

S P E C I F I C A T I O N S

of the

labor and material required in the construction of an Administration
Building for the Kansas State Agricultural College, to be
built at Manhattan, Kansas, in accordance with
drawings and specifications prepared by
R. H. Sanneman, Architect.

GENERAL CONDITIONS TO GOVERN CONTRACTORS FOR CONSTRUCTION,
PLUMBING, HEATING AND WIRING FOR ELECTRIC LIGHTING.

The work is to be executed under the direction and to the satisfaction of the building superintendent and in conformity with his instructions.

The Contractor shall give his personal superintendence to the work, or have a competent foreman satisfactory to building superintendent in charge, on the job at all times to act for him, and shall furnish all materials, labor, etc., necessary to complete the work according to the true intent and meaning of the drawings and these specifications, of which intent and meaning the superintendent shall be the interpreter. No local terms or classification will be considered in the interpretation of these specifications.

The location and grade of building will be indicated by the superintendent in charge, and the site shall be cleared by the contractor for the reception of the structure, and should be examined by him before bidding. The contractor must lay out his own work correctly and will be responsible for measurements.

It is intended that the drawings and specifications shall include everything requisite and necessary to the proper and entire finishing of the building, notwithstanding every item necessary involved by the work is not particularly mentioned; and all work is to be delivered in perfect and undamaged state.

Where no figures or memoranda are given, the drawings shall be accurately followed according to their scale. In any case of discrepancy in figures or drawings, the matter shall be submitted to the superintendent in charge, without whose decision said discrepancy shall not be adjusted by the contractor, save only at his own risk; and in the settlement of any complications arising from such adjustment, the contractor shall bear the expence involved.

The drawings and these specifications shall be considered as co-operative, and work or material called for by the one and not mentioned in the other, is to be done or furnished as though fully treated of by both. The superintendent in charge may require the contractor to dismiss such workmen as he deems incompetent or careless, and is to have at all times access to the work, which is to be entirely under his controle.

The contractor shall be responsible for all damages to the building, whether from fire, high wind, or other causes, during the prosecution of the work, and until same is finally accepted. He shall be held answerable for all damages that may occur to persons, animals or vehicles, for want of proper lighting, watching, boarding, or any accident arising from defective scaffolding or any negligence on the part of himself or his employees.

The contractor shall provide stoves and fuel in cold or wet weather, for heating the building while his work is going forward and until it is dry, and all material and work are to be properly protected from the weather.

The contractor is required to exercise proper caution and care to verify the figures before laying out the work, and will be responsible for any errors therein that otherwise might have been avoided..

The contractor is to clean away, as directed by the officer in charge, the dirt and rubbish resulting from his operations; is not to deface or damage the building, and is to deliver the whole in clean and perfect condition.

QUALITY OF MATERIAL AND LABOR.

Except it be otherwise specified, all materials are to be of the best quality of their respective kinds, and all labor is to be done in the most thorough, prompt and workman-like manner, to the full satisfaction of the superintendent in charge. In all cases where an article is mentioned in

these specifications, followed by "best quality," "approved quality," or "equal," the superintendent shall decide what is the best and the most suitable to be used.

DETAILS.

Detail drawings will be furnished by the architect if desired, of such portions of the work as the superintendent may desire to explain more fully, and any work not constructed in accordance with such details furnished, except by permission expressly obtained, must be taken down and replaced with other work, in accordance with them, at the contractor's expense, if so directed by the superintendent.

OWNERSHIP OF DRAWINGS.

All drawings and memoranda relating to the work are the property of the architect, and are to be carefully used, and returned to said party at completion or cessation, from any cause, of the work.

ASSISTANCE.

The contractor shall render assistance to the other mechanics in every way in which his special work can be of service, and such assistance must be given promptly and thoroughly, without additional charge. He and his employees must work in harmony with other contractors on the grounds, and in such order and places as may be directed by the superintendent. The contractor must remove all rubbish at completion of building, and provide spittoons, kept filled with clean sand for inside workmen.

INSPECTION AND ACCEPTANCE OF WORK.

Each contractor must understand that the materials delivered and the labor furnished by him, at any and all times during the progress of the

work, and prior to the final acceptance and payment for the same, shall be subject to the inspection of the superintendent and architect, with the full right to accept or reject any part thereof; and that he must, at his own expense, within reasonable time, remedy any defective or unsatisfactory material or work, and remove all condemned material from the school grounds, and in the event of his failure to do so, after notice, the superintendent shall have full right to have the same done, and to charge cost thereof to the contractor.

EXTRAS.

No charges for extras will be allowed unless the same has been ordered in writing by superintendent, the prices stated in the order and accepted by the contractor.

SPECIFICATIONS FOR CONSTRUCTION.

DESCRIPTION.

The work covered by these specifications consists of the construction of a stone building for K. S. A. C., in accordance with the drawings and specifications prepared by R. H. Sanneman, architect. The foundation, underpanning, superstructure, piers, airway walls etc. to be of stone. Footings under all walls to be of concrete. Chimney to be of stone. Roof to be covered with copper. Basement floors concrete where shown. The work also includes the laying of subsoil and down spout drains, and doing all excavating and clearing and grading of site, as shown or required.

Height of basement story to be 10 ft. in clear; boiler pit 3'6" deeper.

FINISHES.

Interior walls to be finished with plaster and painted white, floor

GRADING.

Note. Bidders must examine site before submitting estimate, as all necessary grading must be included in the contract.

The grade line of bottom of window sill course of basement will be established with reference to the existing road on the north, so as to give a continuous fall from building to said road of not less than one foot in twenty in the finished surface of the ground. Do all excavating necessary to grade the site of building in accordance with the established grade lines and all excavating and filling necessary to give the ground for twenty feet from face of all walls, steps, etc., a fall of one foot in twenty, or in accordance with the natural slope of the ground, if so directed by the superintendent. Excavate as required by the site and drawings, for footings for walls, piers, etc., to the depth figured as shown, or to such depth as will provide absolute security against danger from frost or insecure foundations. This must be done irrespective of depths shown by drawings or figures and without extra charges.

CONCRETE FOOTINGS.

Footings under all walls, piers, etc., to be of concrete, of depth and width shown. If the nature of the soil is such that this footing is thought to be insufficient, an under footing of same thickness and projecting over upper footing 8 inches on each side, shall be put in. The concrete shall be composed of one part of Iola cement of approved brand, three parts clear, sharp sand and four parts broken stone. The broken stone must be free from dirt, of a solid composition, and no pieces to be larger than a two inch cube.

MIXING CONCRETE.

All concrete to be mixed as follows: The cement and sand will first be thoroughly mixed dry, after which water will be added and the mortar mixed to the proper consistency, then the stone will be dumped on top and the whole worked over in a uniform mass.

The concrete shall be laid in box forms if necessary and tamped in place with suitable tools until moisture flushes to the surface, and must be deposited and tamped as fast as it is mixed and left until it becomes hard. No concrete shall be used that shows any signs of frost, or of having commenced to set.

SUBSOIL DRAIN.

Outside of footings of outside foundation walls around entire building, lay a six-inch, salt-glazed, vitrified hub-joint pipe; the lower third of joint to be cemented with neat Portland cement, the remainder an open joint. The drain to be regular grade of not less than 1 inch in 25 feet, but in such length of run the top of pipe shall not be more than 3 inches above top of footing, nor the bottom of pipe more than 3 inches below bottom of footing. This pipe to run east of road to an outlet above ground as designated, and not to be connected to College sewer.

DOWNSPOUT DRAINS.

Furnish and lay 4-inch hub-joint salt-glazed vitrified terra cotta drain pipes from each down spout (that is, each corner) and connect them into a 6-inch main drain which will be continued to an above ground outlet east of road, as designated by superintendent. All to be laid with neat Portland cement joints, and to be a regular grade of not less than 1/4 in. per foot. All connections to be made with sewer. Drain outlets above ground to be protec-

ted by a wrought iron grating set in stone, with stone cap, and laid in cement.

STONE WORK.

STONE WALLS.

All exterior and interior walls, piers, etc., to start on concrete footings provided and to be of approved quality local stone, of dimensions and levels as shown by drawings. The exposed faces of all walls above grade to be of a hard nature of approved quality local stone. The exposed face of all walls, mouldings, columns, sills, capings, balusters, arches, caps, etc., to be sand rubbed or finely bush-hammered work, all of which must strictly conform with drawings.

All stone to be laid on natural bed in cement mortar, well banded, bedded and joints filled solid with cement mortar and spalls. All to be done in a workman-like manner, and all walls built perfectly straight to proper and exact height to a true line on all faces, and leveled off to receive timbers and ironwork. No wall to be built more than five feet above others during progress of construction. Mason to build in all wood, brick lintels, strips and ironwork furnished by contractor.

CEMENT PLASTERING.

After foundation walls are well set and dry, the outside of same in contact with the earth to be plastered from footing to surface of ground with Portland cement, not less than 1/2 inch thick, troweled smooth, using one part cement and one part clean sharp sand.

STONE FILLING.

After cement plaster is dry, fill in outside, to one-third the height of sub-soil drain pipe, with earth well tamped and then with broken stone fill within 6 inches of grade. Stones to be no larger than two inch cubes.

SETTING FRAMES.

All window and door frames to be set after walls are built up. These to be fastened in place with 4-inch galvanized iron stay bolts properly screwed to frame, using no less than 8 to each frame.

POINTING.

The exposed outside joints of stone work to be raked out as the work progresses, to a depth not less than 1/2 inch, and at completion they are to be neatly pointed with Portland cement, colored as directed by Superintendent. All exposed stone walls in basement to be neatly trowel-pointed. Pointing under window and door sills to be done at completion of building.

MORTAR.

Mortar for exterior stone walls below grade line to be of one part best Iola cement and two parts clean, sharp sand. Mortar for the balance of stone work to be lime mortar composed of one part freshly burned lump lime, to four parts clean, sharp sand mixed at least 14 days before being used, and temper as used with one part of best Portland cement and 5 parts mortar.

CLEANING AND PROTECTING.

All stone work to be thoroughly cleaned at completion and all broken and defective parts made good. Stone work to be properly covered and protected during progress of construction.

BRICKWORK.

The only brick work required will be for the relieving arches of first story, which will consist of three broocks for each opening. All brick to be good, sound, hard, well burned common red brick, of quality approved by Superintendent in charge. Brick mortar to be the same as that of the stone walls.

Flue to be lined with fire clay, flue lining full height of same; sizes marked on plans, on inside measure.

Provide all openings for smoke pipe and fit same with fire clay thimble with tin caps.

All vents from toilet rooms to be lined with similar fire clay, lining to run up entire height, of sizes marked on drawings, each to be provided with register as marked.

CONCRETE FLOORS.

The floors of the air way, toilet rooms, boiler room, store room and press room of basement floor to be of cement, to be put down as follows: After properly grading and rooling to a smooth surface, cover with 3 inches of concrete, composed of one part of best, fresh Portland cement and four parts of broken stone, not larger than two inch cubes and two parts of clean, sharp sand mixed as specified for footings. This is to be covered before base is set, with one inch of top dressing composed of one part best Portland cement and 1-1/2 parts clean sharp sand, troweled true and smooth. All concrete floors to be marked off into blocks about 3 feet square. The joints to be cut through to top of base. The contractor to see that all plumbing, pipes, traps, bolts for water closets, etc., are in proper place before concreting floor.

CEMENT AND LIME.

All Portland cement used will be equal to Atlas or Vulcanite. Natural American cement to be equal to an approved brand of Rosendale, freshly ground. Lime to be of best quality of fresh wood burned.

IRON WORK.

Furnish and set all constructional and ornamental iron work that is required in drawings; also all wall plate and door frame anchors, and all iron plates, rods, bolts, washers, dowels, etc.

T-anchors for joist will be 3 feet 6 inches long, 2 inches wide, 1/4 inch thick, with sufficient number of holes to be well spiked to timbers with end at right angles, 1 inch to let into timbers, the other end to have an eye to receive a 3/4 inch round iron 12 inches long, to be built in masonry. Anchors not to be spaced over 8 feet apart. Girders to be similarly anchored. Partition to be well anchored to wall with 5/8 inch bolts provided with washers and built fast in walls.

All headers over 5 feet to be hung in Sanc's wrought iron joist hangers.

Supply and set cast iron clean-out door at the bottom of smoke flue in basement.

Column:- Provide and set a 6 inch C. I. Column in basement, as shown in drawings, column to be 3/4 in. metal, provided with 12 X 12 X 1-1/2 inch C.I. cap and base.

VAULT DOORS.

Vault doors to be located as shown on drawings, to be 2 feet 6 inches wide, 6 feet 6 inches high. Doors to be of approved quality and equal to those manufactured by the Champion Iron Works, Canton, Ohio, Catalogue number 7927 (1906).

CARPENTER WORK.

The building contractor will do all necessary woodwork, cutting, casing, boxing and boring for pipes, etc., of all kind, for plumbing, heating, and water pipes, etc. Put up beaded strips and casings in all rooms where directed for the reception of pipes, etc.

The building contractor will do all necessary woodwork, shown as required, provide and set centers for arches, put in all headers and frame for registers, and shall properly protect all openings from the weather, when directed. All plastering to be finished, cellar cemented, and the building thoroughly dried before any of the interior finished joinery is brought into the building or put into position.

FRAMING.

All timber to be best quality southern yellow pine. It will be thoroughly seasoned, free from shakes, large knots, and other imperfections impairing its durability or strength, straight grained and square edged. All dressed and sized timber to be not more than 1/4 inch less in thickness. All framing must be done as shown on drawings and all timbers must be of such sizes as shown on sectional cut of drawings.

N. B. The first and second floor joists to be 3" X 14", the ceiling joist to be 2" X 12", rafters 2" X 8". All partition studs to be 2" X 6", all to be spaced 16" on center. Wall plates to be 4" X 6" built up.

WOOD LINTELS.

All openings except those otherwise shown to have wood lintels.

WOOD BRICKS.

Use "wood bricks" for door frames only and not for window frames.

GROUNDS.

Put suitable grounds around all openings, for base, etc., where required

FURRING.

Cross barr all ceilings throughout entire building with 1-1/2 X 1-1/2 inch furring strips securely nailed, put onto a true line and level, spaced 16 inches on center.

ROOF BOARDING.

Cover roof with 7/8 inch T. & G. boards laid dressed side down, tightly strained, securely nailed to each bearing, properly breaking joints. Boards to be free from shakes, and all knots to be tight and sound.

EXTERIOR FINISH.

All exterior finish of window and door frames to be of best quality clear white pine, hand finished and primed as soon as put up..

The cornice, balustrade around roof and cornice, balustrade of front entrance, columns, pilasters, and all exterior moulding will be of stone as heretofore specified and to conform strictly with detail drawings.

WINDOW FRAMES.

Provide and set all window frames throughout the building (except where otherwise shown) with double sash, to be as per detail drawings, frames to

be of best clear white pine, 1-1/8 inch thick, except pully stiles and part-
ing strips which will be clear long-leaf yellow pine, thoroughly seasoned.
Cut pocket in pully stiles. Pulley to have 21-2 inch extra heavy turned
steel wheel, with stationary gun metal axle; face plate to be bronzed and
project case on all sides. All inside window stops to be fitted with copper
finish, Ives (New Haven, Conn.,) or equal window stop adjusters, sunk flush
and securely fastened with round headed screws.

SASH.

All sash to be best quality clear white pine, kiln-dried; to be 1-3,4"
thick with 3-1/2" bottom rail beveled on inner lower edge and 11-2 inch lifed
meeting rail. Double sash to be hung with cord No. 8 or equal, and proper
weights to balance the same. Each lower sash to be fitted with two copper
bronze sash lifts and an approved sash lock.

UPPER FLOORS.

Upper floors of basement (not marked cement) and all floors of first
and second story to be laid at completion of other inside work, of 1-1/4"
T. & G. clear, straight grain, quarter sawed, long-leaf yellow pine, from
the Gulf States, showing 2-1/2" face, thoroughly kiln-dried, tightly strained
and blind nailed at bearings, and planed off and scraped at finish, but
joints of floor to be used under all other floors of same material as spe-
cified for sheeting of roof.

FLOOR FELT.

One layer of good heavy flooring felt, weighing not less than one pound
to the square yard, to be placed between the upper and lower floors of each
story.

INSIDE FINISH.

All the inside finish throughout the entire building to be of best quality quarter sawed white oak, of uniform color, and free from all defects; to be thoroughly clean and given one coat of finish as soon as placed in position. All the lumber used for the inside finish must be thoroughly kiln-dried, hand smoothed and sandpapered, and prepared as per drawings, put on in a thorough and workmanlike manner, in one piece where possible, without splitting. All nails to be set and smoothed for painter.

WAINSCOTING.

Wainscot the lobbys of the basement, first floor, the historic hall of second floor and the runs of the stair cases in connection with the small halls, connected with the stairs and lobbys. Wainscoting to be 3 feet high and to match other finish.

BASEBOARDS.

To be as per detail and to be used throughout the entire building (except boiler room) also over wainscoting and to match other finish.

CHAIR RAIL AND PICTURE MOULD.

To be as detailed, so as to match finish, to be placed in all office rooms, the latter to be placed in historic hall of second floor, of heights as may be directed by Superintendent.

DOORS.

The doors throughout the entire building to be of clear white oak, built solid, of material as specified for inside finish, of such sizes and styles as marked on drawings. All doors to be provided with turned cherry, rubber-moulded, finished door strips.

STAIRS.

Build, in the most substantial and workmanlike manner and in accordance with detailed drawings, the various flights of stairs. Stairs to be framed on 2 X 12 inch stringers not more than 18 inches apart, with 1-1/2 inch treads moulded with scotia, and 7 - 8 inch risers. Treads, risers, face and wall strings of oak, tongued together and both housed into wall string. All to be thoroughly wedged, glued, and fastened in a workmanlike manner. Newels, balusters and rails to be as per detail, of quarter sawed white oak.

HARDWARE.

Hardware to be selected by the Superintendent in charge and set by Contractor, who will allow for this in his estimate, \$3.00 each on the average, for the doors, \$1.00 each for windows and \$1.25 each for transoms, exclusive of putting in place. Contractor to supply in addition to this, all pullies, weights, cords, nails and other hardware required for construction. All door keys to be properly tagged and numbered, same as escutcheon.

LATHING AND PLASTERING.

Plasterer must go over interior work with Superintendent to see that all pipes and necessary conducts for wires are in, also that all studs and grounds are right, before commencing work.

All lathing throughout the entire building to be done with best quality heavy perforated steel lath, approved by the Superintendent in charge; to be securely nailed with proper staples for the purpose. This lathing includes all ceilings, girders, wood partitions, etc.

CORNER BEADS.

All plaster corners to be protected with galvanized iron corner beads, (Manufactured by the Union Metal Corner Co., of Boston, Mass., or equal,) securely nailed plumb and straight.

PLASTER

Plaster all walls, chimney breasts, pilasters, girders, straight arches, ceilings, etc., of the three floors, with two coats of mortar made by mixing one part King's neat Windsor cement with two parts clean, sharp sand, mixed dry, then add water, mix thoroughly and apply. First coat to be well scratched, then finish with a coat of King's Winsor Cement Ready Finish (or equal) and trowel to a true surface; said materials to be mixed and applied in strict accordance with instructions given by manufacturers of the same, to be found in each and every package. The material must be brought into the building in the original packages and no ingredients added. The ceiling of the boiler room and coal room to be plastered with one heavy scratch coat, only walls of same not to be plastered. All plastering to extend to sub-floor back of base and wainscoting. All openings of building to be enclosed during the progress of plastering until building is dry.

ROOFING.

The entire roof to be covered with 6-oz. copper, of large size sheets. All soldering to be carefully done with heavy soldering copper, using resin instead of acid. Entire roof to be covered with one layer of approved quality of heavy resin-sized sheathing felt. No tar paper to be used. Copper to be put down with standing lock joints cleated every 14 inches, the termination of joints and all horizontal seams to be soldered tight; flash roof into stone balustrade with 4-pound sheet lead of sufficient width to make a

positively waterproof job.

Form gutter as shown on plans, properly graded to each corner , where it will empty the down spout as shown.

DOWNSPOUTS.

Provide and build in corner of wall where shown, on drawings, a 5-inch cast iron hub and rim pipe, properly leaded together and connected with the gutter of roof and the lower end connected to the down spout drain heretofore specified; all to be positively waterproof, C. I. pipe to leave wall under the surface of the ground. In similar manner treat the drainage from the roof of the front entrance, of which the roof will consist of large flat stones, four in number, the joints of which will be leaded and the stone to be laid so as to give proper drain to each outlet as shown on drawings.

PAINTING, ETC.

All material and labor to be furnished by the Contractor, and to be the best of their respective kinds. All material to be brought to the building in their original package. All putty stopping to be neatly done, and knots and discolorations to be killed with shellac. All outside wood to be painted three coats of pure white lead of approved quality and pure linseed oil. Colors to be selected by Superintendent.

All interior finish to have one coat of orange shellac (made of 4 pounds gum to the gallon of alcohol) and two coats of Elastica No. 2 or Pratt & Sambart's No. 38 Preservative, or equal, each coat except last to be rubbed down with emery paper, and the last coat with hair cloth and pumice stone and oil. Pulley styles and parting strips to have two coats of pure linseed oil. Outside of sash to be neatly drawn in two coats of ivory black and oil, and inside finish same as exterior. Sash to be primed before glazing. Window and

door frames to be painted all around before placed in wall, except where natural oil finish; this to have one coat of shellac.

FLOOR POLISH.

All finished floors and stair treads to be filled with paste filler, to receive two coats of "Liquid Granite" (Manufactured by Berry Bros., Detroit) or equal, put on according to directions; the last coat to be rubbed and polished.

FRESCO PAINTING.

This will be done by the College and will not be included in this contract.

GLASS.

All glass throughout the building will be the best American, double strength, well bedded putty, secured in place with heavy zinc glazer's points, puttied in and left whole and clean at completion of building.

SPECIFICATIONS FOR PLUMBING.

The same general conditions attached to specifications for construction which will govern for plumbing where applicable.

DESCRIPTION.

The work covered by the specifications consists in furnishing all fixtures, piping, etc., and fitting up the four toilet rooms as shown on drawings, consisting of 11 water closets, 12 wash basins and 5 urinals.

The Contractor will pipe the building in the most approved manner, and all this work must be done in strict accordance with plans and specifications. The work to be left complete in all particulars, whether fully specified or not.

The Contractor will do all necessary excavating for pipes, etc., and re-fill all trenches, remove all surplus earth to a point as directed by Superintendent in charge.

The Building Contractor will do all necessary cutting, boxing and other wood work for plumbing.

SEWER CONNECTIONS.

The Contractor will furnish and lay all sewer pipe, connecting with the College sewer system at a point designated by Superintendent. Run a sewer to within five feet of the building, of 6-inch salt glazed, terracotta, hub-joint pipe, laid to a true grade of not less than 1/4 inch to the foot, and joints made tight with neat Potrland cement. Hub to be sunk below general level of trenches to admit of solid bearing for pipe. Cleaner to be run through every length of pipe as laid.

PLUMBING.

SOIL PIPE.

Furnish and set in place (as shown on drawing) of each toilet room. The basement toilets each to have a 6-inch extra heavy C. I. Coal-tar coated soil pipe. Those of the toilet rooms of first floor to be 3-inch pipes, all to be properly connected with waste pipes as may be be required. All fixtures to be secured with wrought iron hooks and hinges; all vertical lines to have suitable foundation at bottom, and to extend 30 inches above roof boards be-

fore he finishes his work. Pipes, before passing through roof boards, to be increased in size two inches, and opening through roof to be protected by a sleeve of copper as per roof cover. All the stacks to be connected into a main cast iron pipe of proper size, which will be connected into terra cotta sewer, 5 feet outside building.

BOILER BLOW-OFF DRAIN.

Provide and properly set in concrete floor of boiler room and also toilet room floors, where shown, a ten inch diameter combination floor drain and trap with solid and perforated covers, and with 3-inch outlet, similar to p. 32i J. B. Claw & Sons' catalogue, 1902; drain from the three traps to be three inch, extra heavy C. I., carried about 5 feet outside building, and connected with down spout drain.

SERVICE PIPE.

The supply to the building to be of 2-inch galvanized iron pipe, connected with College main, as designated by the Superintendent, using four corporation cocks with proper lead necks and cold water connection (Fig. H - 37,) and brought inside cellar with stop and waste and compression base-bib on inside, and then by one inch main to each of the toilet rooms, with 3/4 inch connections to heating boiler. No pipes or other fixtures as may be required shall be less than 3/4 inch in diameter. All brass fixtures and connections exposed to view to be finished. Where pipes pass through floors or partitions, they shall be provided with nickel plated flanges. All stops to be compression. Air chambers to be provided and placed on water supply for each fixture as required. All joints between lead and cast iron pipes to be made with brass sleeves wiped to the lead pipe and caulked with alum and molten Lead in hub.

Lead pipe joints to be wiped. Hand-hole with brass trap to be screeded to place at the ends, and changed in the direction of soil and waste pipe.

Where nickel-plated brass supply pipes is specified, it will be of same thickness and weight as iron pipe of similar size. All pipes to be secured with brass strips.

The plumber will be held responsible for improper protection. He shall leave the job complete in all particulars and remove rubbish at completion of the work.

VENTS.

All traps except water closet to be ventilated. The ventilation pipe shall be of the same cross section as the trap and discharge pipe belonging to that fixture; ventilation pipes three inches and under to be of galvanized wrought iron, and to be connected into soil stack above highest fixture.

The entire plumbing system, including vents, must be thoroughly tested with water, and all faulty places repaired.

WASH BASINS.

Supply and set up in each toilet room, as per drawings, 15 X 19 inch oval patent overflow sanitary earthenware basin with N. P. chain stay, and plugged with rubber stopper. Basin to be set in 11-4 inch polished marble, countersunk slab 22 X 32 inches, 14 inch marble back and ends, where shown, 5-inch apron pieces, and the following nickel-plated brass trimmings. No. 4 Fuller basin cocks or equal; Brass legs with apron holders; ideal trap with 11-2 inch waste to floor and vent to wall supply pipe to floor with bell air chambers, and N. P. compression stop cock to each near floor and floor flanges. All similar to Fig. R.-34, J. B. Clow & Sons' catalogue 1905, or equal.

WATER CLOSETS.

Furnish and set up where shown, oval, sanitary earthenware siphon jet closet with concealed jet pipe, with N. P. straight flush pipe to tank with proper connection to bowl by N.P. slip joint, and to have thick, cabinet finish oak seat and lid hinged to bowl with N.P. extending across back. Closet to have lead connections to soil pipe, soldered to brass flange, and to be bolted to floor using a rubber gasket. Tank to be cabinet finished oak, 23 X 12 X 15 inches, lined with 12-oz. copper, to hold water sufficient for three successive flushes without refilling; to be fitted with flushing valves of the float type and so constructed that the quantity of water discharged for each flush can be regulated; tank to be operated by N. P. linked rod with wall guide and cut glass pull, and to be connected to water supply by a 1-2 inch N. P. to floor with flange and stop cock near floor. All equal to Fig. M - 59 J. B. Clow & Sons' Catalogue, 1905.

URINALS.

Furnish and set up where shown, sanitary earthenware flat back and lipped urinals, size 15 X 18 inches, with nickel plated inlet connection, and N. P. trap with trap screw (Fig. N-107, J.B.Clow & Sons' catalogue, 1905, or equal.) Back, sides and top of stalls to be of slate, 7-8 inch thick, counterstruck and grooved to rear; floor slab to be laid on a bed of Portland cement on top of sub-floor. The back of stall to be set out from wall four inches, and the end slab to be wide enough to close up the end space. All slate to be secured with N. P. clamps. Opening at top to be closed with slate slab, secured in place. Round all exposed edges of slate and oil slabs at completion. Urinal to be thoroughly secured to slate backs of stalls and provided with 10 gallon oak tank, lined with 12-oz. copper; to be automatic flushing with regulating valve, and to rest on heavy N. P. brackets secured

to wall. Supply pipe to tank to be 3-4 inch strong lead flush pipe, exposed to view; to be 1 1/2 inch N. P. with unfinished brass connections to rear slab. Waste connections to be 1 1/2 inch 4-pound lead pipe, properly vented and connected with main 3-inch cast iron pipe.

SPECIFICATIONS FOR STEAM HEATING.

The general specifications for construction, will govern the steam heating, in so far as applicable.

The work covered by these specifications embraces the furnishing and putting in of steam heating apparatus, complete throughout the entire building. The system will be arranged for one-pipe low pressure circulating system, except for the basement radiators which will have a return pipe as shown on drawings. The steam is to be directed from boiler located in cellar, and to be furnished to radiators through a system of pipes. The system, when complete, must have perfect circulation of steam and return water from all parts with one pound pressure, and to be entirely free from all hammering and cracking noises when in operation.

The Contractor will furnish and set complete in cellar, one wrought iron return flue steam boiler of approved pattern equal to the Dunning, manufactured by the New York Central Iron Works Co., to be fitted for soft coal, of not less than 2500 square feet capacity, at a ratio of heating surface to radiation surface of 1 to 6. Boiler to be enclosed in a casing of galvanized iron, with a sheathing of heavy asbestos paper. Boiler to be provided with the necessary castings, including base, grate, fire door, frame, soot doors, check draft, fire chimney, shaker, etc., to have fusible plug in

crown sheet. The boiler will be provided with improved rocking and dumping grates of heavy pattern, as approved by Superintendent, furnished with lever handle.

BOILER FIXTURES.

Furnish and attach to boiler all the necessary fixtures, consisting of steam gauge, water gauge, gauge cock, safety valve, automatic damper regulator, tools required, water connection, blow-off smoke pipe, etc.. All to be of the best make and of approved quality. The boiler will be tested to 100 pounds cold hydrostatic pressure before leaving the shop. Certificate of this test must be furnished.

CONNECTING PIPES.

The above described boiler will be connected to the radiators throughout, by means of one-pipe circulating system, with relief pipes where shown on drawings, and of the sizes marked. Run steam main from top of boiler, along ceiling of basement, graded in direction of flow of steam, and not less than one inch in ten feet. Drop main to floor where shown. All the branches to be taken off from top of steam main, with elbow and nipples. The connections between radiators and risers to be made above floors where possible, with a good fall toward risers. All pipes to be graded toward outlet without forming any traps.

VALVES ON MAINS.

Provide suitable brass gate valves for feeds and return pipe as shown. all pipes to be so constructed as to allow for contraction and expansion.

All pipes will be suspended with suspension pipe hangers of approved pattern. All risers will be put together with right and left couplings, at places on the main supply and return located flange unions, made tight with combination copper and asbestos gaskets. Arrange these connections so that any part of the apparatus can be disconnected without injury to the balance. All risers will be run with off-set fittings, so that the pipes will be about 2 inches from the walls. All pipes used will be new, of the best and of standard weights and sizes, all over 1 1/4 inches; to be laid welded. All pipes must have burr removed from ends. No bending of pipes will be allowed where fittings can be used. All fittings used in this work will be of standard size and weight, fine grained, gray cast iron, with double head and clear cut threads. All joints to be made with taper threads, iron in iron. Use no paint or cement.

HEATING SURFACE, ETC.

All rooms will be heated by direct radiation unless otherwise shown. The direct radiation will consist of ornamental cast iron Italian flue or 3-column Rococo radiators, or equal; of standard weights, and 33 inches high, where not shown otherwise, and of sizes as shown on plans. Sections to be put together with heavy right and left screw nipples. Radiators to be of such sizes and location as shown on plans. Each radiator will be operated by one Jenkins Bros. Diamond brand valve, or equal, with unions of proper size; valves will be of the best steam metal, extra heavy, finished with rough body, heavily nickeled, and provided with polished hardwood handles. All radiator valves to be offset or corner valves where required, and will be connected to the heaters by ground brass, nickel plated unions, so that any one radiator can be disconnected without reducing steam pressure

or interfering with the balance of the apparatus. Each radiator will be provided with a No. 6 Perfected Duplex Automatic air valve (Manufactured by the Monash Yonker Mfg. Co., Chicago, Ill.) or equal. All radiators will be finished in aluminum bronze. All pipe castings, etc., in basement, to be painted with two coats of galvanic varnish, manufactured by the Chicago Fire-proof Covering Co., or equal. All pipes exposed in rooms will be painted to match radiators. All work to be done in neat, substantial and workmanlike manner. The apparatus, when completed, to be thoroughly tested and left in perfect working order, to the entire satisfaction of the Superintendent.

SPECIFICATIONS FOR ELECTRIC LIGHTING.

The general conditions attached to specifications for construction will govern the electric lighting where applicable.

The work covered by these specifications consists in furnishing all material and installing a single tube, duplex wiring system for incandescent lights, with outlet boxes and distribution tablets complete, ready for attachment of fixtures and service wires.

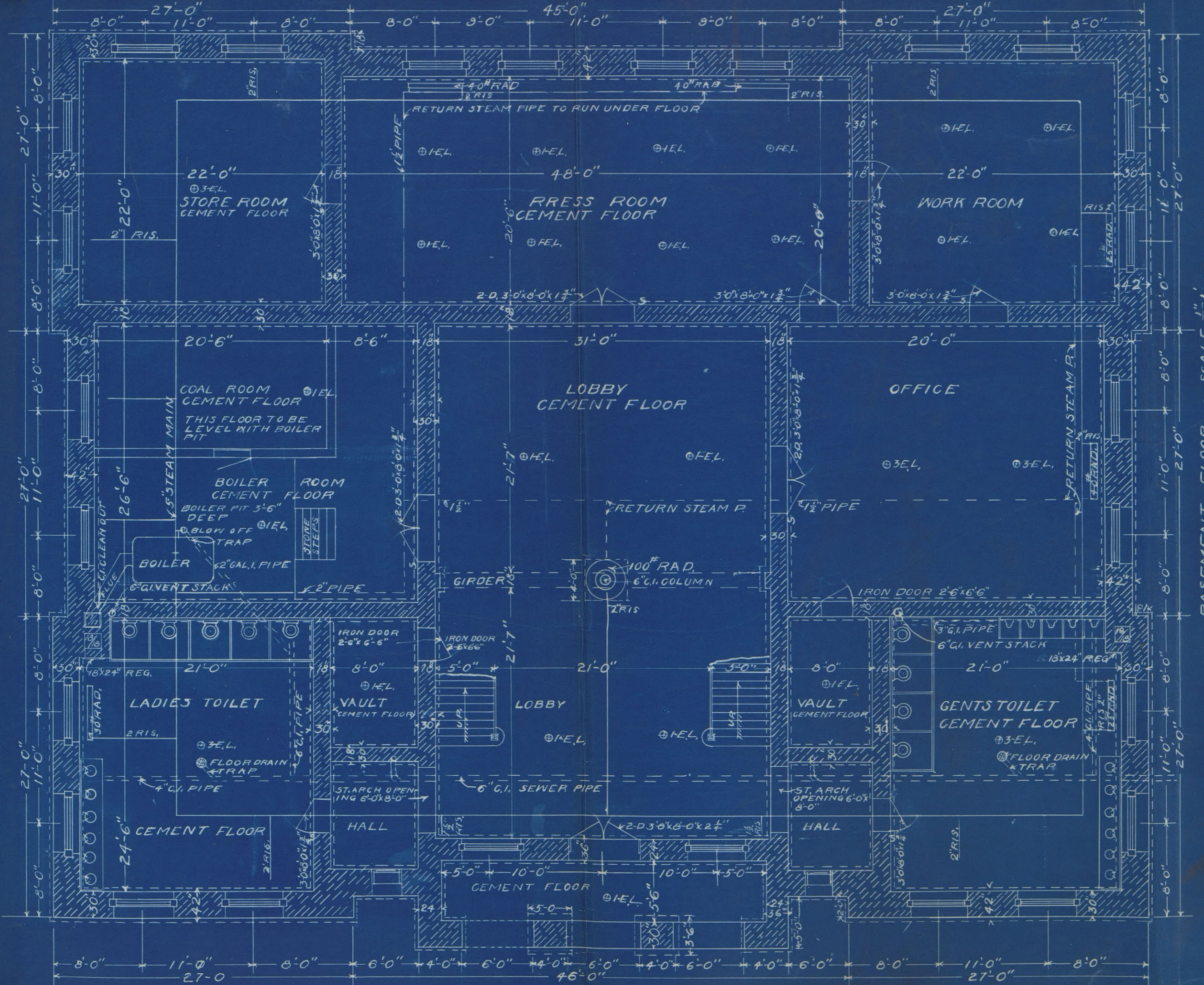
All work to be done in the most approved manner, in accordance with the National Electric Code, and subject to the inspection and approval of the Superintendent in charge. The system must test free from all grounds. In hall of first floor will be placed a distribution box, with trap for each office and halls, with meter loop and a separate bus-bar with taps for all other lights in this section, and also for porch lights, with one meter between the feed wire and this bus-bar. The outlets and number of lamps will be shown on plans. The lamps to be used will be 16 C.P., 110 volts, and 55 watts.

DISTRIBUTION TABLET.

Furnish and place in first story lobby, where directed, a Bassert, or equal, distribution box and tablet, set flush with face of plaster, five feet above floor. The box to be of rough steel, slate lined, with glass cover set in steel frame with lock, and to have the necessary number of taps, to accommodate distribution as mentioned above, allowing not more than six amperes on any one trap. Tablets to be of marble or slate, to have bus-bars of proper carrying capacity, and a double pole baby knife switch for each trap and circuit, with fuse studs and fuse between switch and trap circuit legs, each switch to be carefully lettered or marked to designate the circuit controled by same.

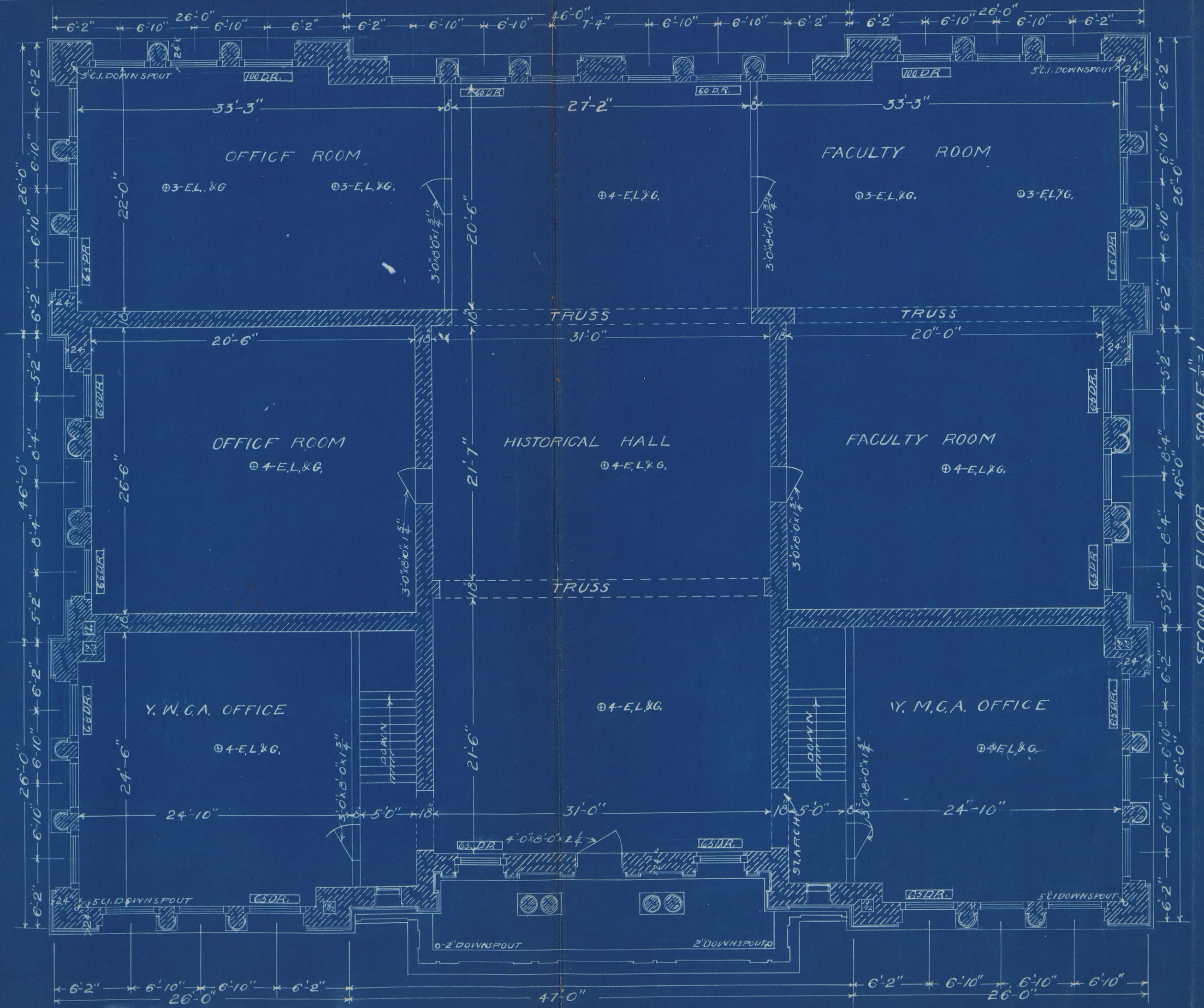
INSIDE CONDUIT.

For each circuit from distribution box, run interior conduits, with steel outlet boxes, with proper support for fixtures, as per plans and schedule. Interuor conduits will be loricated drawn steel pipes, Armorduct, Clinton or equal, of sufficient size to allow wires to be readily drawn down in or taken out. Change in direction to be long, easy bends, and no right angle elbows or short bends will be allowed. All conduits to be concealed. The Contractor will do his own cutting and boring.



BASEMENT FLOOR SCALE 1/8" = 1'

THESIS:
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 FOR THE
 K. S. A. C.
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 ARCH. STUDENT - CLASS OF 1906.



SECOND FLOOR SCALE 1/8" = 1'

THESIS:
 SUBJECT
 FOR THE
 M.S.A.C.
 MANHATTAN, KANSAS
 ARCH. STUDENT-CLASS OF 1906



FRONT ELEVATION SCALE $\frac{1}{8}'' = 1 \text{ FOOT}$

THESIS:
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 K. S. A. C.
 MANHATTAN KANSAS
R. B. Samman
 ARCH. STUDENT - CLASS OF 1906



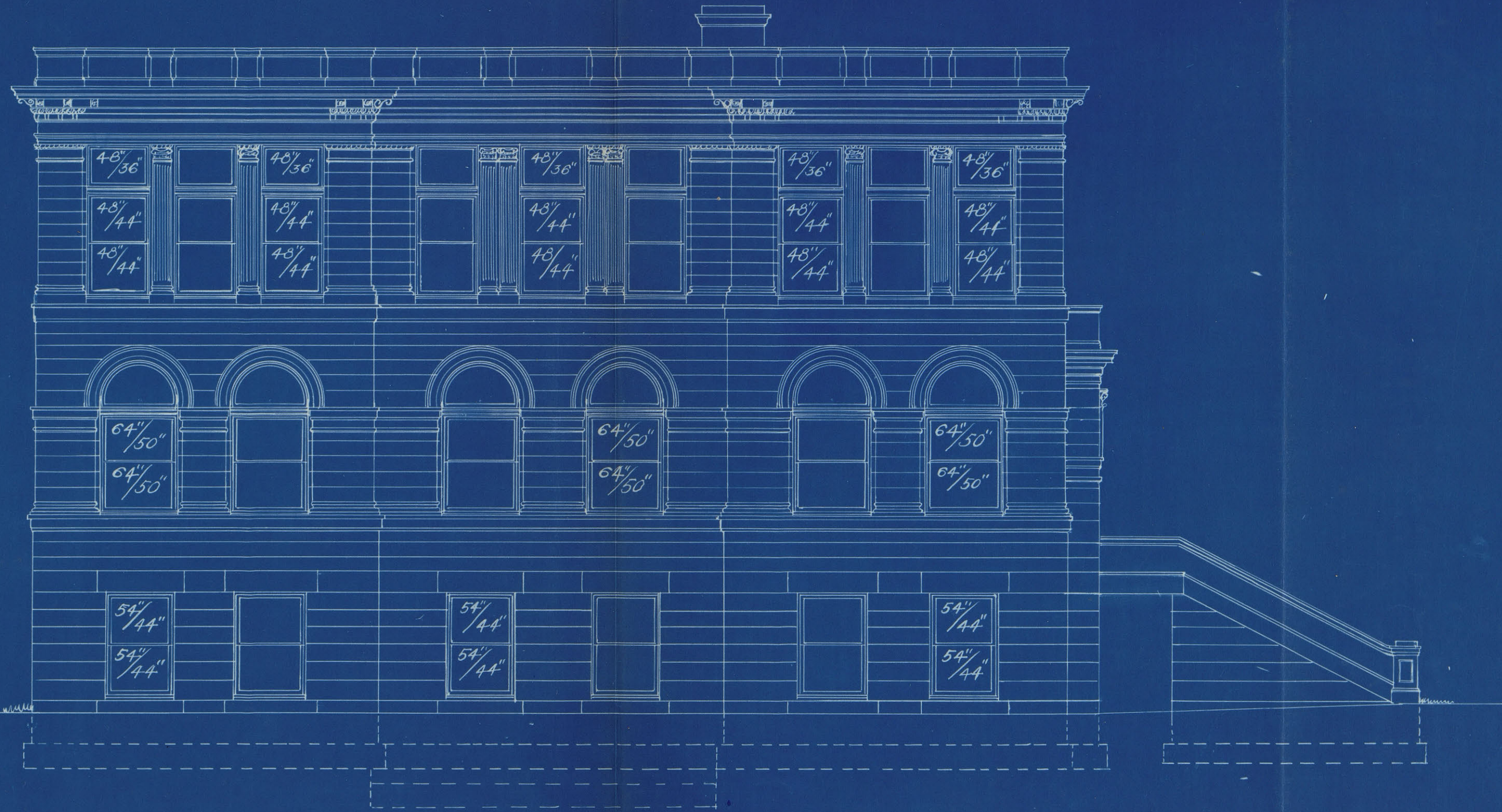
REAR ELEVATION SCALE $\frac{1}{8}'' = 1'$

THESIS
 SUBJECT
 AN ADMINISTRATION BUILDING
 FOR THE
 K.S.A.C.
 MANHATTAN KANSAS.
R.H. Sammons
 ARCH. STUDENT - CLASS OF 1906



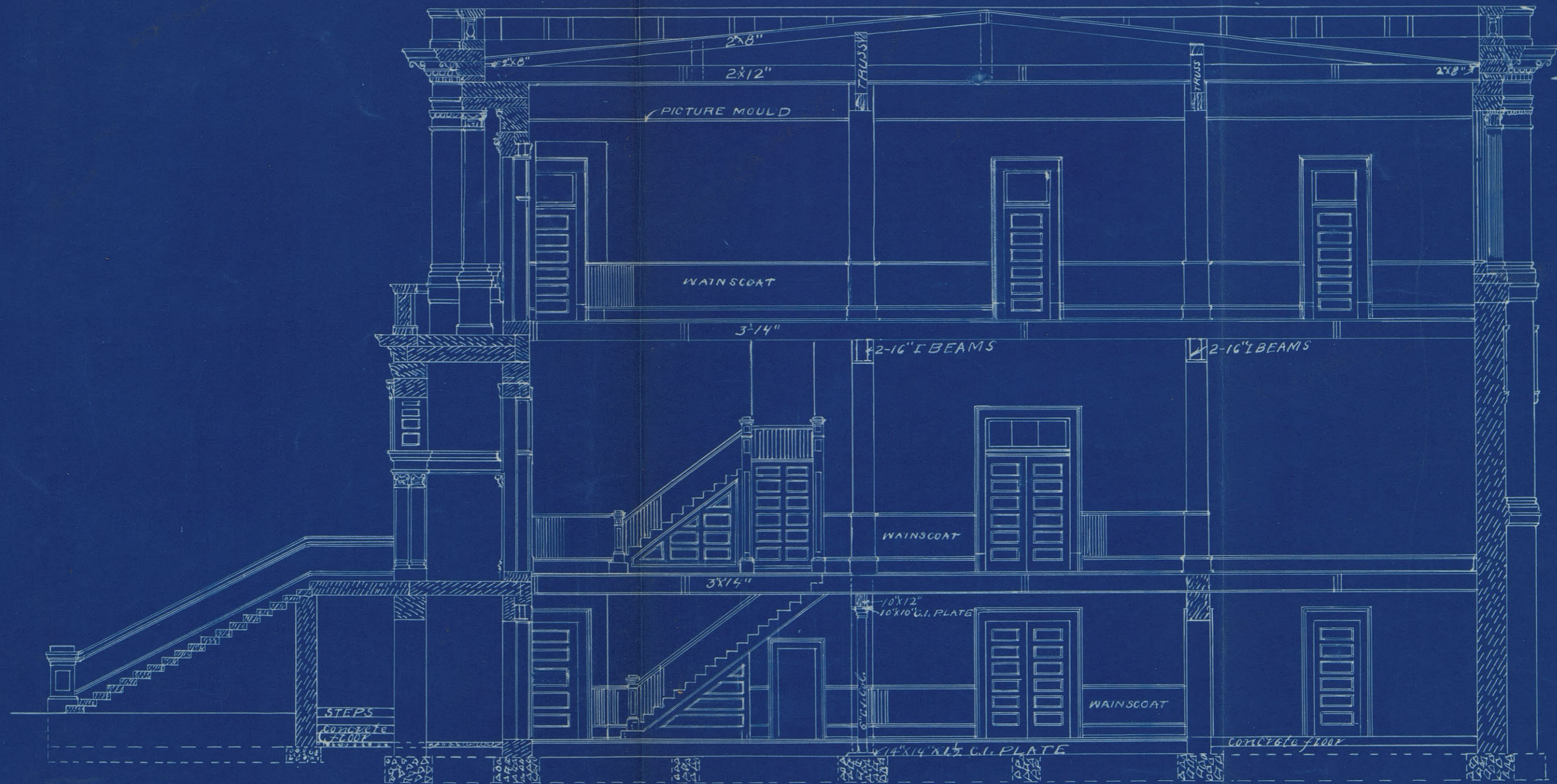
3 SIDE ELEVATION SCALE $\frac{1''}{8} = 1'$

THESIS:
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 AN ADMINISTRATION BUILDING
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 K. S. A. C.
 MANHATTAN, KANSAS
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SIDE ELEVATION SCALE $\frac{1}{8}'' = 1'$

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 MANHATTAN, KANSAS.
W.A. Sammons
 ARCH. STUDENT - CLASS OF 1906.



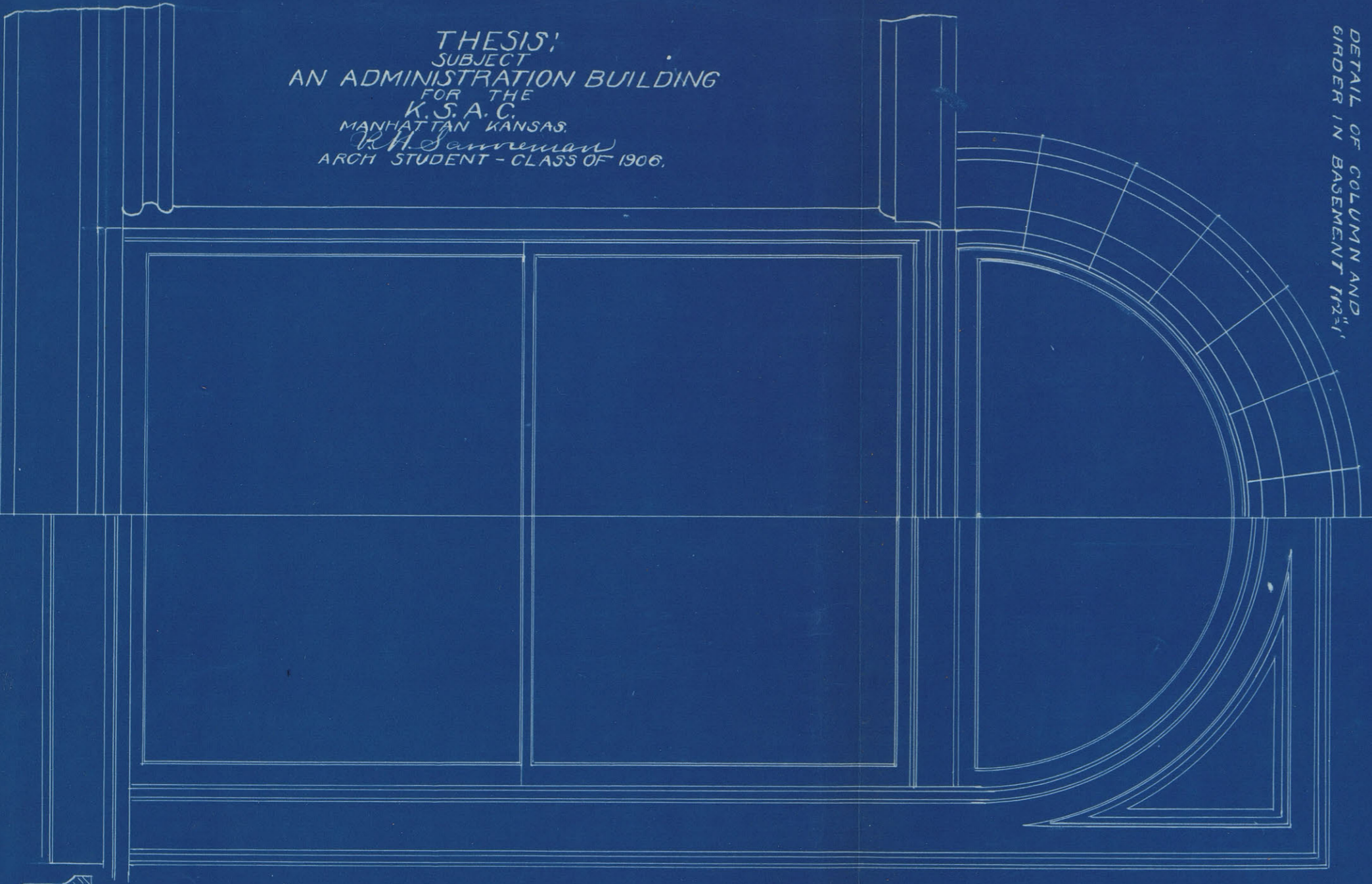
SECTION

SCALE $\frac{1}{8}'' = 1'$

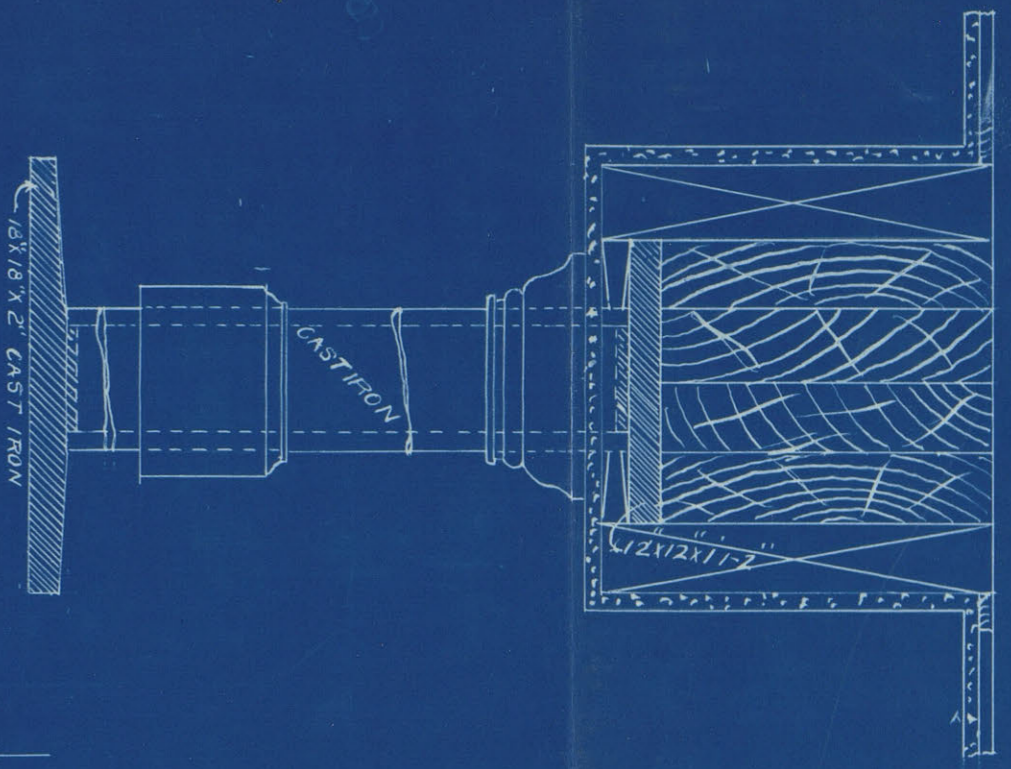
THESIS:
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R.H. Sammenan
ARCH. STUDENT - CLASS OF 1906.

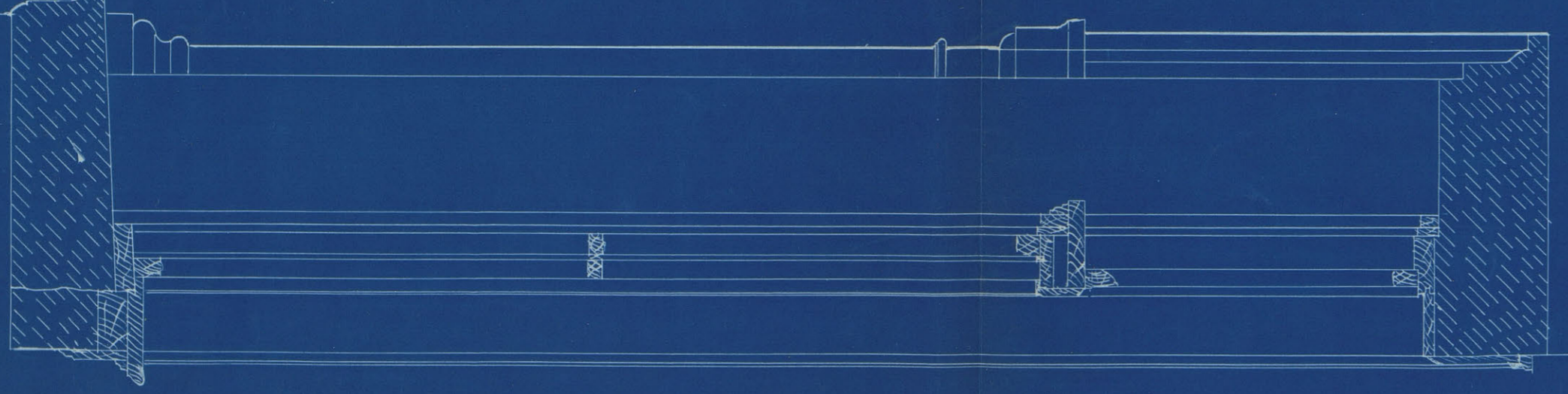
DETAIL OF WINDOW SCALE 3/4"=1'



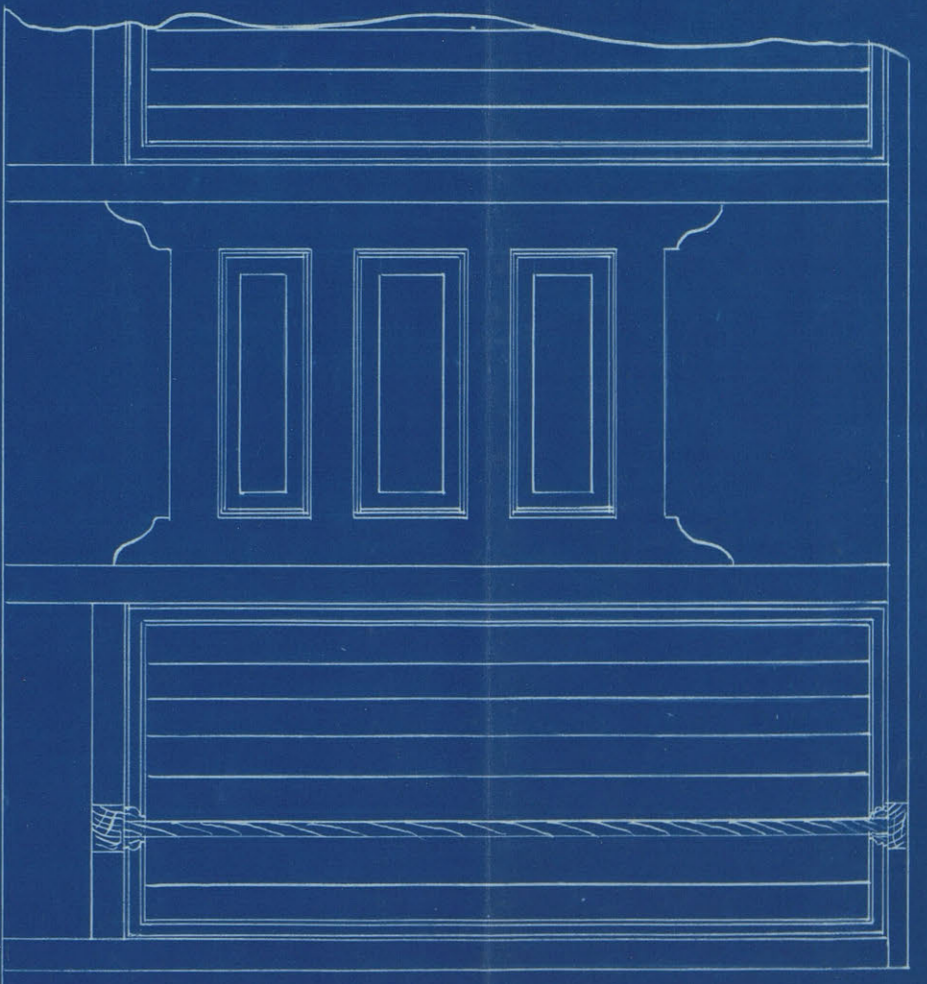
DETAIL OF COLUMN AND GIRDER IN BASEMENT 1/2"=1'

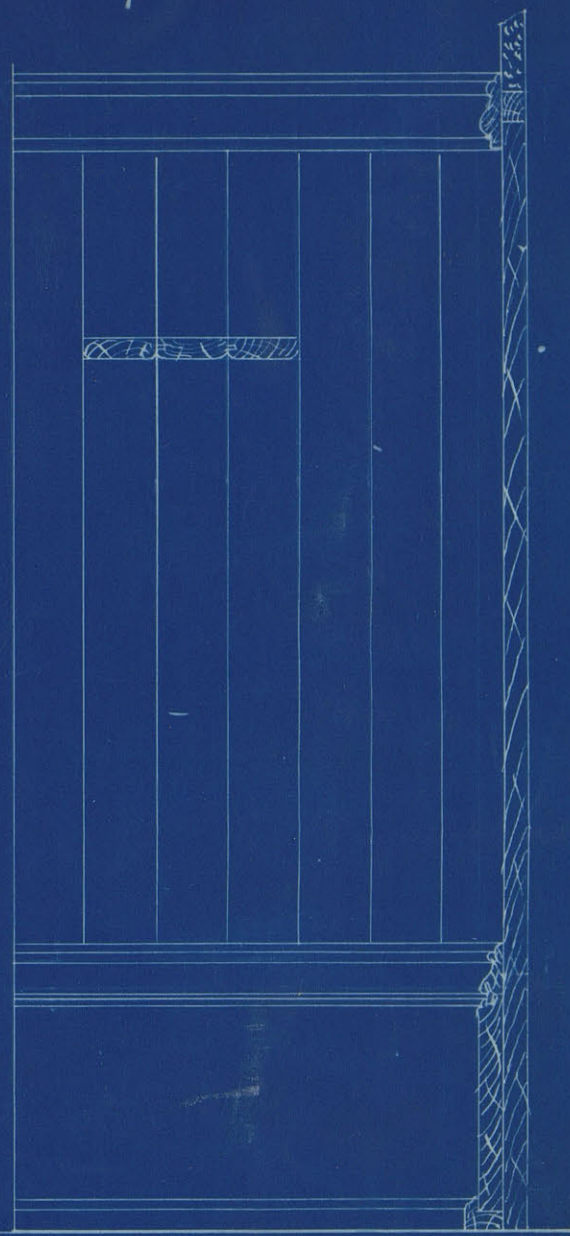


SECTION



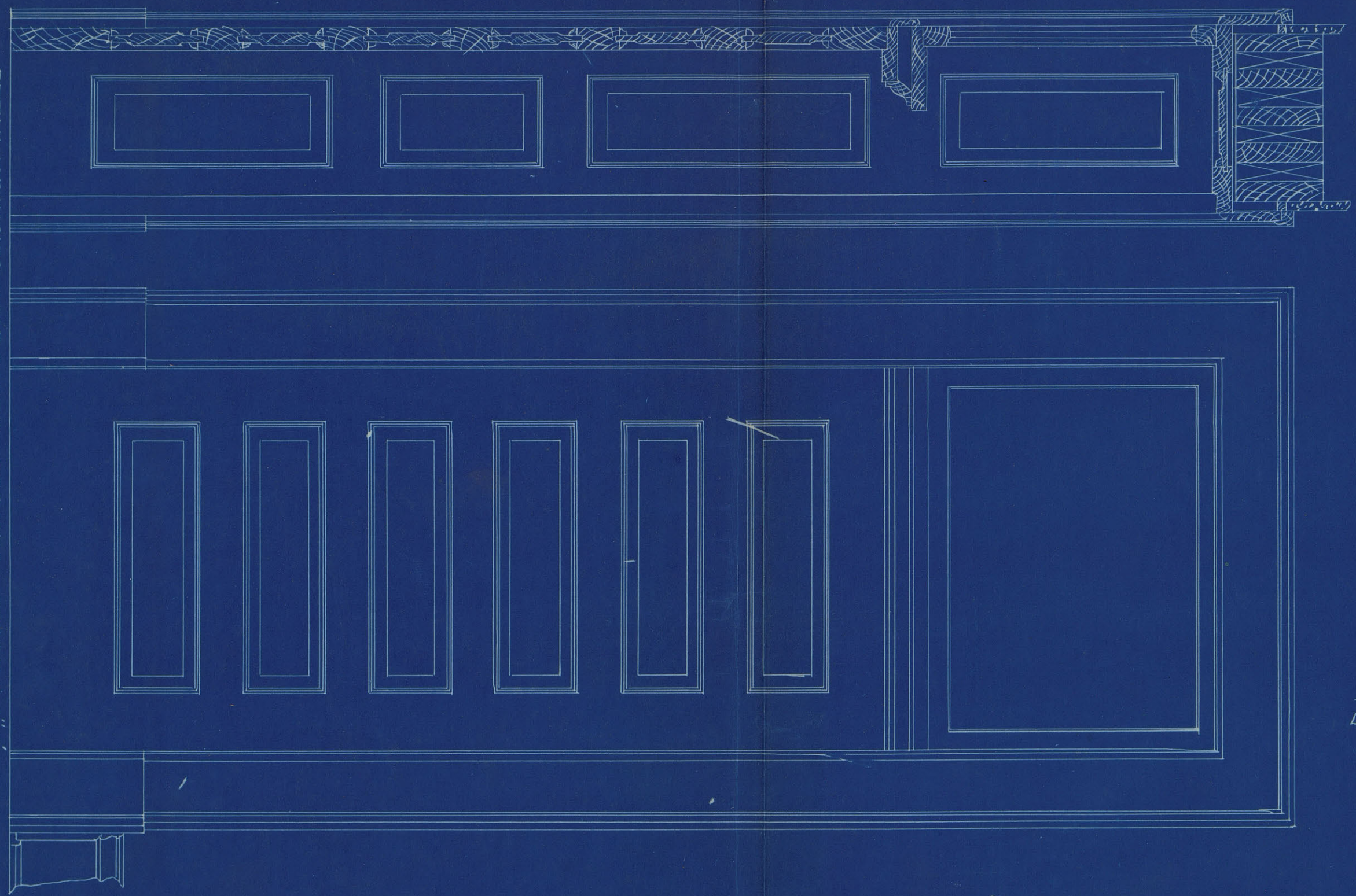
DETAIL OF WATER CLOSET STALLS 3/4"=1'



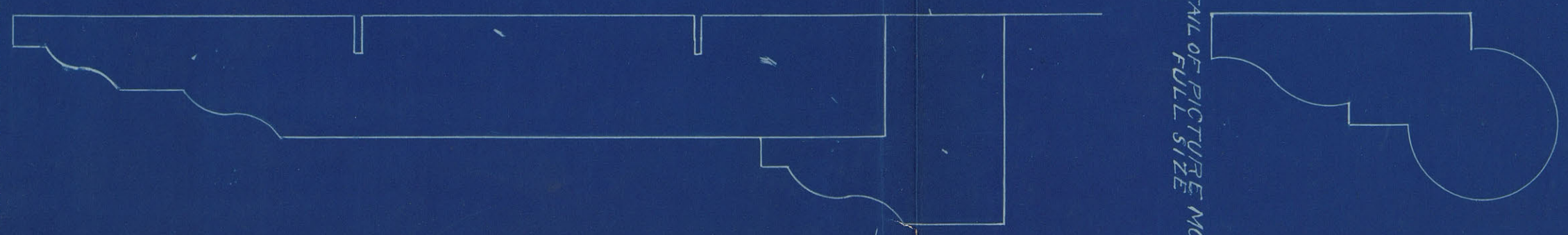


DETAIL OF WAINSCOTING; SCALE 8"=1'

THESIS;
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 AN ADMINISTRATION BUILDING
 FOR THE
 K. S. A. C.
 MANHATTAN, KANSAS,
 JOHN Q. GASTNER
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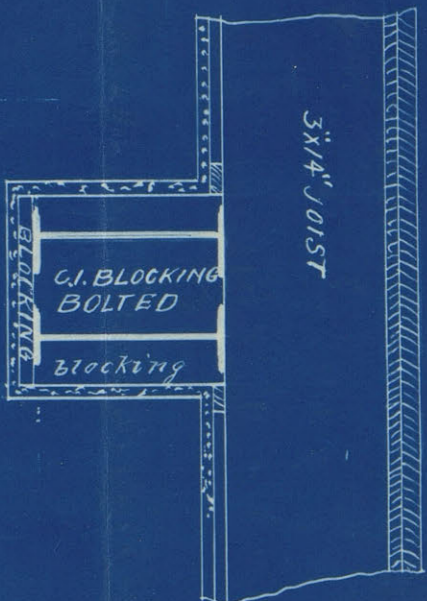
DETAIL OF INSIDE DOORS AND FRAMES. SCALE 3/4"=1'



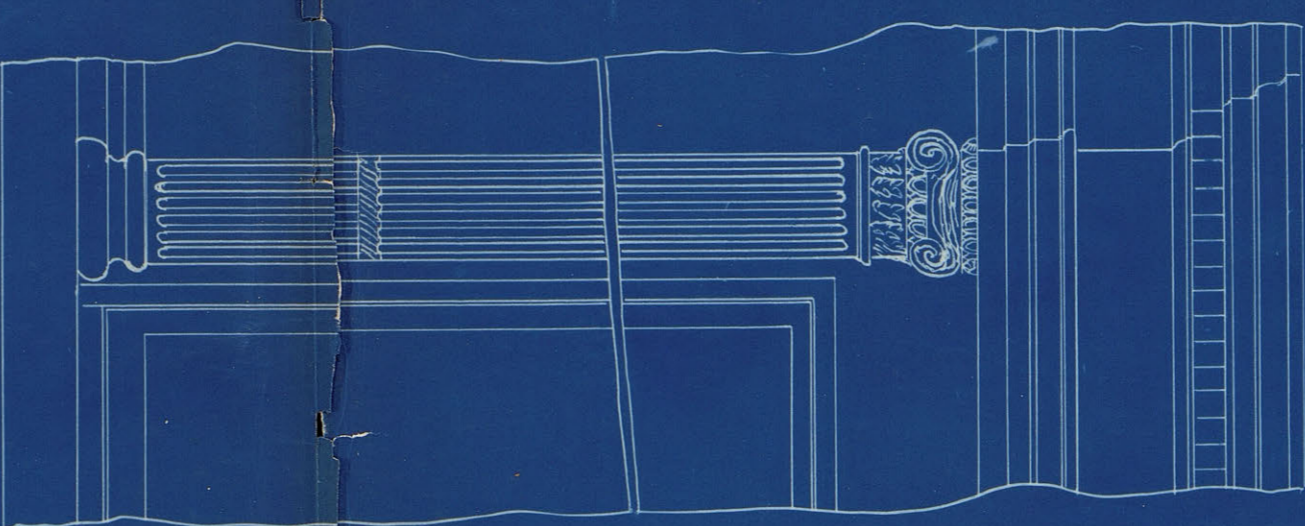
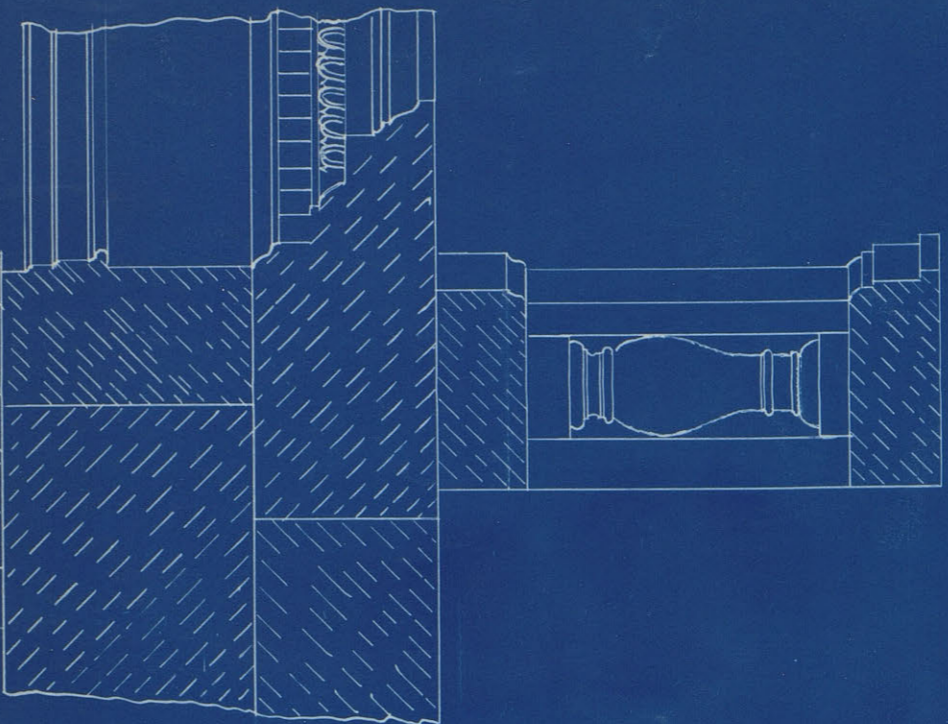
DETAIL OF PICTURE MOULD
 FULL SIZE

DETAIL OF CASING
 FULL SIZE

THESIS:
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AN ADMINISTRATION BUILDING
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 K. S. A. C.
 MANHATTAN, KANSAS.
 By, *Samuel L. ...*
 ARCH. STUDENT - CLASS OF 1906.



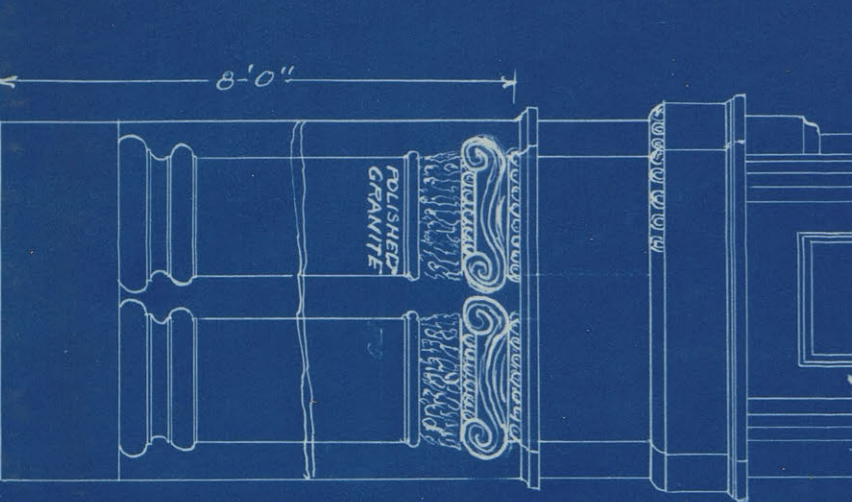
DETAIL OF GIRDER IN FIRST FLOOR LOBBY
 AND FACULTY ROOM SCALE 3/4"=1'



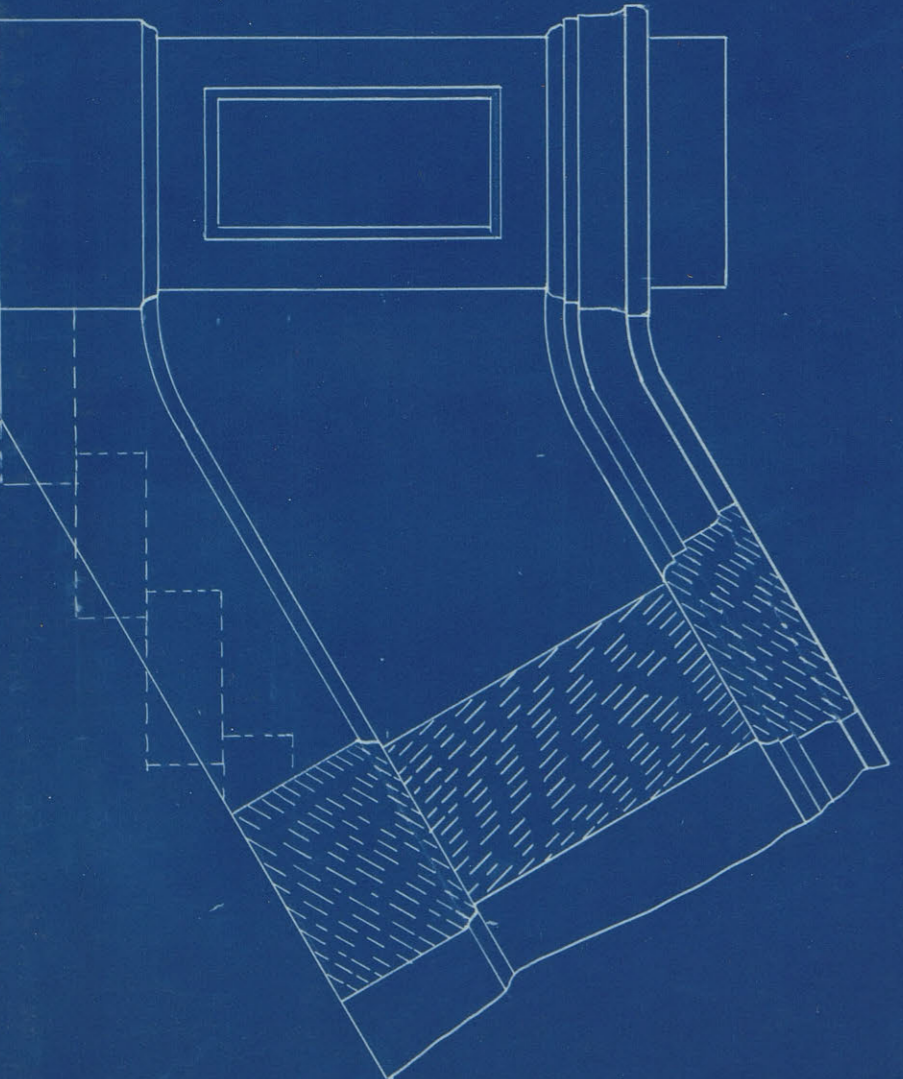
EXTERIOR FINISH OF FRONT WINDOWS
 SECOND FLOOR SCALE 3/4"=1'



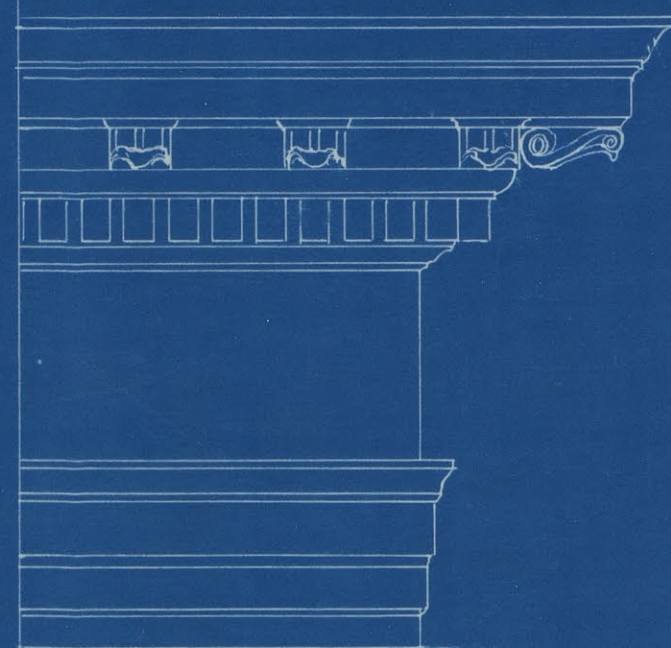
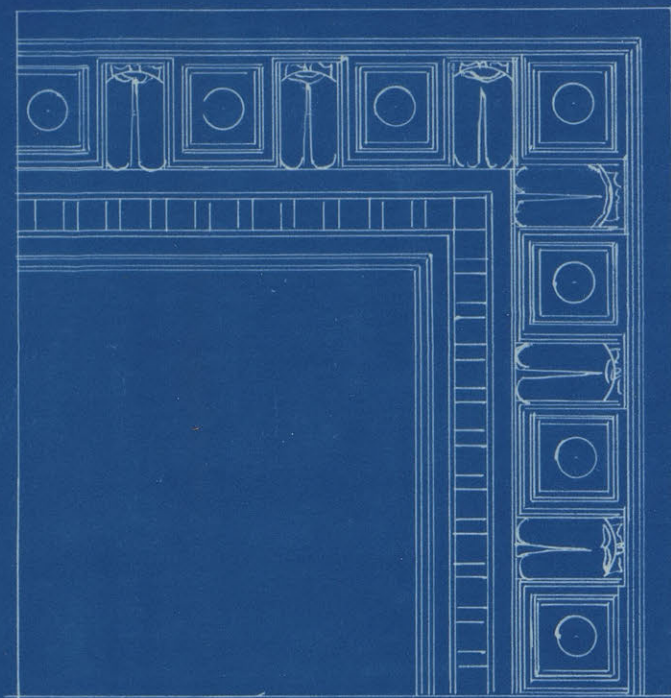
SECTION THROUGH FRONT DOOR
 SCALE 3/4"=1'



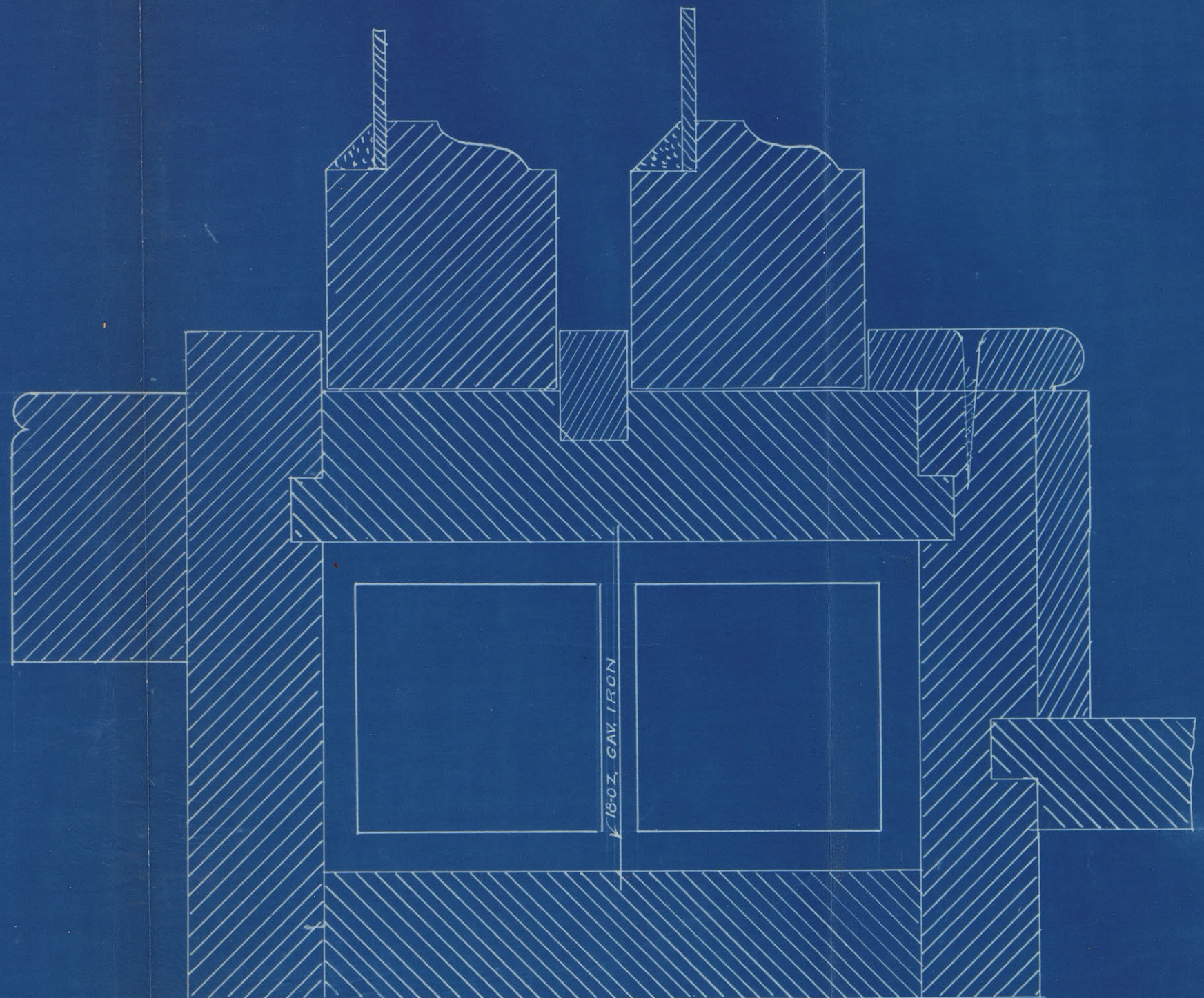
SECTION THROUGH FRONT ENTRANCE WALL.
 SCALE 3/4"=1'



DETAIL OF OUTSIDE STEPS, RAIL AND NEWEL.
 SCALE 3/4"=1'

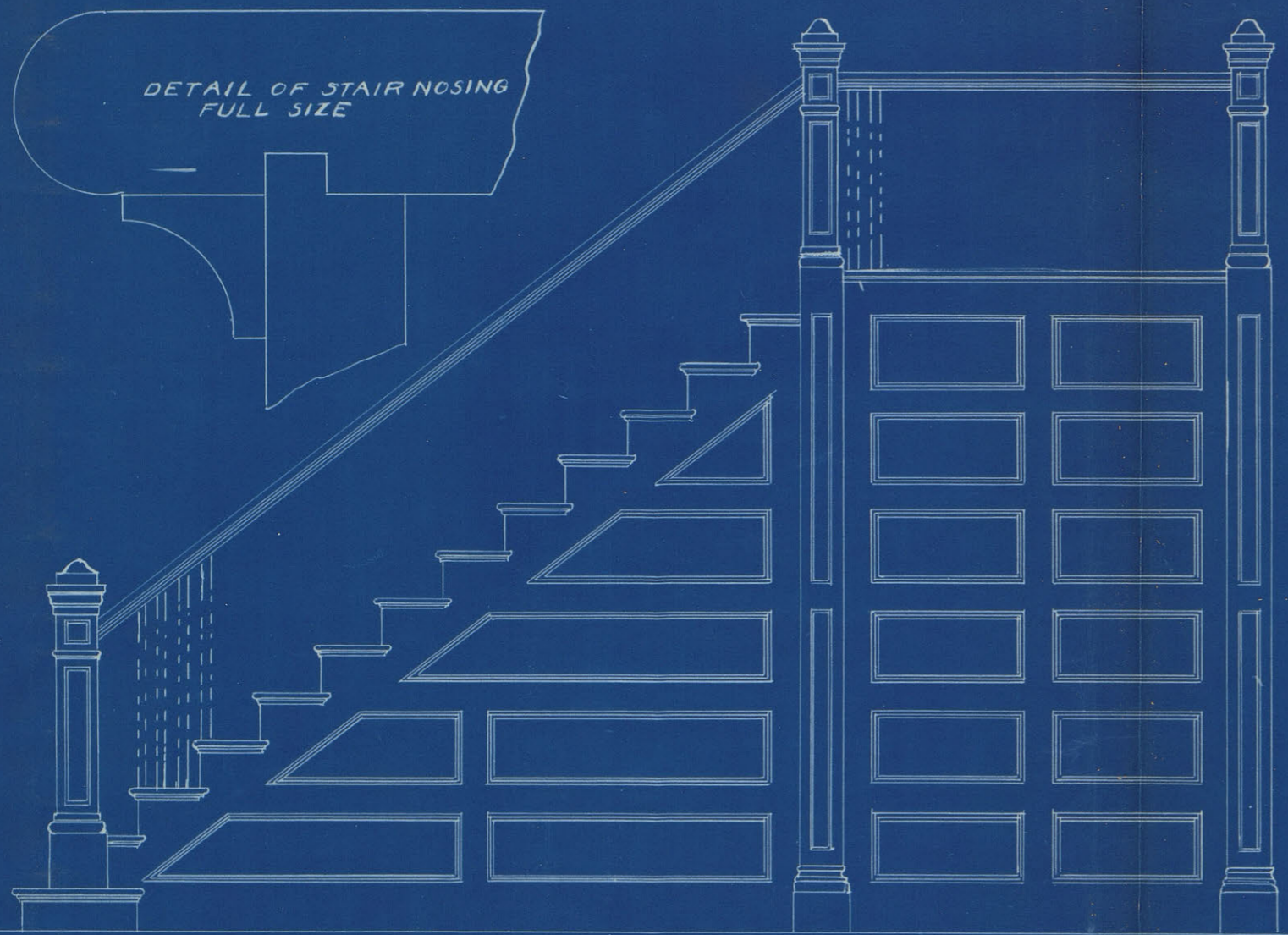


DETAIL OF MAIN CORNICE - SCALE 3-4"=1'

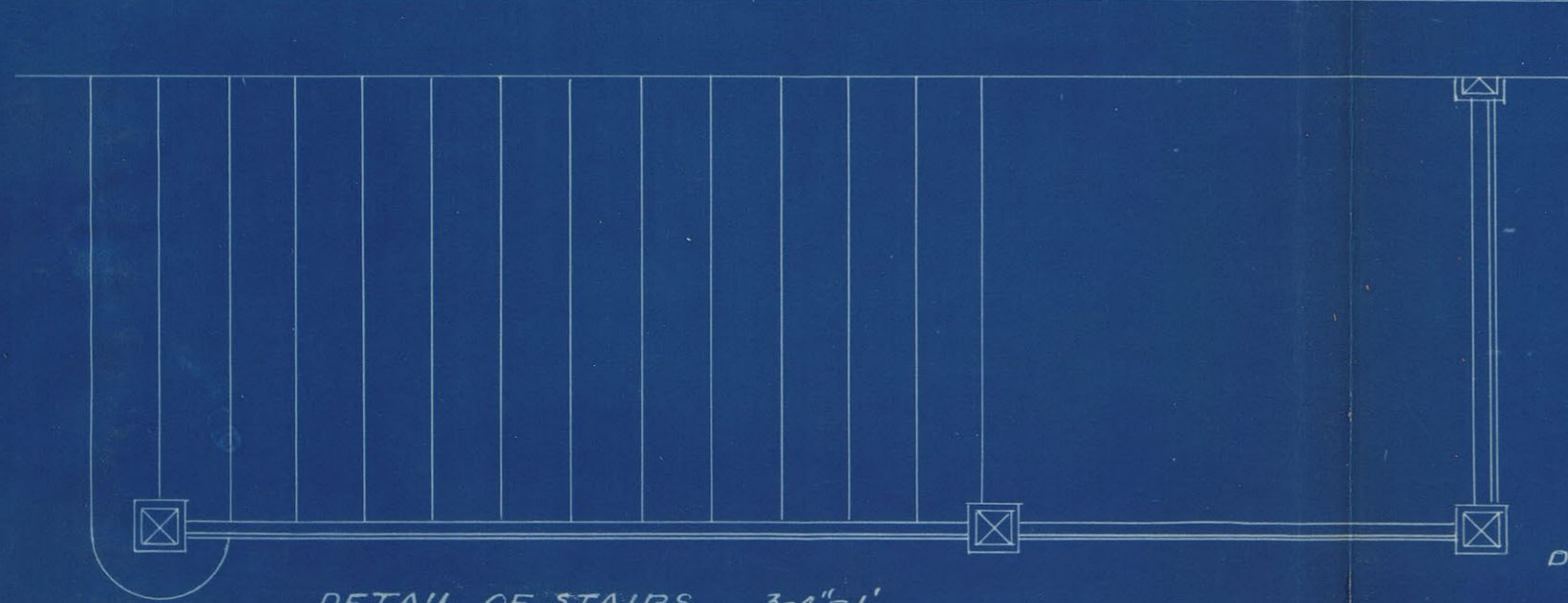


SECTION OF WINDOW FRAME - FULL SIZE

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W. H. Samsen
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DETAIL OF STAIR NOSING
FULL SIZE



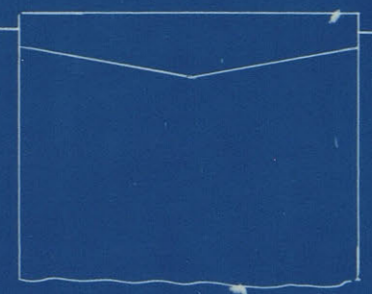
DETAIL OF STAIRS 3-4"=1'



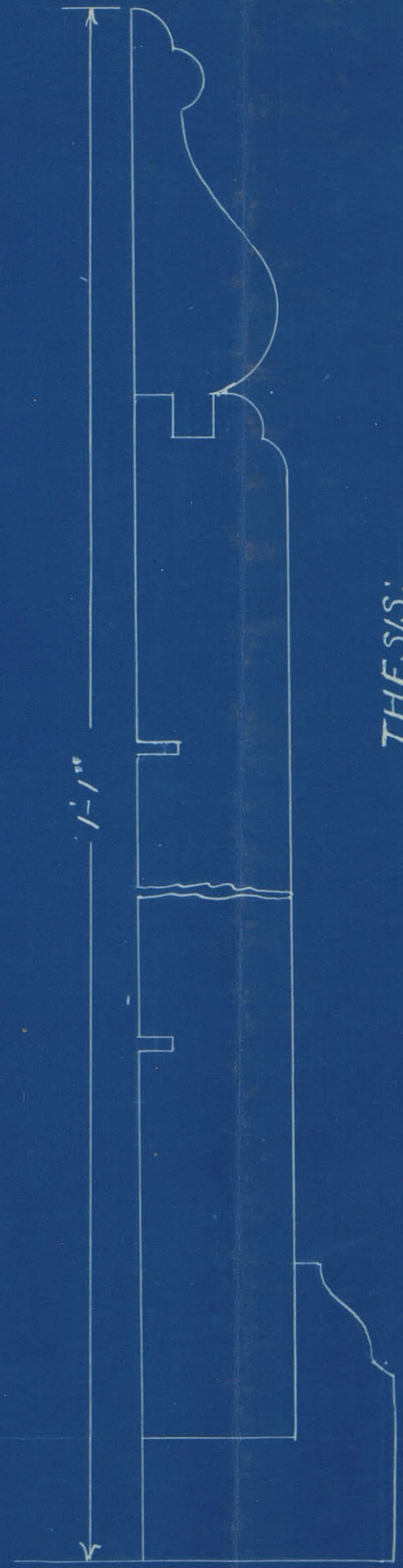
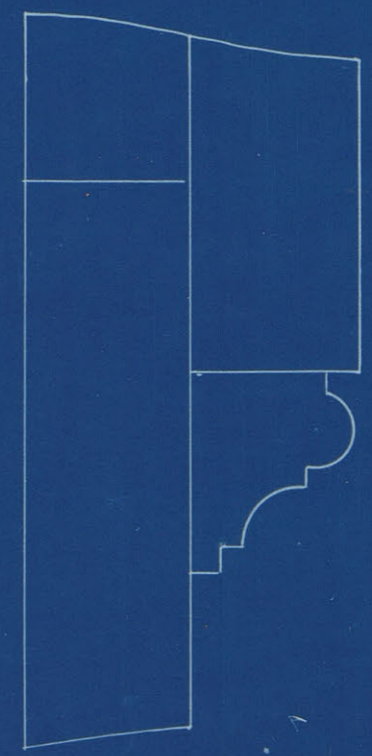
DET. OF BAL.
3-4"=1'



DETAIL OF HAND RAIL
FULL SIZE

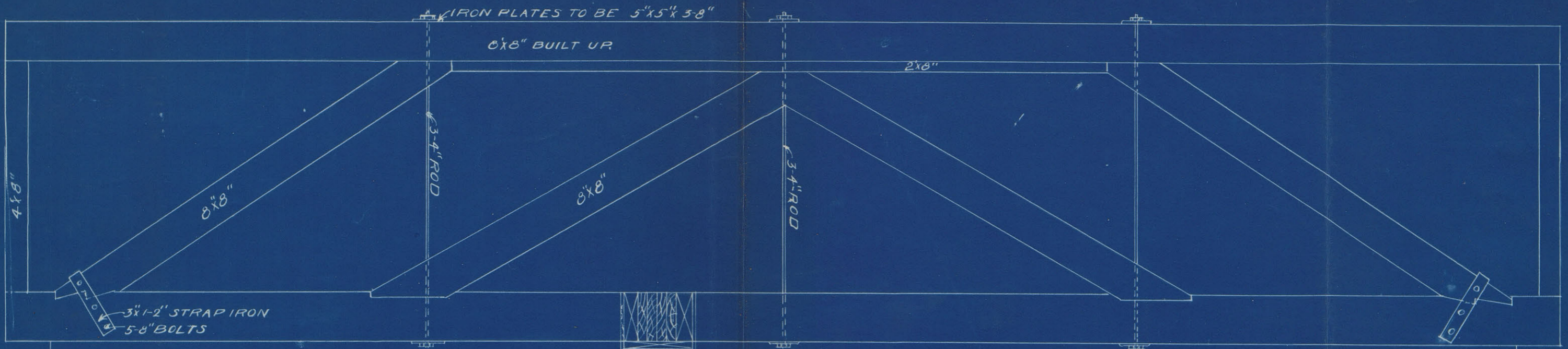


DETAIL OF PANEL FINISH
FULL SIZE

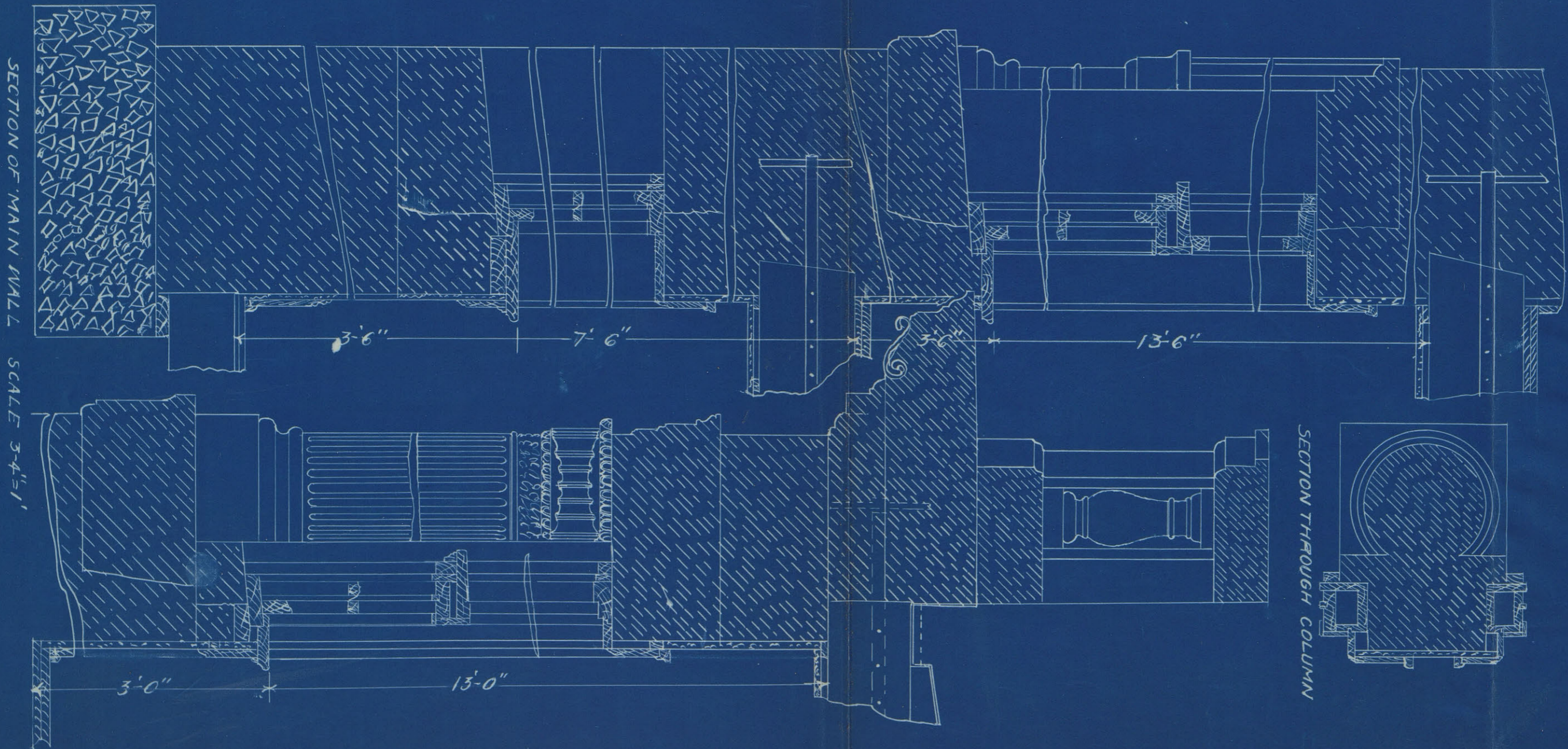


DETAIL OF BASE BOARD
FULL SIZE

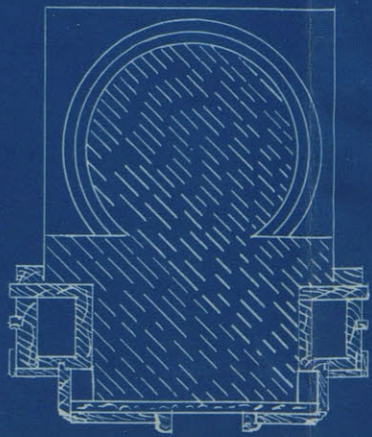
THESIS:
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 K. S. A. C.
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 by K. S. J. S. J.
 ARCH. STUDENT - CLASS OF 1906.



DETAIL OF TRUSS, SCALE 1-2"=1'



SECTION OF MAIN WALL SCALE 3-4"=1'



SECTION THROUGH COLUMN

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