

VI.

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

FOR

A LABORATORY

FOR

Mr. F. C. TURNER

Berkeley, California

Julia Morgan  
Architect

1135 Merchants Exchange Building  
San Francisco, California

May 1938



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GENERAL CONDITIONS

1. The drawings and specifications for this work are and remain the property of the architect as instruments of service. They shall be used for this building only and shall be returned to the architect upon completion of the work set forth herein.
2. The drawings and specifications are intended to cooperate and any work indicated in one and not in the other, shall be executed as if indicated in both. All notes, figures and details on said drawings shall be considered as part of these specifications without further mention. Large scale and full size drawings shall be followed in preference to scaled measurements. Should there be insufficient figures or information on any drawings to properly execute the work, or should contradictions or inaccuracies become evident the contractor shall notify the architect before proceeding with work involved. Should inaccuracies or errors in the work of other contractors affect the possible perfection of his own work, he shall report such defects to the architect before proceeding with such work.
3. No departure from the work as required by the drawings and specifications will be allowed except upon written order to the architect; no extra work shall be done unless a written order covering the nature and cost of the work in question shall first have been signed by the owner, architect and contractor.
4. The contractor shall furnish all material, labor, scaffolding, utensils and other apparatus of every description and pay all freightage, cartage, and handling required for the full performance of all work under the headings herein specified and shown on the



contract drawings No.

Sheets

5. The contractor shall obtain all necessary permits and pay all lawful fees therefore, observe in every particular all state and county laws, where applicable to the work, and be responsible for all violations of law or damage to property or person occurring through any act of himself or of his employees or sub-contractors.
6. The contractor shall maintain sufficient safeguards, such as railings, temporary walks, lights etc. against the occurrence of accidents, injuries, damage or hurt to any person or property and shall alone be responsible for same if such occur.
7. The contractor shall obey all rules and regulations of the State of California Industrial Accident Commission.
8. The contractor shall provide safe and proper facilities at all times for the inspection of the work, and shall cooperate with owners where placing, setting, etc. of equipment require partial use of building at any stage of the work.
9. The contractor shall furnish suitable and sanitary conveniences for the workmen, keep them in proper condition and at the completion of the work shall disinfect and remove all evidence of same.
10. The contractor shall furnish any and all night and overtime work necessary to meet the time conditions of the contract.
11. The contractor shall provide all water necessary for building purposes.



12. The contractor shall remove, or cause his sub-contractors to remove rubbish from the building or premises when directed by the architect and shall leave the building and premises whole and clean on completion of the work.

13. The contractor shall give the work adequate supervision at the site and shops. He shall lay out the work and be responsible for its correctness. He shall keep a competent foreman acceptable to the architect in charge of the building constantly until acceptance of the work.

14. The contractor shall submit to the architect within five days of the acceptance of this bid a statement of the costs of the subdivisions of his work, which if acceptable to the architect, may be used as a basis for computing monthly payments.

15. Payments will be made by the owner only on the certificate of the architect and as per contract agreement. No certificate will be issued should work be evidently not in strict conformity with the drawings and specifications, until such defective work shall have been removed and replaced to the satisfaction of the architect. Any certificate given the contractor, or any payment made to him, shall not act as, or be in fact an acceptance of material or work subsequently found defective. All such defective work shall be replaced before final certificate will be issued, or with the owner's consent an amount may be deducted from the final payment to cover the loss in value due to such defects.

16. The contractor shall make good any defects developing within one year after the acceptance of his work, if due to faults of



material or workmanship, and shall correct and make good defects due to normal swelling and shrinkage of material during that period.

17. All materials shall be the best of their respective kinds and grades. All work shall be done in a competent and skilled manner.

18. The contractor shall within twenty-four hours after receiving notice to that effect, proceed to remove from the grounds or building all materials condemned by the architect, whether worked or unworked, and take down all portions of the work which the architect shall by written notice condemn as unsound or improper or not conforming to the drawings and specifications, and shall make good at his own expense all work destroyed or injured thereby.

19. The contractor shall provide a surety bond, from a well known and responsible Surety Company satisfactory to the owner, the amount covered by the bond to be 50% of the contract price.

20. The contractor shall take out and pay for casualty, public liability and workmen's compensation insurance, sufficient in amount to fully protect and specifically cover both contractor and owner. These insurances shall be kept in full effect throughout the doing of the work.

The contractor shall protect the owner and architect against any and all loss due in any way to any violation of any law, regulation, safety order or ordinance, whether said violation be by himself or by his employees or sub-contractors.

21. The contractor shall keep his interest in the work at all times fully covered by fire and earthquake insurance.

22. The owner reserves the right to reject any and all bids.



### EXCAVATING AND GRADING

NOTE: This work is subject to the general conditions on pages 1 to 4 of these specifications and to the building laws of the City of Berkeley which are hereby made part of these specifications and this contractor shall be responsible for all requirements thereunder affecting his work in any way.

WORK INCLUDED: Under this heading is included all excavating, filling, back-filling, carting and dumping of whatever nature necessary to execute the work as called for by the drawings and these specifications. Any surplus earth shall be removed and premises be left clean.

EXCAVATION for all foundations shall be carried to hard earth of suitable character to carry loads to be imposed. In case soil conditions prove to be less good than assumed in fixing these depths, then excavations shall be carried deeper as may be ordered by the architect, and the difference in cost be adjusted before work proceeds.

All trenches shall be excavated one foot wider than footings to give ample room for boxing, bottoms to be everywhere true and level.

FILLS AND BACK FILLS: After concrete work is completed and all forms completely removed, all trenches, pits etc. shall be back-filled solidly with earth, wetting and tamping the same thoroughly as deposited.



MASONRY

NOTE: This work is subject to the general conditions on pages 1 to 4 of these specifications and to the building laws of the City of Berkeley, which are hereby made part of these specifications and the concrete contractor shall be responsible for meeting all requirements thereunder affecting his work in any way.

LOCATION: All lines, levels and location of building shall be established and checked by this contractor before proceeding with his work.

WORK INCLUDED: Under this work is included all rough and finished plain and reinforced concrete work and all brick work throughout the building.

DELIVERY AND PROTECTION OF MATERIAL: All materials shall be delivered onto suitable platforms or boxes and shall be properly protected until used.

MATERIALS where mentioned hereinafter shall be as follows:

Stone shall be screened blue rock of uniform grade and color, hard, clean and sharp, grading from 3/4" to 1-3/4" diameter, except that for beams, girders and slabs pieces shall not run over 1-1/2".

Sand shall be coarse, sharp sand, clean and free from sediment, loam or other impurities.

Gravel shall be clean pea gravel grading free from pebbles over 1/2" diameter.

Cement shall be "Yosemite" or other Portland cement of quality to meet the standard tests of the American Society for Testing Materials and acceptable to architect.

Sidewalk topping shall be clean, fine, washed and screened gravel.

Reinforcements shall be square new, clean deformed bar of American



manufacture of the grade known as "medium steel" in the "Manufacturers Standard Specifications."

Brick shall be first quality hard burned, smooth faced common brick, sample to be approved by architect.

Brick for landings and steps shall be common brick carefully selected and handled.

Lime for brickwork shall be Roche Harbor or Blubber Bay.

Sand for brickwork shall be best quality, sharp and clean, free from silt, loam or other impurities.

Lintels, bolts and anchors shall be provided and set as shown.

Brick workmanship: All walls shall be laid up with a full header course every <sup>6th</sup> ~~fourth~~ course, all joints be completely filled and all reinforcing steel be entirely embedded in mortar. <sup>dowel</sup> wall bars to extend from bottom of footings to 2 ft. above concrete wall.

*Wall bars to extend into parapet sand beam*  
Mortar for brickwork shall be composed of one part lime putty to two parts cement and nine parts of sand by volume. *1 1/2 : 4 1/2* ✓  
*2-1-9* ✓

PREPARATION OF TRENCHES AND BOXING: Bottoms of all footings shall be hard and level, cleaned absolutely of all dirt, refuse, etc. In case levels of trenches for footings vary from those shown on structural drawings, their exact level shall be established in conjunction with architect before footing boxings are filled.

Accurately and well braced forms shall be made for all work, and all boxing shall be thoroughly cleaned out and soaked with water before concrete is deposited, and reinforcing steel shall be securely held in place in positions shown. Cement shall be kept dry and free from dirt of any kind.

PROPORTIONS OF CONCRETE: Concrete generally shall be composed of one (1) part cement to five (5) parts aggregate, proportions to



be varied as needed to produce a concrete of at least 1500# crushing strength on 7 day tests. (A mix of one (1) part cement to one and one half (1-1/2) parts sand, to one (1) part gravel, to two and one-half (2-1/2) parts rock will probably give result required.)

A "Ready-Mixed" concrete of approximately above aggregates and developing a guaranteed strength of 2000 pounds per sq. in. in 28 days, may be used at contractor's option.

MIXING OF CONCRETE: Materials shall be accurately measured each batch and the concrete be mixed by an acceptable mixing machine of at least two batch capacity with automatic water measuring device. Only enough water shall be used to produce a mixture of quaking consistency. In case water content or method of depositing concrete used is not satisfactory to the architect, it shall be mixed strictly by method ordered by the architect.

"Ready-Mixed" concrete shall meet above requirements as to consistency.

DEPOSITING OF CONCRETE: As soon as concrete is mixed, it shall be taken to the trenches and dumped in layers approximately 6" thick, layers to be carried around horizontally and immediately rammed or puddled down to give a level surface. Concrete positively shall not be allowed to pile up in boxing, and puddling shall be constant and efficient.

No concrete shall be used after it has stood 20 minutes or after the cement has set; it shall be mixed only as required for immediate use. No retempering of concrete or cement in any way will be allowed.

No concrete shall be poured before boxing, cleaning of forms and steel shall have been inspected and approved by architect.



MOISTENING OF CONCRETE: All concrete in place shall be thoroughly wet with a hose every night and morning until progress of the work makes such wetting impractical.

FORM WIRES: On removal of forms all wires extending through walls and parapet girder shall be cut back at least an inch from surface and the holes be plugged with neat cement and sand mortar, one (1) to one (1) mix. Any loose material shall be removed and replaced and all pockets shall be neatly cemented up.

DRAINS: Leader shall be connected into 3" bell-jointed T.C. drain laid up with 1 to 1 sand and cement mortar joints, carefully graded to discharge into street gutter. *See City Eng.*

*Require C.I. under Ice,*

OK



### PLASTERING

NOTE: This work is subject to the general conditions on pages 1 to 4 of these specifications and to the building laws of the City of Berkeley which are hereby made a part of these specifications and this contractor shall be responsible for meeting all requirements thereunder affecting his work in any way.

NOTE: All materials shall be brought to the site unmixed and shall be mixed and stacked well in advance.

WORK INCLUDED is the plastering of all wall, ceiling, shaft and parapet surfaces on exterior and interior of building.

MATERIALS where mentioned hereinafter shall be as follows:

Line shall be Roche Harbor or Blubber Bay brand guaranteed against popping, and must be slacked at least seven days before using and run through a fine wire strainer.

Cement shall be "Yosemite" or "Santa Cruz" Portland cement.

Sand for brown coat shall be well screened washed sand, coarse and sharp, clean and free from mud, bark or other impurities.

Sand for exterior finish coat and dash shall be washed Monterey white sand of grade to produce texture required by the architect.

Fibre shall be best quality long fibre, free from lumps or impurities that might discolor the plaster.

Sidewalk topping shall be washed and screened pea gravel.

Wood lath shall be best quality clean sawn Douglas fir, pine or hemlock free from bark, sap or other defects.

Hardwall plaster shall be Red Top or other brand acceptable to architect.

EXTERIOR plastering on brick or concrete shall be best three coat work, with a total thickness of not less than 7/8". Before plastering all surfaces shall be thoroughly cleaned down, well wetted and spattered roughly with one-to-one cement and sand grout



at least one day before plastering.

First coat shall consist of one-to-three cement plaster, using sidewalk topping and sand in mix, second coat to be of sand and cement brought to a surface and texture similar to adjacent buildings of this group, a finish brush coat, sample to be prepared for architect's approval well in advance of work, this coat to be either of an acceptable brand of prepared stucco, or a mixture of hydrated lime, Medusa white cement and cement color.

INTERIOR LATHING shall be on wood lath, interiors of north and south masonry walls to be furred with 1" x 2" wood strips 16" on centers; east and west walls with 2" x 4" studs, flatwise. Laths shall be placed 1/4" to 3/8" apart, breaking joints every eight courses and over openings. Laths shall be thoroughly wet before plastering is done and no bark, sap or discolored lath will be allowed.

INTERIOR PLASTERING shall be of Hardwall or of gypsum of not less than 1/2" thickness measured from the outer surface of the lath. The first coat shall consist of one part hardwall plaster to not more than one and one quarter parts of sand by volume with ample well combed hair or fibre. The first coat shall be well keyed to lath and immediately doubled with same material and shall be surfaced to grounds with red and darby. The finish coat shall consist of one part gypsum and one part lime putty gauged together and troweled to a smooth hard true surface.



CARPENTRY

NOTE: This work is subject to the general conditions on pages 1 to 4 of these specifications and to the building laws of the City of Berkeley, which are hereby made part of these specifications and this contractor shall be responsible for meeting all requirements thereunder affecting his work in any way.

RESPONSIBILITY OF CARPENTER: The carpenter shall give and check all lines and dimensions, be responsible for correctness of same, and give directions to the other trades. He shall do any cutting for the installation of other branches of the work such as plumbing, heating and electrical work and shall neatly frame wherever necessary for same.

WORK INCLUDED is all rough and structural woodwork with the nails, bolts, etc. pertaining thereto, sash, doors, screens and frames, wood floors, all exterior and interior wood finish and millwork shown, rough and finish hardware, glazing, shades, linoleum, etc. to make the building complete to extent evidently contemplated.

MATERIALS: All structural material not otherwise shown or specified shall be No. 1 common ~~merchantable~~ Oregon pine. No sap or bark wood will be allowed.

FRAMING: All timbers or timbering necessary to properly construct the building shall be considered a part of these specifications without further specific mention.

SIZES of main structural members are shown on plans, in general of following dimensions:

✓ Main sills . . . . . *Redwood* 3" x 4" bolted to foundation  
 First floor joists . . . . . 2" x 12" O.P. 16" on centers  
 ✓ Ceiling joists . . . . . 2" x 10" O.P. 16" on centers

*Plans show 2x8,*

*OK*  
*all*  
*2x10*



Furring of exterior walls . . . . . 2" x 4", sidewise & 1" x 2"  
 Studs . . . . . 2" x 4" O.P. 16" on centers  
 Plates ~~or~~ blockings . . . . . width of studs

SIZING, FURRING, AND GROUNDS: Floor joists, studs, plates, etc. shall be sized where necessary to make a good straight job, and such furring be done as required to make finished work agree with plans, and to cover pipes, grounds to be placed throughout for openings and other finish.

BRIDGING: One line of herring bridging shall be carried in floor span.

ROOF SHEATHING: shall be with 1" x 6" No.2 Oregon pine, surfaced one side, cut close up to walls and openings, securely nailed, boards breaking joints every course. *see plans - sheet 4*

MILLWORK AND FINISH: All millwork and finish to make the building complete to extent evidently contemplated shall be furnished and set in a neat and workmanlike manner, materials for exterior millwork to be in clear R.W., interior millwork to be of straight grain O.P., all to have a smooth finish and be run to detail.

WINDOWS: All sash shall be first quality clear, straight grained sugar pine 1-3/4" thick, double hung window jambs of O.P. rabbetted from 1-1/4" stock on substantial ball bearing pulleys, hung with "Spot" cords; sills from 2" x 10" R.W.

DOORS: Interior doors shall be one panel, 1-3/4" thick, of straight grain O.P. Jambs shall be from 1-1/2" thick stock. Pitcher patent sliding doors and frames complete shall be furnished and set in lavatory openings.



Main entrance door shall be 2" thick, glazed with plate glass. - sills and thresholds of plain straight grain oak.

Sliding doors shall be Pitcher's patent door and case, for 4" studs.

Provide doors and cases for meters, and one access door from exterior into unexcavated basement.

FLOORS shall be single of No.2, 1" x 4" V.G., O.P. T & G; with overwood carefully scraped down to receive linoleum.

INTERIOR FINISH: Trim in general shall be from 1" x 4" mitred, stools from 1-1/4" x 3", base from 1" x 6", base mould from 1" x 2", corner ceiling moulding from 1" x 4" to be provided in all rooms except lavatory and laboratory.

Cases shall have smooth O.P. shelving on ratchet strips.

SCREENS: Provide 16 mesh copper bronze wire screening in wood frames, hung, in all lavatory and laboratory sash, also fixed wire screens for all louvres and vents, and a substantial screen door in rear entrance.

GLASS AND GLAZING: All glazing except entrance door shall be Libby-Owens double strength - 26 to 29 oz. - selected quality glass, <sup>main</sup> door to be glazed with American plate.

Roof skylights shall be glazed with wire obscure glass not less than 1/4" thick.

The contractor shall be responsible for all breakage until the completion and acceptance of building and shall see that defective work is replaced by good. Windows shall be cleaned before last coat of paint is put on and any defective glass shall be replaced at this stage of the work.



FINISH HARDWARE: Provide and set a standard manufacturer's trim for all doors, sash, cases, etc., this to be of plain design, separate rose, knob and escutcheon type with cast knobs, stamped roses, etc., both exterior door locks to be two cylinder with three keys each. Samples of line proposed shall be agreed upon with architect.

SHADES shall be of color selected by architect and shall be furnished for all glazed sash. They shall be Dupont opaque linen on Hartshorn rollers with cords through the wood bar.

LINOLEUM shall be 1/8" gauge, laid on grey felted under sheets, plain colors, laid with border, one line and field in entrance and front room, plain elsewhere, colors as selected by architect, linoleum to be felted and cemented in place in first class manner and given a good coat of wax.



SHEET METAL WORK AND IRON WORK

NOTE: This work is subject to the general conditions on pages 1 to 4 of these specifications and to the building code of the City of Berkeley, which is hereby made part of these specifications and this contractor shall be responsible for meeting all requirements thereunder affecting his work in any way.

SHEET METAL WORK

WORK INCLUDED: Under this heading is included all flashings, counter flashings, leader with all connections, skylights, roofs of porch and bay window, cast iron ventilators, ~~and patent flue for gas heater.~~

MATERIALS mentioned hereinafter shall be as follows:

Galvanized Iron shall be "Armco Ingot Iron" (Blue Triangle), in general of #26 English gauge with plane surface.

Copper shall be 16 oz. sheet.

*hard (where?)*

*Roofs bay and porch*

RIVETING AND SOLDERING: All seams and joints in sheet metal work shall be soldered, all soldering to be thoroughly rubbed in, work to be substantial as possible and done in a neat, workmanlike manner, all rosin, finger marks, etc. to be carefully removed and all surfaces be left clean.

DOWNSPOUT AND LEADER HEAD shall be of G. I., downspout 2" x 3" with roof outlet box through parapet, flashings and straps as required, substantially put together and guaranteed not to leak for a period of two years, a G.I. wire strainer to cover leader head.

FLASHINGS AND COUNTER FLASHINGS of galvanized iron shall be furnished and set around parapet walls and around all vent pipes extending through roof.

SKYLIGHTS shall be substantially framed, of #12 galvanized



sheet, flashed and counterflashed in first class manner.

VENTILATORS: Cast iron ventilators approximately 10" x 12", shall be set in walls of unfinished basement where shown or as directed, painted before set. *see plans* ✓

WROUGHT IRON: Porch supports and railings at entrances shall be made to F.S. details and be set in a thoroughly substantial manner. Iron shall be cleaned thoroughly, and given a thorough coat of genuine red lead at shop.



COMPOSITION ROOFING

A 5-ply asphalt and gravel roofing shall be laid over the flat roof, consisting of the following:

1 Layer Rosin sized Sheathing . . . . .	5 #
4 Layers 15# Saturated felt . . . . .	.60 #
J.M.asphalt or S.S.Floatine. . . . .	120 #
Gravel surfacing . . . . .	<u>300 #</u>
Total approximate weight per square . . .	485 #

3x20 + 1x50 = 110  
✓

All layers to be thoroughly mopped and carefully turned up under counterflashings, avoiding breaks and buckles. No mars, asphalt spatters, etc. shall be left on any part of the building by roofers.

ROOF TILE COPING

*made* shall be with small Spanish tile similar in size and *of color* used on adjacent roof, all tile to be cemented in place and together with neat cement and sand mortar, tile to be in place before second coat of plaster is applied. On completion of tiling, the flat roof and premises generally shall be cleared of all tiler's debris and all refuse, broken tile, etc. shall be removed promptly from premises.

*anchored in place*  
*Coping* ✓



## PAINTING

NOTE: This work is subject to the general conditions on pages 1 to 4 of these specifications and to the building code of the City of Berkeley, County of Alameda, which are hereby made part of these specifications and this contractor shall be responsible for meeting all requirements thereunder affecting his work in any way.

NOTE: The painter shall obtain the architect's approval of all materials, colors, shades and stains before work involved is begun. All parts of the building, its fixtures, and hardware, must be kept free from spots and stains, and the painter shall be responsible for and make good any defects due to accidents, or to carelessness of himself or his employees. All nail holes shall be puttied after priming coat is on.

Materials shall be brought to the building in original unopened packets so far as reasonable and practicable.

MATERIALS where mentioned hereinafter shall be as follows:

Oil shall be pure boiled linseed oil.

White lead shall be Fuller's "Pioneer", "Dutch Boy", or lead of similar grade.

Oil paint shall be white lead and linseed oil with oil colors required.

Varnish shall be Murphy's, Glidden's, or Fuller's high grade material.

Stains shall be oil and lead base unless otherwise agreed on.

Shellac shall be white shellac cut up in alcohol.

Wax shall be "Old English Floor Wax", or pure beeswax cut up in turpentine.

ON EXTERIOR: No painter's work shall be applied to copper surfaces but all such material shall be protected from stains or mars. All other exposed metal surfaces shall be painted one coat of oil paint, ornamental iron work to have a "wiped" or glaze coat in addition.

All frames shall be primed inside and out and at butts before



placing, no ochre to be used in this work. Pulley stiles shall be stained and oiled. All sash, doors, screens, access doors, etc., shall be painted two coats of oil paint in addition to priming coat, entrance doors to be given an additional coat of fine spar or coach varnish well rubbed down.

INTERIOR WOODWORK shall all be given two coats of oil paint and one of oil paint and enamel.

Enclosed shelving and interior of cases shall be cleaned of all finger marks, etc. and shall be given one coat of shellac.

WORKMANSHIP ON ABOVE: All work shall be sandpapered and rubbed down sufficiently between coats to secure a first class smooth finish, nailholes hand puttied after priming.

CEILINGS throughout shall be glue sized and be given one coat, (two coats if necessary) of cold water paint, a first class job required.

OIL PAINTING: All walls shall be varnish sized and be given two coats of oil paint, stippled.



PLUMBING

NOTE: This work is subject to the general conditions on pages 1 to 4 of these specifications and to the building code of the City of Berkeley, County of Alameda, which are hereby made part of these specifications and this contractor shall be responsible for meeting all requirements thereunder affecting his work in any way.

RESPONSIBILITY: The plumber shall at his own expense remove any or all work which does not conform to codes and regulations and shall replace any such work at his own expense. No cutting shall be done without the foreman carpenter's approval. The plumber shall be responsible for all damage, direct or indirect, to the building or its equipment which may occur accidentally or through the carelessness of the plumber or his employees.

PERMITS: The plumber shall obtain and pay for all permits appertaining to the work and make any street deposits necessary except where Public Service Corporations require the owner's personal order or deposit for meters, in which latter case he shall give due notice of such requirement. He shall connect to public sewer, water and gas services, paying all expenses involved.

INSTALLATION OF FIXTURES: All fixtures shall be installed in positions shown on plans, and shall be properly connected to soil, sewer and water systems in a thorough and workmanlike manner. On completion street, sidewalks, grounds, roadways, etc. shall be solidly filled and be left in good condition.

SEWER AND SOIL LINES: All soil pipes running beneath the building shall be of cast iron with cleanout ferrule and screw cap caulked into hub at end of each horizontal run, these cleanouts to be made easily accessible to owner. Connecting sewer from 4 ft. outside the building line to street sewer shall be of glazed, bell-



jointed T.C. pipe, laid up with one (1) to one (1) sand and cement mortar joints, the line to be carefully graded, single or double 60° Y<sup>s</sup> to be used where laterals join or enter main lines.

*standpipe at curb.*

SOIL AND WASTE PIPES: All soil and vent pipes shall be standard weight double jointed smooth on the inside and heavily coated with tar pitch applied hot.

All soil pipes shall be carried inside building walls and shall be 4" in diameter, connected with sewer by 4" Y branches and bends, and shall extend 12" above the roof full size, with ~~galvanized iron or lead~~ funnel to cover <sup>roof</sup> flashings.

Waste for basin and sinks shall be 2" in diameter.

Water closet shall be connected by lead or wrought iron bend, connections of other fixtures to branches to be by ~~wrought iron piping~~. *Copper, brass or C.I.* ✓

All piping, traps, cleanouts, etc. shall be provided and put together in a most workmanlike manner according to the best practice.

PRELIMINARY TESTS: When rough plumbing has been installed and before any fixtures are set, all outlets and inlets in the vent and drainage systems shall be stopped up in the presence of the Inspector of Local Health Board and job foreman and be thoroughly tested by filling the lines with water. Any defects must be made good without the use of any short length collars or double hubs and the system be retested until it is found to be perfect.

WATER SUPPLY shall be of wrought iron galvanized pipe of standard weight, main supply from meter to be 1" diameter run to furthest fixture with cut-off valve in laboratory, with 3/4" risers and 1/2" offsets to fixtures, hot and cold supplies to be carried to basin and sinks, pipes to be securely supported by the



usual wrought iron hooks, hangers, straps, etc.

TWO HOSE BIBBS shall be provided, <sup>one</sup> on south, and one on north faces of building.

GAS: Main supply line shall be of ample size to provide for house heating, water heating, and the various individual outlets marked "GAS" on drawings, "T"'s for outlets to be placed at heights suitable for uses to be served, boiler be connected, other outlets be left capped and finished at wall with substantial N.P. wall flange.

PLUMBING FIXTURES: NOTE: Each fixture shall have a cut-out valve on each supply line and all traps shall have cleanouts and union "U"'s without further mention, all fittings to be chromium finish on brass. Numbers refer to Crane Co.'s catalogue.

TOILET shall be C-541 "Santonia" complete as shown.

BASIN shall be C-755 "Norwich" 18" x 20" complete as shown.

SINKS in laboratory shall be porcelain, (all clay) flat rim sinks with C-32860 fittings for service sink, C-32472-N "Improved Agilia" faucet for water sink.

Sinks shall be set in Perma-Sheen Imperial boards with back of same for service sink (3/16" linoleum on 14 ga. steel)  
(O.K. Brown & Sons, 557 Market Street.)

HOT WATER: Provide and connect ~~to the gas flue~~ to ~~copper~~ vent through roof and to the cold water supply, a 20 gallon "Ruud" "DeSoto" storage thermostatically controlled water heater <sup>legs</sup> -/to be set at level of work table, -- Vent, its hood and flashings, to be part of this installation.



ELECTRIC WIRING

NOTE: This work is subject to the general conditions on pages 1 to 4 of these specifications and to the building code of the City of Berkeley, County of Alameda, which are hereby made part of these specifications and this contractor shall be responsible for meeting all requirements thereunder affecting his work in any way.

WORK INCLUDED is all material and workmanship from point of connection with Service Company's lines at building to finished outlets, switches, etc. shown on plans, service to be 3-wire, 110-220 volts, installation in all respects to meet the requirements laid down in the Berkeley Ordinance and the "National Code of Fire Underwriters".

INSTALLATION: All wires shall be run in approved rigid metal conduits, conduits to be installed when and as required by the progress of the general construction. All necessary cutting, drilling, etc., is part of this work, but no cutting shall be done without the job foreman's specific approval. Conduits shall be held firmly in place by malleable iron straps, pipe hangers, clamps, etc., securely fastened to frame. Joints shall be made with standard conduit couplings; in joinings, conduits to be truly and accurately threaded, smoothly reamed and square butted. Where entering boxes, conduits must be securely fastened by means of check nuts on the outside and insulating bushing on the interior of box. Standard ells must be permanently and effectively grounded and be kept well away from pipes. Such conduits as do not permit of being readily drawn shall be replaced. They must be installed without strings or wires for pulling in conductors. Boxes shall be pressed steel galvanized knockout type, provided with approved fixture studs secured to bottom of box with machine screw and nut. They shall be set so that when cover or plate is on they will come flush with finished surfaces.

WIRING: All wire shall be best grade rubber covered "code" wire of a standard manufacture, nowhere smaller than #12 B & S gauge with combination outlet box and fixture support at each light outlet.



Wattage required is indicated at each light outlet and provision for less than required will not be acceptable even if allowed by city code. All utility outlets shall be double, not more than three utility outlets to be on any one circuit, also, outlets for exterior and for interior work shall not be on the same circuit.

CONTROL: All light outlets shall be controlled from direct switches located adjacent to doorways one switch to each outlet.

PANEL: Located in Laboratory shall be a No. 12 gauge or better, steel cabinet, flush mounted, with double safety type doors, plug fuses, space to be provided on main panel for two or more additional circuits over and above present requirements.

SWITCHES shall be of flush pattern H & H direct tumbler, with push knobs and brown Bakelite plates, all groups of switches to be arranged in gang with iron boxes and a single plate. The location of switch or switches for each room is designated approximately on plans and shall be verified accurately by this contractor to agree with centers or architectural finish.

LIGHT PICTURES shall be provided and placed for each light outlet shown, an allowance of \$40.00 to be included in the general contract for this work.



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Addenda to specifications - F. C. Tuner job

Note corrections as follows:

Page #7 - Dowel bars to extend from foundation to 2 feet into brick wall

" #7 - Wall bars to extend into parapet bond beams as per detail

" #7 - Mortar for brickwork to be not less than 2 parts lime putty, 1 part cement, 9 parts sand

Page #12 Main sills to be Redwood 3" x 4" bolted to foundation

" " Ceiling joists to be 2"x 10"

" #18 Roof tile covering to be anchored with copper wire

" #23 Plumbing Fixtures. There shall be no submerged inlets any place. The hot water heater to have a J. M. flue.