All plastering to be three coat work on lath and two coat

work on brick walls, tile ceilings, and partitions. First coat on path to be a scratch coat of hard mortar, and when dry, over it and on brick and tile walls lay a coat of brown mortar. The whole to be straight edged work, perfectly plumb and square, and to be flowed on with a sand finish, clean and smooth.

Mortar to be composed of white lime putty, well set, and strained through a fine mesh sieve, and clean sharp sand, the whole gauged with about $\frac{1}{8}$ of Acme cement. Mortar should be used as poor as possible, especially for sand finish. Scratch and brown coat must have a sufficient amount of good long clean cattle or Goat's hair to secure a firm job.

Toilet rooms and closets, and all small minor rooms will have a hard white finish, as directed.

The plasterer will do all pointing necessary after the carpenters, plumbers, electricians, etc., are through with their work.

No plastering can be done in freezing weather, unless special arrangements are made for heating the building.

Plaster all window jambs, and all door jambs on one side, back to the frame, corners to be rounded.

Put union metal corner beads on all exposed corners, to extend from the floor to a point 6 feet above.

Cement Work.

Put an 8 inch cement base with beveled top in all rooms and corridors where tile or cement floors are specified, except where marble base is specified. To be made of the best Portland cement and clean, sharp river sand, half and half.

Stucco.

NOTE.—Base proposal on omitting all stucco work and state how much additional if same is included.

All corridors and lobbies will have stucco cornices and finish as shown by sections. All beams dropped below ceilings will be finished with stucco, with small beads on the corners, and a mould at the ceiling. Ceiling of dome in third story will be groined, as shown.

All mouldings must be true and straight, and all ornamental work must be clean, sharp and crisp, and artistically moulded.

MARBLE OR MARBLEITHIC AND SLATE.

Marble.

Put a $\frac{7}{8}$ inch by 10 inch marble or marbleithic base in the lobby first story and stair hall first and second story, but do not

continue it down the passage ways on the second floor. A narrow strip of marble will be run up the stairway from the first to the second floor on top the iron stringer, as shown by section. This will be white Italian marble, in as large sections as possible. The top will be beveled, and all joints will be $\frac{1}{8}$ inch V joints. All exterior corners to be mitered with corners, square and polished $\frac{1}{8}$ inch on each slab. All this work must be secured with secret fastenings, and must be bedded solid against the wall.

Slate.

The treads and landings of stairs from first to third floor will be $1\frac{1}{8}$ inches black Pennsylvania slate, with rounded nosing. Landings on stairs from first to second floor will be tile, with slate nosing, but all other landings will be slate. All to be bedded on felt or rubber and secured in place.

IRON & STEEL.

All beams, channels, angles, plates, etc., throughout the building, to be of American manufactured steel, uniform in quality, of what is known as mild steel, which may be produced by either the Bessemer or Open Hearth process.

Inspection.

All steel must be made subject to inspection and test at the mills before shipment, and of the manufactured work at the building. Contractors to furnish free access to the mills, and afford inspectors named by The Board of Public Works full and ample means and assistance for the inspecting and testing, handling and operating all specimens. Full-sized pieces may be tested at the option of the superintendent. The chemical analysis for carbon and phosphorous of each cast must be furnished by the manufacturer to the superintendent, at the mill, before any of the material rolled from said cast or blow be shipped from the mill. All tests must be made before the final inspection is made.

All beams, channels, angles, etc., must be smooth, free from flaws and splinters, and straight from end to end. Each finished piece of steel must bear the stamp or blow number identifying the melt.

Test.

Physical tests will be made upon pieces cut from finished material, first, to determine its tensile strength, second, bending

test, as hereinafter described. The analysis must show that the material contains no more than 10 per cent phosphorus in the finished product for beams and channels, and 8 per cent for angles and plates. The material for beams, channels, etc., must show an ultimate tensile strength of from 60,000 to 68,000 pounds per square inch, with an elastic limit of $\frac{1}{2}$ the ultimate, and minimum the elongation of 20 per cent in 8 inches, and a minimum reduction of area of 40 per cent at a point of fracture. The grade known as soft steel will be used for angles and plates, 54,000 to 62,000 pounds tensile, with an elastic limit equal to at least $\frac{1}{2}$ the ultimate.

Specimens of the foregoing material bending through 180 degrees on a diameter equal to the thickness of the piece without a sign of fracture on the convex side, will fulfill the requirements of these specifications.

Rivets.

All power driven rivets shall be of the best steel for the purpose, and for hand riveted work in both shop and field, wrought iron rivets shall be used. Soft steel for rivets must stand closing solidly together without sign of fracture, under the foregoing bending test.

Weights.

A variation of more than 2 per cent in weight, either greater or less than the weights called for by the plans, will be cause for rejection.

Beams.

All beams used for girders, floors and roof, shall be of the sizes and weights shown on the beam plans. They must be straight, clean, and free from ragged edges. Wherever framed, they must be accurately milled or coped and punched for separators, connection angles, tie rods and anchors. All beams bearing upon walls will have at least 8 inch rests upon steel bearing plates, 8 inches by 12 inches by $\frac{3}{4}$ inch for 12 inches beams and smaller, and 12 inches by 12 inches by $\frac{3}{4}$ inch for all over 12 inches. The contractor for the steel work must furnish these plates to the bricklayer at the proper time.

Attention is also directed to the beams shown on the plans and sections over openings in walls and used as lintels.

NOTE—Contractor to state price for beams required for framing third floor ceiling.

Tie Rods.

Three-fourths inch tie rods of iron will be used throughout the construction. Holes to be punched in the center of web of beams, 3 inches o. c., spaced as shown on plans. Wall sections in all cases to be channels.

Anchors.

The wall end of all beams will be anchored into the brickwork with standard V-shaped $\frac{3}{4}$ inch round iron angles.

Girders

All beam girders, as shown upon the plans, will be bolted together with standard separators, unless otherwise shown, anchored into the walls, and have standard connections at columns and floor beams wherever shown. Stone bearing blocks are provided on walls receiving girders, and the contractor for steel work will see to it that they are in place before setting the girders. He, together with the contractor for the stone work, will be responsible for this;

Plate Girders.

All plate girders shown will be of standard plate and angle construction. All workmanship must be first class. Rivets must be power driven where possible, and any found loose by tapping with a hammer, must be cut out and replaced. In punching plates, or other steel work, the diameter of the hole shall not in any case exceed that of the rivet by more than 1-16 of an inch, and all holes must be clean cut without torn or ragged edges. All rivet holes must be so accurately spaced that when the several parts are assembled together, the rivets can be entered hot without straining the steel with drifts. The several pieces forming any built up piece shall fit closely together, and when riveted shall be free from twists, bends, or open joints, and all angles, filling and splice plates in the web of girders and riveted portions must fit with their ends to the flange members.

Iron Shutters.

On the inside of window in Auditor's vault, put iron shutters as shown. They will have a frame of $2\frac{1}{2}$ inch x $2\frac{1}{2}$ inch angles, securely fastened in place, and the shutters will be made of 3-16 inch iron with $\frac{1}{4}$ inch x 2 inch stiffeners. They will be locked with bolts operated by a handle on the inside, and bolts must lock at top, bottom and sides. To be neatly painted.

Threshold.

Furnish and set a cast iron threshold for the front door. To be securely fastened in place.

Dome.

Construction of dome is shown upon the elevations, sections, and details. It will be framed partially from the brick wall which extends up through the dome. The whole fabric to be thoroughly cross-braced, and fitted with shelves for supporting the outer walls and base of dome. The roof of dome will be octagonal, and built with purlins for the reception of 2 inch sheathing to receive the galvanized iron work. The flat roofs at the base of dome will be filled between the beams with corrugated iron arches, No. 18 gauge, for the reception of the concrete.

Vault Floors, Etc.

The floors and ceilings of all vaults will be filled in between the beams with No. 18 corrugated iron arches, riveted at the joints preparatory to concrete finish provided by the contractor for fireproofing.

Roof Construction.

The form, size, and disposition of all roof sections are shown upon the drawings. The roof over the exhibit rooms will be carried by trusses, fully shown and described by the details. Trusses must be braced laterally, and will rest upon proper bearing plates. The main rafters, purlins, etc. will be I-beams or channels, framed as shown by the drawings. The rafter beams must be fastened together at the apex with proper splice or fish plates, and rafters must be bolted to the trusses and girders. The tops of all pitched rafters will be punched or drilled to receive 1¼ inch by 1¼ inch by ¼ inch angles spaced 8½ inches o. c., and fastened to the rafters by means of clips. The slate will be put directly on these angles.

Cornice Look-Outs.

Provide lookouts for all cornices above the frieze of main cornice. These lookouts will be of angle irons, as shown, spaced 4 feet o. c., securely bolted through the wall with large washers on the inside, and to be bolted to the auxiliary angle at the foot of lookout. Lookouts will be punched or drilled where necessary to receive wood sheathing for gutters, etc.

Furring.

The contractor for steel work will provide light angle iron furring, with metal lath for entire third story ceiling and all beam work in the corridors, etc., and for all projecting plaster cornices wherever called for.

Enclose the skylights down to third floor with No. 20 corrugated iron, as shown, painted white on the inside.

Metal Lath.

All beams projecting below the third floor ceiling, all furred columns, cornices, coves, etc. to be lathed with Bostwick metal lath, or its equal acceptable to The Board of Public Works and the superintendent. All lath will be fitted around furring for beams, paneling and cornices, and must be thoroughly secured in place for the plasterer.

Cast Iron.

Make all columns, with top and bottom plates, connections, pintels, etc., complete, of cast iron, as per drawings. These columns will have caps and bases cast separate from the column to slip over the column.

All castings will be of tough gray iron, free from cold shuts and blow holes, true to form and thickness and will have a workmanlike finish. The bearing plates under the columns must be accurately bedded on the pier foundations with fine cement mortar. All bearing surfaces to be planed to a true surface, and have holes drilled for bolts. Columns on dome will be of cast iron. Make the caps on pilasters on sides, and on pilasters and columns at side of front entrance, of cast iron. Models of these must be submitted to the superintendent for approval before any casting is done.

Stairs.

Make the stairs from the basement to the third floor, as per drawings and details. The horses will be channels, of the sizes shown on framing plans. They must be bent to the required shape where necessary, and all connections must be the full strength of parts connected. The treads and risers will be supported on cast iron brackets bolted to the horses. The stringer will be cast iron as shown, and must be securely fastened in place, and the rail secured to it.

Risers and treads of stairs from basement to first floor will be cast iron, and the tops of treads will be roughened with diamond shaped cuts. The risers from first to third floor will be

cast iron, but the treads will be slate put in place by the contractor for the marble work. The soffit of stairs, except in basement, will have 1 inch x 1 inch angles secured to horses, 12 inches on centre, and covered with steel lath, same as heretofore specified.

The newels and well posts will be of cast iron, and must be neatly and carefully made. The rail will be of wrought iron, of the design shown. The hand rail will be of wood, secured to the iron rail, and put on by the carpenter. The finish around well holes shall be a continuation of the stringer finish.

All castings must be clean crisp castings, neatly cleaned with files and buffer, and all projections polished.

Painting

All wrought iron and steel work before leaving the shop shall be cleaned of loose scales and rust, and receive one good coat of Dixon's Silica-Graphite paint. No painting shall be done in wet or freezing weather. Any riveted work, and the surfaces coming in contact, shall be painted before being put together. Any parts inaccessible after erection shall receive two coats of paint before leaving the shop. Cast iron shall receive one good coat of paint after inspection, and before setting. After erection, all iron and steel shall have a finished coat of paint before the fireproofing is begun. Metal lath will not be painted further than the enamel finish given by the manufacturer.

Delivery.

All steel and iron work must be delivered and set in regular order as the work progresses. The contractor will have free access to the scaffolding erected by the brick contractor so far as it will serve his purpose; otherwise he must provide his own staging, etc. and must not impede the work of other contractors, nor block floors beyond what is reasonable and necessary in the handling of materials. He will perfect his work ready for the fireproofers, and see that all bearing plates, tie rods, anchors, etc., are adjusted, and that all bolts at connections are set up tight before the tile arches are put in.

Checking.

Parties bidding upon the foregoing work will be required to check over the various sections, dimensions, etc., and if awarded the contract, be prepared to guarantee, upon their own account, perfect stability of the structure for the use intended, and in so doing floor loads shall be estimated at not less than 175 pounds per square foot, including construction, and roof load

at 80 pounds. In calculating strains, the length of spans shall be understood to be the distance between the centers of bearing plates for all girders, which shall be considered their effective length as distinguished from length over all. Rivets and bolts must be so distributed that the shearing strain shall not exceed 75 pounds per square inch, nor a bearing value exceeding 12,000 pounds per square inch. In proportioning plate girders, no part of the web shall be considered as the effective flange area.

Vault Doors.

Furnish the double doors for vaults, as shown. These will be 2 feet 8 inches by 6 feet 6 inches, and the frame will be made of $1\frac{1}{4}$ inch plate with $2\frac{1}{2}$ inch by $2\frac{1}{2}$ inch angles. The outer doors will be the same as outer door for fireproof vault No. 1, as per the Herring-Hall-Marvin Safe & Lock Co.'s catalogue. The inner doors will be double, and will be made of 3-16 inch plate, with $\frac{1}{4}$ inch by 2 inch stiffeners. These doors will have combination top and bottom bolts, worked by a handle on the outside. This handle to be locked by a good strong lock. All bolt work, handles, and combination must be nickel-plated, and all other work must be painted complete, and brought to a fine finish.

FIREPROOFING.

The first, second, mezzanine, and third floors, and part of roof, will be fireproofed with hard tile flat arch construction.

The floors and ceilings of vaults will be of corrugated iron arches concreted as hereinbefore described.

Light partitions shown on plans will be of hollow tile, and the pitched portion of roof will be covered with angles to receive the slate, as specified under "Iron and Steel."

The contractor is referred to the general plans, details, and iron drawings for all floor arches, column and girder covering.

NOTE.—Contractors to state price for using 8" hard tile flat arch construction for forming third floor ceiling.

Centering, Etc.

The contractor for the fireproofing will furnish all scaffolding, portable centering, hoisting apparatus, and everything necessary to fully complete the fireproofing, including all anchorage, wood floor strips, and also the mortar and concrete ready to receive the finished floor.

Material.

All hollow tile arches, partitions, beam and column protections

and furring will be of the best hard burned fire clay material, with a good clear ring, free from cracks and checks, and in strict accordance with the drawings.

Floor Arches.

The entire surface of the floors, ceilings, and flat portion of roof, except that occupied by stairways and vault floors, will be filled in between the steel beams with hollow tile arches, webbed 12 inches deep, and to weigh not over 35 lbs. per square feet when laid for the first, second, mezzanine, and third floors, and 8 inches deep for the ceilings and roof. It must all be carefully set with broken joints on properly constructed portable centering. The contractor is referred to the beam plans for spacing, and all variations in spans must be calculated, and the tiles manufactured to fit accordingly. They must be so made as to cover the bottom flanges of beams. The skew backs must be carefully bedded to the beam, and each tile forming the arch must be set in place with as close a joint as practicable, $\frac{1}{4}$ inch being the limit.

After the centers have been struck, any and all imperfectly fitted joints in the soffits will be pointed from the underside, leaving the arches full flush for plastering. All tiles to be plastered shall be well scratched and grooved by the manufacturer before delivery; to insure a good key for plaster. Centering must not be struck until the mortar is properly set.

Contractors bidding upon fireproofing will be required to submit details of the arch construction they propose to furnish, together with sample of the material.

Bids will be received for the standard arch, and also for what is known as end construction, and both hard-burned fire clay and fire clay porous terra cotta.

Tests.

After the floor arches have been set, and before any concrete has been put in place, a 1000 lb. roller shall be drawn repeatedly over the tile, and if the arches show no visible fracture, this test shall be considered satisfactory for a moving load.

After the arches have been in place one week, they shall be subjected to a dropping test, applied as follows: The surface shall be covered with 3 inches of loose sand and a 12 inch by 12 inch timber weighing at least 200 pounds shall be dropped from a height of 10 feet, and if the arches will stand three successive blows of this kind without going through, the arch will be satisfactory. In case it does not, the arches shall be taken out, material rejected, and new provided that will stand the test required.

Partitions.

The various partitions throughout the building shown to be less than 12 inches on the plans, will be constructed of fire clay hollow tile, 4 inches and 6 inches thick and 12 inches square, laid in place, plumb and straight, breaking joints in each alternate course: The 6 inch tile are not to exceed 24 pounds to the foot, and the 4 inch tile 15 pounds per foot. The 4 inch tile to be used for all wall 15 feet or less in height, and the 6 inch for all over 15 feet. No crooked or cracked tile can be used. All pieces must be laid to a line and tightly wedged to ceiling with fire clay slabs, and left ready to receive the plastering.

All openings will have jack arches and specially grooved jamb pieces, and specially grooved pieces wherever pipes or electric conductors are used.

Wherever roofs project above others, build 4 inch tile walls to enclose the attic.

Nailing Strips.

Furnish and place in tile partitions $\frac{1}{2}$ inch x 3 inch white pine nailing strips, laid between the courses dry, without mortar, and properly fastened for door jambs, etc.

Strips.

Furnish and place, under the direction of the carpenter, wood floor strips 2 inches thick, beveled and set 16 inches on centre, clamped to the top flange of beams and firmly imbedded in the concrete, and leveled on top ready for the finishing floor. Wherever tile floors are called for, these strips will not be required, and the concrete will be brought to within $1\frac{1}{2}$ inches of the finished floor line.

Column and Beam Protection.

All columns, girders, and exposed structural iron and steel work throughout the building, except in the attic and dome and against columns exposed in rooms, shall be protected with fire clay tiles, at least 2 inches thick. All girders dropped below the ceiling line will be fireproofed with metal lath. All work to be properly secured with anchors and fastenings.

Mortar.

All fire clay material shall be properly set in mortar, composed of $\frac{1}{3}$ Rosendale cement, and $\frac{2}{3}$ clean sharp sand, and a small quantity of lime putty.

Concrete.

Floors of vaults, lavatories, and the entire floor area of hollow tile, including the flat portions of roof, and also the corrugated iron arched floors of vaults and the floors over vaults will be concreted to the level line ready for the finished floor. Care must be taken to securely bed wood strips in all rooms requiring wood floors. Concrete must be composed of one part Rosendale cement, two parts clean sharp sand, and six parts clean locomotive cinders screened to the size of walnuts, filled to the level of beams, and after the wood strips are placed, filled flush with the top of wood strips. Vault and lavatory floors to be concreted to within one inch of the finished floor, and wherever tile floors occur, will be concreted to within $1\frac{1}{2}$ inches of the finished floor. The floors of vaults and lavatories to be finished on top with a hard concrete base 1 inch thick, made of $\frac{1}{4}$ Rosendale cement and $\frac{3}{8}$ clean sharp river sand, troweled to a smooth surface.

Note.

The contractor for fireproofing will afford all reasonable assistance to the plumber, steam fitter, electrician and others in the regular installation of their work, and notify them at the proper time before the concreting is done. He will also remove all rejected and broken tile, rubbish, etc. pertaining to his part of the work from the building.

ROOFING.

Slate.

Cover all pitched roofs except Dome with No. 1 Buckingham slate, 12 inches by 20 inches, $\frac{1}{4}$ inch thick, laid $8\frac{1}{2}$ inches to the weather, each secured to iron angles by two copper nails to be clinched around the lower leg of angle. Slate to be doubled at the eaves, and all courses to be straight and uniformly spaced.

Galvanized Iron.

All cornices, pediments, balustrades, belt courses, sill courses, ornaments, finials, the entire top of dome, and any other parts marked "galvanized iron," will be made of First Quality No. 26 galvanized iron thoroughly riveted and soldered, and to be according to details. All medallions and dentils must be riveted to the principal work, and the whole riveted or secured by means of clamps to the iron framing.

In some places, as shown by the details, wood sheathing will be provided by the carpenter for securing iron work.

All plain surfaces must be crimped. All ornamental work must be molded and stamped crisp and sharp in zinc, and be equal to the work of W. H. Mullins, of Salem, Ohio.

Tin.

The lining of gutter in main cornice and dome cornices will be tin. All tin will be N. & G. Taylor's Old Style I X tin, each sheet stamped with the weight and manufacturer's name, to be painted one coat of red lead and oil on the underside before laying, and two coats after laying.

Copper.

All flashing and counter-flashing in connection with the main roof will be 16 ounce copper, and will have expansion joints every 5 feet. Flashing must extend up at least 8 inches on all walls, and counter-flashing must be used wherever necessary.

Asphalt Roof.

All flat portions of the main roof will be covered with Warren's Anchor Brand Natural Asphalt Roofing, put on according to the printed directions of the Warren Chemical Co. The finishing coat to be carried up on walls breaking through roof.

Skylights.

Put in the four skylights were shown. These will be the Hayes patent skylight, with galvanized iron ribs of sufficient strength to carry the weight of the skylight, and all loads coming upon it. They must be perfectly storm proof and condensation taken care of. They will be filled with $\frac{1}{4}$ inch wire woven glass.

Note.

All roofing must be absolutely storm proof, and guaranteed for ten years.

PAINTING AND GLAZING.

Paint.

All galvanized iron will be primed with yellow ocher and pure linseed oil, but not until the work has been exposed to the

weather six weeks, and finished with two coats of the best Anchor Brand white lead, as manufactured by the National Lead Co., or its equal, and pure linseed oil. The color must be an exact imitation of the color of the stone, and the last coat of all work up to the top of main cornice and pediment, must be smalted with sand.

All outside cast iron work will be painted in the same manner.

All window frames and sash on the outside will be primed by the carpenter at the mill before being brought to the building, and the painter will finish with two additional coats of the same paint as specified above, the color to be as directed.

All nail holes and breaks must be puttied up smooth after priming, and all rough and fuzzy places sandpapered between coats.

Interior Work.

All doors and wood trimmings shown upon the drawings throughout the building, base, etc., will be oak, which must be cleaned and have two coats of filler of approved make, thoroughly rubbed into the wood, and finished with three coats of varnish. The last two coats must be first class rubbing varnish, costing at least \$2.50 per gallon. All work must be puttied up with tinted putty on the filler, and well haired down between the coats, and the last coat rubbed down with pumice stone and oil, to a smooth finish, so that no brush marks, runs, or other rough spots remain, and the whole carefully cleaned off. The interior work of lavatories and closets will not be rubbed, but will be left with a flowing gloss.

Outside Work.

All outside entrance doors, and horizontal window stools inside, will be finished with at least two coats of the above specified varnish, and one of exterior stock worth at least \$4.00 per gallon. The painter is referred to the drawings and specifications for galvanized iron and copper work, carpenter work, etc. for information as to style and extent of work to be done.

All finishing to be brought to the building in the original packages, and used just as it comes from the manufacturer, without any reducing, and all work to be finished in a first class workmanlike manner, subject to the approval of The Board of Public Works and superintendent.

Glass.

Window and door glass for the exterior of the first and second

stories of the building fronting on Lee, Hale, and Dickinson streets, will be polished American plate glass, of A No. 1 quality.

The window glass for rear of building, entire basement and entire third-story and dome will be American blown glass of A No. 1 quality.

All interior doors will be glazed with wire-woven glass. All other interior glass, such as transoms, etc. will be No. 1 plate, and where so marked, it must be chipped.

Door and interior glass in general will be set with wood strips. All other glass will be set in putty, well bedded, bradded and puttied.

All broken and imperfect glass must be replaced with new glass before acceptance.

The arched windows in the third-story of dome will be filled with leaded art glass, costing 75 cents per square foot in place.

The glass in level ceiling light over stairs will be wire-woven glass. Glass in side lights and transom, main entrance, to be leaded art glass, as shown.

WOODWORK.

This will include all wood work and hardware of every description about the building.

Office.

At a convenient point near the site, erect a 12 x 16 office, with a good table for keeping drawings. It must be perfectly weather proof, and the superintendent must be furnished with a key.

Enclosing Building.

As soon as the roof is on, hang rough doors with locks, and close up all windows with old sash or muslin.

Nogging.

Furnish and direct the setting of all wooden blocks necessary to secure wood finish.

Centers.

Furnish centers for turning all arches. These must be substantially and accurately made and properly secured in place, and must not be removed without an order from the superin-

tendent. Centers for large arches must be set on wedges, so that they can be removed without disturbing the arch.

Grounds.

Grounds will be set on for all plastering, $\frac{3}{4}$ inch for lath work, and $\frac{1}{2}$ inch for brick and tile walls. They must be lined and plumbed.

Rough Sills.

Put 2 inch rough sills under all windows, 8 inches longer than the width of openings, set flush with the wall on the inside and snug up under the sub-sill, and extending 1 inch under the frame.

Stripping.

The carpenter will dictate the position and level all the floor strips, and the position of wall strips, and will look after the position and construction of all doors in fire clay partitions, and see that sufficient room is obtained in all close corners for the full casing finish. Set all frames in position, plumb and square, and watch them during construction to see that they are not crowded out of place.

Sheating.

Line the gutter in the main cornice with 2 inch sheating, as shown, and cover the upper portion of dome with 2 inch matched sheating, and put on all other sheating shown by the detail to secure galvanized iron finish. Do all framing and furring for galvanized iron work about the windows, etc.

Windows.

Basement and dome windows will have $1\frac{3}{4}$ inch rabbeted plank frames, with $1\frac{3}{4}$ inch sash. Basement sash will be hinged at the top to swing in, fastened with a spring catch and held open by a hook and staple. Dome windows will be hinged at the side to open in, and will be fastened by a spring catch or small bolt.

Circular top windows must be carefully made and nailed together in white lead, and they will have in addition a piece of water proof tarred paper nailed over the top to prevent water getting into the joints. The circular top window in second story will have $1\frac{3}{4}$ inch sash. The center sash will be stationary, and the side sash will be hinged to open out, and they will have casement fastenings to hold them open at any angle.

Third story windows on the front and sides will have $1\frac{3}{4}$ inch plank frames with $1\frac{1}{4}$ inch sash pivoted at the sides with the bottom to swing out and operated by transom lifts. In the one window on right side in second story where mezzanine story occurs, both sash will be pivoted in the same manner.

All other windows will have double box frames made of yellow poplar, all exposed parts to be clear, to have $1\frac{1}{8}$ inches pulley stiles of Georgia pine, $1\frac{1}{8}$ inch by $1\frac{3}{4}$ inch moulded shutter stiles, $1\frac{1}{4}$ inch sub-sills with a slope of 1 inch in 12 inches, $1\frac{1}{8}$ inch heads with parting strips, etc., complete. Boxes must be roomy, and have $\frac{1}{4}$ inch separators for weights. Sash will be $1\frac{1}{4}$ inches, hung with sash irons by Giant metal sash chain over pulleys to cylindrical pointed cast iron weights. Weights must be large enough to balance the sash, and lead weights must be used, if necessary. The window pulleys shall be C. Sidney Norris & Co's bronze 3 inch wheel, grooved for chain, 7-16 inch steel pin, bronze metal face No. 6554, $\frac{1}{2}$ X. Pulleys must be fitted at the mill, and then taken out and not put in place until sash are ready to hang.

The carpenter must finish the frames all over at the mill, with a good coat of white lead and pure linseed oil. That part of the sash run showing on the inside to be oiled only.

All sash will be $1\frac{1}{4}$ inches thick, of clear dry white pine, to have lugs on top sash, and the meeting rails to be joggled, to be bored for Giant sash chain, and to be neatly fitted, hung and balanced with weights. Sash must be fitted with two lifts and a sash lock.

All stops will be fastened with round headed plate screws, 12 inches o. c.

All door transoms will be pivoted at the center, and operated with Wallensack's transom lifts.

Doors.

All doors will be of the sizes marked on plans, or shown by elevations. They will be made with laminated stiles of clear white pine, glued up and veneered with $\frac{1}{4}$ inch quarter-sawed white oak, paneled and molded as shown by the detail. All tenons must be obscured, and the whole cleaned up and scraped equal to No. 1 cabinet work. Frames will be $1\frac{1}{4}$ inches thick. Frames in walls over 17 inches in thickness to be paneled with mouldings to match the doors.

All doors must be fitted, hung and adjusted with the necessary hardware trimmings, three butts to each door, with transom lifts for transoms, complete.

Put the finish around the entrance door and the window above, as shown. Put side lights at side of doors where so shown, according to detail.

Interior Finish.

All windows will have plaster jambs back to the boxes, and will be finished with a $1\frac{1}{8}$ inch round against the box. Inside face of the box must be veneered with oak. Windows will have $1\frac{1}{8}$ inch moulded stools with $\frac{3}{8}$ inch moulded aprons. Doors will be cased on one side only, with quarter-sawed oak casing with head casing, as per detail. The other side will be finished same as windows. Doors and windows in tile partitions to be cased on both sides.

Flooring.

All floors in offices and rooms not provided for in tile or concrete will be $\frac{3}{8}$ inch milled matched No. 1 Georgia pine, edged grained, not over 3 inches wide. To be secret nailed, all uneven joints dressed off when the floor is laid. This floor must not be laid until the oak finish is in place, and when laid must be protected by clean dry saw dust until the building is completed.

Base.

In all rooms, corridors, etc., except where marble or cement base is specified, put a $\frac{3}{8}$ inch by 10 inch double member base, with a quarter-round at the floor.

Stair Rail.

Put a quarter-sawed oak hand rail on the stairs, as per detail.

Ceiling Light.

Make the ceiling light over the stairway with $1\frac{1}{4}$ inch sash, as shown. Finish with a mould around on the plaster as per detail.

Water Closet Partitions.

Water closet partitions will be made of oak, with $1\frac{1}{8}$ inch stiles, $\frac{3}{8}$ inch panels and crowned with a neat cornice. Doors will be $\frac{3}{8}$ inch thick, 4-panel, oak doors, set up 1 foot from the floor.

Finally.

The carpenter will lay out his own work, obtain all neat measurements from the building itself and make his work ac-

cordingly. He will render all reasonable assistance to others, and when his contract is completed, he must remove all rubbish relative to his part of the work from the premises.

Hardware.

All entrance and corridor doors throughout the building will have hand made, cylinder mortise locks, master-keyed, all to be strongly made, with cases not less than $3\frac{1}{2}$ inch by $5\frac{1}{4}$ inch and plain, highly polished bronze metal fronts, strikes, easy spring bolts and antifriiction latches. All doors, except entrance doors, will have plain polished cast knobs, screwless, with $\frac{3}{8}$ inch swivel spindles, and cast bronze, polished escutcheon. Lock No. 1249 $\frac{1}{2}$ and escutcheon No. P. 1143, made by the Reading Hardware Co.

Butts for all doors will be heavy plain bronze polished with steel bushings and bronze tips. All butts to be 5 inches by 5 inches, No. 036 $\frac{1}{4}$ made by Reading Hardware Company.

All sliding sash to have No. P. 788 sash locks, and No. P. 318 $\frac{1}{4}$ sash lifts made by the Reading Hardware Company.

Outside entrance doors to have lock No. 1577 $\frac{1}{2}$, and handles No. P. 2341 made by Reading Hardware Company.

All door transoms to be fitted with Payson's "Solid Grip" transom lift, of polished bronze.

All cloak-room and toilet room doors will be fitted with heavy bronze wardrobe hooks, properly secured in place, 12 for each large room and 6 for small rooms.

All hardware trimmings will be considered under the head of carpenter work, and when the selection is made it must be approved by Board of Public Works.

Kind and Quality of Lumber.

All interior finish and flooring will be kiln-dried, and all other wood must be thoroughly seasoned, and all interior finish will be quarter-sawed oak. Flooring will be as before specified. All sash will be clear white pine. Window frames will be as before specified. All sheathing and rough work will be poplar or yellow pine.

ELECTRIC LIGHT WIRING.

Electric light wiring will not be included in contract, but contractor will be required to leave channels in walls and furnish specially grooved fire proofing specified heretofore, and permit this work to be executed by Board of Public Works in accordance with these specifications. Electric Light wiring will include all wiring throughout the building, complete, including all sock-

ets, switches, cut-outs, cut-out boxes, cabinets, fuse boxes, conduit, etc., and the necessary cutting to get work in place, and the repairing of all work that is injured, and all minor details necessary to complete the work in a first class manner.

Wiring.

Commencing in the basement, where directed, run wires up to the attic, and in the attic put up a box with a slate back and in this box put a main line cut out and switch with fuses, plugs, etc., complete. This box must have a good hinged door with lock and key.

Wire from the basement will be carried up in the walls in iron armored conduit, as manufactured by the Interior Conduit & Insulation Co. This conduit to be continuous from the basement to the attic.

From the main line switch and cut out in attic, run branches to supply all lights indicated on the drawings, or called for in the list of lights. The building will be wired for a two wire system, but three tubes must be put in the walls so that three wires can be used. Up to the attic and in the attic, the branches starting from the main line cut-out and switch must be so divided up that either a two or three wire system can be connected to them. All wires must be run through the wall or ceiling and neatly coiled ready to connect with the fixtures.

Cut-outs for third story must be located in the attic. Those for other floors to be located in cabinets set in the wall. All cabinets must be lined with heavy asbestos board, and will have neat paneled doors with locks and keys. All exposed wood work must be selected, quarter-sawed white oak, finished to correspond with the other finish in the building.

All lamps will be 16 candle power, and the building must be wired throughout for 110 volts.

The maximum loss in any distributing circuit shall not exceed 2 per cent. The ampere capacity of conducting wires must be carefully determined, and the size of wires so proportioned that the maximum current carried by them under normal conditions shall not occasion a rise of temperature exceeding 60 degrees F, above the normal.

All wires will be Okonite braided, or equal, properly insulated and secured in place. All joints must be properly soldered, wiped and taped, and all branches must have cut-outs with porcelain bases and fusible plugs. No cut-out on branches to lamps will carry more than 12 lamps. These wires, except main vertical wires, up to attic must all be run in flexible tubing, as manufactured by the Circular Loom Company.

No fixtures will be included in this contract.

Switches.

All switches 5 ampere or over must double-pole. The switch controlling the lights in the attic will be located on the third floor, where directed.

Note.

The contractor must do all cutting of walls, floors, etc., necessary to get his work in place under the direction of the superintendent, and must repair all work that is injured, using cement mortar for brickwork. This work must be complete in every respect according to the full intent and purpose of the specifications, and all minor details must be supplied by the contractor. Beginning in the basement, as above specified, it must be complete ready to turn on the current.

This work must be done according to the rules of the National Board of Fire Underwriters, and it will be inspected by a competent electrician.

LIST OF LIGHTS.

LOCATION.	OPENINGS.	LIGHTS.	FIXTURES.	SWITCH.
Basement.....	10	10	cord	1
First Floor—				
Lobby.....	1	6	fixt. }	
“	2	4	“ }	
Stair lobby.....	4	8	“	1
Treasurer	1	4	“	1
“ lavatory.....	1	1	“	keyed
Vault.....	1	1	cord	“
Passage way.....	1	1	fixt.	“
Treasurer.....	{1	4	“	switch
	{1	1	“	keyed
Treasurer's Clerks..	6	24	“	3
Auditor	1	4	“	1
“	2	6	“	1
“ clerks.....	15	60	“	5
Coat room.....	1	2	“	1
Lavatory.....	1	2	“	1
Vault.....	6	12	“	1

Second Floor—			
Stair lobby.....	48	48	sockets 4
Side halls.....	4	8	fixt. 2
Judges' rooms.....	4	16	" 4
Lavatories.....	3	3	" 3
Supreme Court.....	5	30	" 3
Clerks' offices.....	4	16	" 3
Reading room.....	2	8	" 1
Library.....	15	60	" 5
Third Floor—			
Lavatories.....	2	2	fixt. 2
Board room.....	1	4	" 1
Exhibit rooms.....	33	132	" 5
Rotunda.....	60	60	sockets 4
Over stairs.....	16	16	" 1
Attic.....	10	10	cord 1

PLUMBING.

The contract will not include fixtures, but contractor will be required to rough in for the fixtures herein specified and in accordance with the following specifications.

Starting at the curb in front, run into the building with a 1½ inch pipe and put on a rough lever stop and waste, and from this point run branches of the proper sizes to supply all plumbing fixtures.

This will all be galvanized wrought iron, with galvanized iron fittings. All pipe exposed in lavatories to be nickel-plated on brass. All short connections not exposed to be extra heavy lead.

Soil and Waste Pipe.

Connecting with the sewer under each lavatory or group of fixtures, run a 4 inch soil pipe up through the roof leaving Y branches to receive all the wastes. Where there is only one group of fixtures, put in an inverted Y near the ceiling over fixtures and connect the vents from fixtures into this. Where fixtures are grouped over each other on different floors, start a separate vent from the last group, and connect the vents from fixtures above into this by an inverted Y, and connect into the main soil pipe above the highest fixture by an inverted Y. This pipe must extend 3 feet above roof, be flashed with lead and have copper wire baskets in the top.

All this pipe must be standard cast iron pipe of a uniform thickness, free from sand spots and cracks, and coated inside

and out with asphaltum or coal tar. To have Y branches and easy bends, and to be carefully supported in place. Soil pipes shall be tested by filling with water after all lead bends and wastes have been connected, and no leak however small will be permitted. Test to be made in the presence of the superintendent. Short connections between fixtures and main soil and vents where not exposed to view, will be made of extra heavy lead pipe.

Connections.

All connections in cast iron pipes will be made with oakum gaskets and calked lead joints. All connections between cast iron and lead pipes must be made with combination ferrules calked into the cast iron pipe and wiped onto the lead pipe. All connections between wrought iron and lead pipe must be made with brass ferrules screwed into the wrought iron pipe and wiped on to the lead pipe. All connections in lead pipes must be made with wiped lead joints.

Water Closets.

Put in 12 water closets where shown. These will be Wolff's E. 1506 siphon closet, with hard wood seat attached to the bowl, and brass floor flange. Supply pipe will be of brass, nickel plated. All woodwork to be oak, of Wolff's make.

Put in the 13 Lavatories, as shown. These will be Wolff's E. 1124 Columbia basin, 32 inches by 22 inches, with 12 inch backs, Italian marble, nickel-plated waste, nickel-plated Fuller faucet, and nickel-plated adjustable trap, and supply pipes of brass as shown, Wolff's Catalogue E. Where two or more basins are used, they must be separated at least 8 inches, and set on continuous slab. All basins will be supplied with cold and hot water, and will be connected up complete, and all exposed pipe to be nickel-plated brass.

Leader Pipe.

Connecting up with the roof at four points, as shown, with large copper funnels covered with domed copper wire screen, run 6 inch standard cast iron pipes with oakum gaskets and calked lead joints down through the building, and connect with the sewer. This pipe to be tested same as soil pipe.

SEWER.

The sewer will not be included in contract, but contractor will

permit the following work to be done by Board of Public Works.

Run a sewer, as shown on the foundation plan, connecting it up with all soil and waste pipes and leaders; and connect with main sewer in front of building.

This sewer must all be standard cast iron pipe of the size marked, to be laid with a uniform fall of 2 inches in 10 feet and to have oakum gaskets and calked lead joints. Put a running trap between each leader pipe and the sewer. Put in a hand hole, clean out and fresh air inlet, as directed.

Do all excavating, fill in over the pipes and tamp the earth in place.

HEATING.

The contract will include only the work in the building, and will not include boilers or connecting the pipes with the boiler in the State House.

This will be a low pressure system of steam heating, with a double system of horizontal pipes, and a single system of vertical risers, as indicated on the plans.

Piping.

On the plan the size and run of supply pipes only are shown, and the return pipes will follow the same line, but will be one size smaller in all cases. The vertical risers will be one size larger than the horizontal supply.

All pipe will be first quality wrought iron, with heavy grey iron fittings. All pipe $1\frac{1}{2}$ inches or less in diameter will be butt welded, and all larger pipe must be lap welded. All pipe must be run to provide for expansion and contraction. The supply pipes must be run with a fall toward the vertical risers, and a drip a size smaller than the supply will be taken off at this point and connected with the return. Returns will have a fall to the boiler.

Where pipes pass through brick, stone, or tile walls they will have short sections of larger pipe built into the wall, and where exposed in finished rooms, cover each side with galvanized iron rosettes.

Where pipes pass through floors, they will have heavy galvanized iron thimbles flanged over on the floor and ceiling, with galvanized iron rosettes on the ceiling, fastened to the thimbles, and heavy cast iron floor plates on the floor. Horizontal pipes in basement will be supported on Hanna Ball Joint hangers, or their equal, not over 12 feet apart, and to be properly secured to the floor beams.

Each vertical riser where it leaves a supply will be controlled

by a valve, and each main branch where it leaves the main supply will have a valve, and there will be a valve on the corresponding return.

Valves.

All valves on pipes will be Jenkins Bros. valves with the Diamond Trade Mark. Each radiator will have one ebonized, wood handled, nickel rimmed radiator valve made by Jenkins Bros., and also one No. 6 nickel-plated Perfected Duplex air valve, as made by the Monash-Younger Co., of Chicago.

Radiators containing 30 feet or less of radiation will have 1 inch valve. Radiators containing from 35 to 60 feet of radiation will have $1\frac{1}{4}$ inch valves. Radiators containing from 60 to 100 feet of radiation, will have $1\frac{1}{2}$ inch valves, and radiators containing over 100 feet of radiation will have 2 inch valves.

Covering.

All pipes in the basement will be covered with Keasbey & Mattison magnesia covering, to be secured with not less than two bands to each section, and the laps to be well fastened down. All joints, etc., where covered that do not fit snugly will be filled in with asbestos plaster. The piping in rooms above the basement will not be covered, and are figured as a part of the radiation.

Radiators.

All radiators will be the Imperial Union radiator, 31 inches high, as manufactured by H. B. Smith Co., Westfield, Mass. They must be perfectly tight and supplied with valves, as specified under *valves*.

Finish.

Finish all radiators and exposed pipe above the basement with a coat of yellow priming, and one coat of gold bronze.

Note.

This apparatus must be put in in the very best mechanical manner, and all minor details necessary for the convenient and successful operation of the plant must be supplied. Steam must circulate throughout the building under one pound pressure, and it must heat all rooms to 70 degrees in zero weather, with a pressure of 5 pounds. All water of condensation must be returned without cracking, or snapping, and all radiators must be free from air bindings.



