

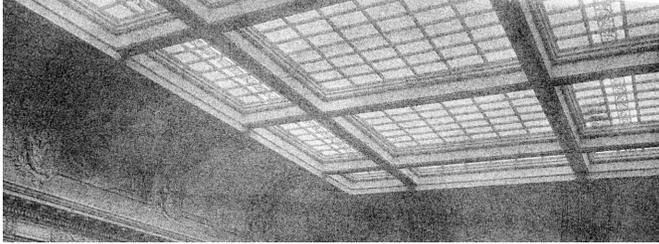
SPECIFICATIONS AND PLANS REFLECT THE COMMISSION'S DESIRE TO MAKE THE BUILDING A STATE MONUMENT



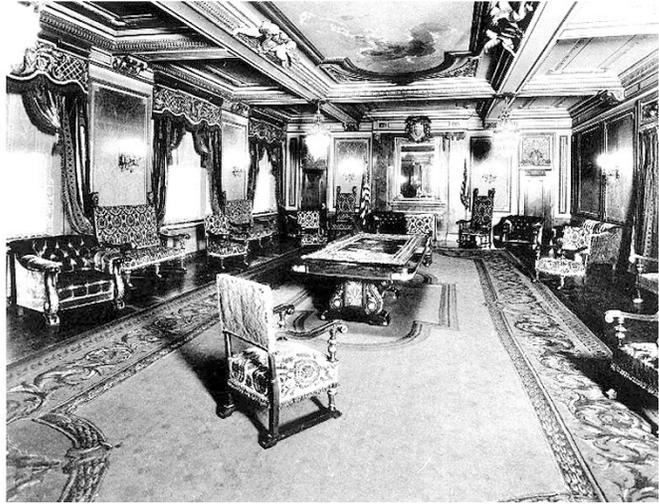
CLAY TILE



VACUUM OUTLET



SKYLIGHT IN THE HOUSE OF REPRESENTATIVES



GOLD ROOM



GOLD LEAF IN THE GOLD ROOM

Easily as important as the design for the style and massing of the building, or the elevations and floor plans, were the specifications for the materials and quality standards which would set this building apart and make it a showcase for Utah architecture and craftsmanship. In keeping with the state's requirement that the Capitol be of the highest quality, Kletting's written specifications called for the best workmanship, finest materials and top design standards available. The intent was clearly to produce a state-of-the-art facility that was at once functional, welcoming and symbolic of the fact that Utah had arrived.

Beginning in late September, 1912, Kletting began providing drawings "usually furnished and required for a competent contractor to do and erect his work." These were similar to the plans and specifications, commonly called "working drawings" or more legally, "bid documents," produced by architects today. It was intended that the specifications and accompanying drawings would describe the desired product as closely as possible. The contractor then would be held to these expectations in terms of quality of material and craftsmanship at the end of the project. The contractor, however, was also expected to produce copies of the architect's drawings and submit shop drawings, templates, patterns, and models to the architect for correction and approval.⁴⁹

In today's terminology, this was essentially a "fast track" job. The construction documents, which took more than three years to complete, were only partially done when the project went out to bid and construction began in May of 1913. From that time on, Kletting was always in a race to produce plans by the time the builder needed them. It appears he was successful in keeping at least one step ahead, as he often chided the contractor by letter about holding up the schedule.

Specifications for virtually every aspect of the building are particularly informative of the scope of the project and the ambitions of the Capitol Commission to build a beautiful and sometimes extravagant monument to the state of Utah. In addition to the expected items, there were specifications for the steps and terraces, the central vacuum system (provided by the Capitol Electric Company), metal-

work (by the General Fireproofing Company), rugs and carpets, interior decoration, art glass, cabinet work and Otis elevators, among many other specialities. In an effort to decide on several similar materials to use, Kletting would research what companies provided the items and then ask them for cost or bid proposals. Bids from the Mitchell Vance Company for the piping of wrought iron and castings of brass, stone from the Birdseye Marble Company, H.W. Johns Manville Company for the heating mains and asbestos insulation, among others, provided lists of services, materials and costs from which to choose.

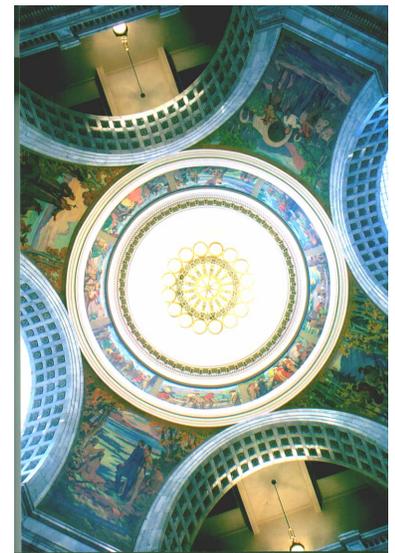
In many instances, the Capitol was not built as originally designed, either due to the substitution or elimination of materials and design elements. For example, terrazzo had been initially considered a flooring material sufficiently elegant to be used in the Capitol interior. Terrazzo floors were to be featured in the corridors of the Ground Level and the Third Floor except in the areas around main entrances where travertine would be used instead. Private corridors, exhibition space, the libraries and art galleries were also to have terrazzo floors. The terrazzo was never installed, although, ironically, it was to replace the glass block covered over in the Rotunda floor in the 1930s. Instead, stone was chosen for most of the floors of public areas including the floor of the Main Level corridor and rotunda.⁵⁰ Georgia marble was installed as a border on the Main Floor around travertine quarried near Low station near Birdseye.⁵¹ This type of travertine was described as a “whitish” marble of “unusual variety” and would cost more than the terrazzo originally considered in the plans.⁵² Even public restrooms would have marble floors. Corridors on the Ground, upper floors and the café were given ceramic tile flooring. Offices, committee rooms, the State Reception Room and the area around the rostrum of the Supreme Court chamber would have wood floors,⁵³ for the most part maple and quartered oak parquet.

In anticipation of eventual carpeting, the floors in the Senate, House and Supreme Court Chambers were done of less expensive, scored “asbesticitic,” an early concrete product. This use of concrete over hollow clay tile was a change from the 1912 plans. At that time there was no consideration of seismic conditions, and fire-proofing received the highest life-safety priority. Floors were also finished with cement in the vaults, storage areas, and general service spaces. The floors in the Supreme Court and House of Representatives Chambers would be prepared for carpeting by drilling holes into the cement around the perimeter of the room at two inch intervals.⁵⁴

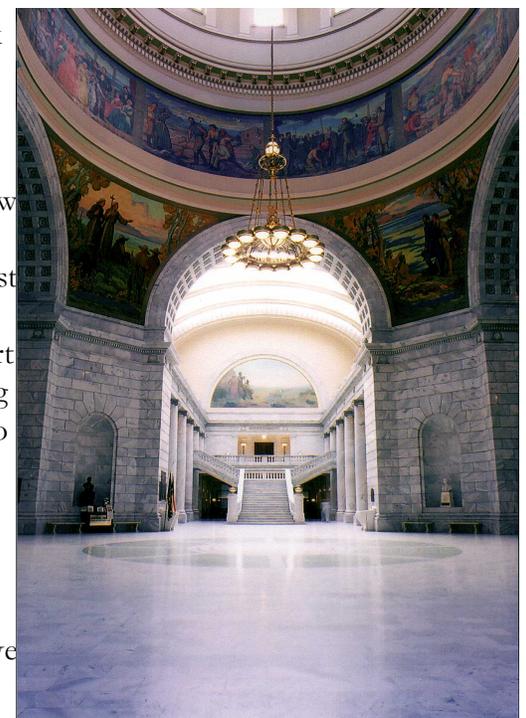
Although Kletting specified that much of the building be finished with sanitary bases (in vaults, storage, and general service spaces), wood bases were planned to line the walls of offices and committee rooms. Corridors on the ground and third floors, and private corridors would have marble bases as well as exhibition spaces, libraries and art galleries, and the café.



HOUSE OF REPRESENTATIVES



ROTUNDA



ROTUNDA

THE USE OF CONCRETE: A MODERN TECHNOLOGY



EXCAVATION FOR INSPECTION OF REINFORCING

Prior to the design of the Capitol in 1912, most buildings in Utah had been constructed with foundations of stone and superstructures of non-reinforced masonry, typically brick and stone. But Kletting had just recently become a Utah leader in designing with a new technology-- steel reinforced concrete-- which he used with success on the “fire-proof” McIntyre Building erected three years earlier.

Reinforced concrete would become basic to the structure of the new Capitol. Structural steel strengthened the concrete and gave it greater tensile strength.⁵⁵ Kletting requested that the steel be properly tested by the Pittsburgh testing laboratory to insure it was satisfactory before it was shipped to Utah.⁵⁶ The concrete was Portland Cement made in Utah, and the sand “clean, sharp quartz sand, free from loam or other impurities, such as wood, straw, acids, oils, etc., and of an even natural or artificial mixture of grains of all sizes, from 1/4 inch down to the finest.”⁵⁷ And, he specified that the gravel had to be “free from sand, loam or other impurities as mentioned for sand, and to vary in size from that of a pea to 3/4 inch in largest diameter.”

Before any concrete was laid, the architect had to be notified so he could inspect the steel and insure proper mixing of the concrete.⁵⁸

Kletting was insistent that the concrete be laid properly. If the temperature dropped below twenty-eight degrees, it was necessary to heat the cement, sand and water and to cover the poured concrete with boards, cloth, and a thick layer of sand. In fact, no important parts would be poured in exceptionally cold weather. “The weather reports must be consulted daily, and if a cold spell is predicted within the next twelve hours, work must be stopped.” Kletting was troubled when, on Christmas morning he looked out the window of his home in the western Avenues and observed builders pouring concrete at the Capitol. According to Kletting’s son, Walter, the architect rushed to the site and ordered the work to stop, but he was too late. When the forms were removed later, the stiff concrete, poured in the cold, had honeycombed badly and was too defective to accept.

Nevertheless, the work progressed. Cement buttresses, as well as the steps and walks forming the south and east approaches were laid under contract by Carl Buehner of Salt Lake City for a cost of \$8,400.80.⁵⁹ As determined by the specifications, all metal used for the reinforced concrete had to be “medium open hearth steel, manufactured in accordance with the Manufacturer’s Standard Specification for this grade of material.”⁶⁰ Kletting’s breadth of knowledge of engineering and structural materials is evident in the care he took to describe specifically every step of the process.

The dome would be constructed with reinforced concrete poured four inches thick and supported by twelve steel rib trusses and twelve sub-trusses. Before any of the structural steel was ordered, careful detailing which included stress diagrams, were to be submitted to Kletting for approval.⁶¹

Another cementitious material, cement plaster, was used for much of the capitol’s ornamental work. Less strong but more plastic than concrete, plaster was used throughout the building’s exterior and interior. The same type of cement plaster used on the base of the dome was to be used for all mouldings around windows located behind the colonnade including pediments. These would be reinforced and anchored to the concrete walls. When cement plaster work was finished it would imitate the granite used for the building.⁶² Contractor Stewart also submitted various samples of terra cotta that was treated to look like granite for Kletting’s approval.⁶³ On the interior, most of the moldings, cornices, figurines, cartouches and other classical decorative elements (excluding those done in stone) throughout the building were executed in plaster.

CONSTRUCTION CONTRACTS

At the time of the bid opening and awarding of a contract to the low bidder, in December 1912, the amount of the lowest bid was less than 40% of the eventual cost of the project (\$1,040,000 to \$2,750,000 including soft costs). This was because half of the work had not been designed and drawn. Not included in the original bid were heating, ventilation, plumbing, wiring, painting, plastering, elevators, vault doors, furnishings, art, and miscellaneous other non-structural items.

In addition, by the time the construction contract was drawn up with the James Stewart & Company, several options and alterations in the original plan had been approved by the Capitol Commission. For the most part these were upgrades in materials such as the use of mahogany interior trim, additional marble work, marble wainscoting on the ground floor, and the use of hollow clay tile in floor slabs and partitions. Kletting tracked each of these changes, insuring that each sub-contractor involved made the changes according to the new specifications. In each case, the contractor had to produce new plans or shop drawings which showed the changes made from the original construction design.

For instance, in the case of the change from a slab floor to hollow clay tiles, Kletting asked for the details well in advance before he could make a decision. He wrote Stewart, “In order to be able to intelligently and accurately check anything proposed in this line extending through the greater part of the building, I should have the drawings and other information at least 4 or 6 weeks before making a decision, as not only the floor slabs proper, but also plumbing, heating, and other parts composing the building are likely to be affected by the change, and will have to be taken care of in detail.”⁶⁴ He didn’t want anything to slip by without his approval or examination. Kletting received the revisions and approved them in a letter dated 27 March 1913.⁶⁵ Other changes required slight alterations in massing or structural details such as increasing the height of the dome, changes in the foundation, and increasing the base of the building.⁶⁶ In one sense, this was a “design as you build” project with the architect, contractor, and Capitol Commission all active members of a team of decision-makers. The resulting general contract allowed for considerable variation in the original specifications either to add to the architectural appearance, durability or convenience of the building, or to reduce costs.



MODERN PHOTOGRAPH OF
TERRA COTTA IMITATION
OF GRANITE

In April 1913, the commission addressed the issue of exterior materials. As prescribed by the architect, the exterior walls would be formed with granite from the ground level to the top of the columns. The capitals, cornice, parapet and pediments were to be faced with terra cotta and the drum finished with cement plaster. The commission subsequently proposed the use of granite to the top of the parapet and pediments, authorizing an increased expenditure of \$324,000 for the extra granite. The commission also approved sectional, unpolished columns for the exterior but more expensive monolithic, polished marble columns for the interior.

The C.A. Dunham Company received the contract for the heating system which would include thermostats, diaphragm valves, dampers, meters, compressors, reservoirs, and other elements for a complete and effective system of heating.⁶⁷ They also provided the installation of the system. The H.W. Johns Manville Company’s contract for plumbing included all piping and accessories—high pressure steam pipes in the Boiler room, heating mains and laterals from the point of the reducing valve in the boiler room through the tunnel, and all exhaust steam and hot water feed pipes in the boiler room. As determined by the contract, all this work “shall be Asbestos Sponge felted.. Asbestocel sectional pipe covering one inch thick.”⁶⁸ The scope of work for the electrical specifications was for “a complete installation of power and light wiring from the termini of the Utah Light and Traction Company feed wires, to Boiler House entrance to tunnel, with 4 fibre conduits laid in concrete through tunnel and basement floor to transformer room and connected therewith.”⁶⁹ Similar sub-contracts were let for various parts of the work during the entire 3-1/2 year construction period.

Five local firms bid for what was termed “Builders Hardware”: Salt Lake Hardware Company, Z.C.M.I., Scott Hardware Company, Stevell-Paterson Hardware Co., all of Salt Lake City, and George A. Lowe of Ogden City. The bids were opened on 26 February 1914 and the award was given to the low bidder—George A. Lowe of Ogden. Four companies, two from Salt Lake City—Salt Lake Electric Supply Company and Inter-Mountain Electric Company—and H.W. Johns-Manville Company of Chicago and Mitchell-Vance Company of New York bid on electrical work. Mitchell-Vance Company of New York won the award. General Fire Proofing Company submitted a bid of \$12,750.00 for its work.⁹⁶

Two bids were submitted for the installation of an indirect lighting system from Salt Lake Electric Supply Company and the Inter-Mountain Electric Company, both of Salt Lake City. Inter-Mountain was the low bidder. Philip Dern Company of Salt Lake City was the lowest bidder for painting the building. On 1 June 1914 the bid was opened for interior decoration. Philip Dern’s was the only bid received from a Salt Lake City firm. Others included W. J. Andrews Decorated Co., from Chicago; Mitchell & Halbach Co., of Chicago and Marx & Jones of St. Louis, Mo. Each of these firms submitted hand drawn sketches, water color drawings and specifications.

Representatives from the State Board of Equalization, State Engineer, State Road Commissioner, Adjutant General, State Coal Mine Inspector, Immigration Commissioner and Livestock Sheep Commissioners met and inspected the proposals. The Philip Dern Company received the job, which included a contract for rugs, carpets for the Governor’s suite, Ladies Retiring Rooms, a small restroom suite off of the Gold Room, and a Scotch Chenille seamless one-piece rug for the State Reception Room.⁹⁷ The R.C. Richmond Company received the contract to furnish and install all necessary clocks and then regulate them for \$1.00 per month per clock. The clocks in the Senate and House of Representatives would be changed only once per session. The entire network was a Stromberg Electric Clock system.⁹⁸ The Capital Electric Company was chosen to install the Spencer Turbine Central Vacuum Cleaner System which consisted of two units of two sweepers each.⁹⁹



CLOCK KEYBOX

AN INTERIOR OF ELEGANCE

Architect Kletting called upon his decades of experience with rich materials and classical design motifs to create an elegant Capitol interior. Decoration for the central hall included marble trim, wainscoting, subordinate columns and Caen Stone Cement in the main cornice. The heavily paneled area above the cornice had ornamental plaster, leaving panels and lunettes for mural decoration. Kletting paid particular attention to this corridor, “in order that those entering the building can at once get the full effect of the Central Hall, which, with the House and Senate Chambers, are intended to carry out in the interior that effect of character and dignity set by the exterior.”⁷⁰ Designed as a large tunnel vault extending east and west from the dome, a series of large arches, behind which were public corridors and offices, ran along the wall. As designed by Kletting, these arches extend through two floors and are filled with smaller motives of galleries supported on smaller columns flanked by large paired columns carrying the main cornice. The hall at each end is finished by a monumental marble staircase running between columns similar to those located at its side. The staircase divides at the landing and extends up both sides to the second floor. The rotunda area sweeps to a height of 180 feet above the floor with a gallery located at the first floor providing a vantage point from which to see the ground floor.

Considered an innovation by the architect, the most distinctive feature of the floor plan design was the location of the Executive Offices, critical to communications in matters of state business. Placed on the principal floor, this allowed the omission of galleries located around the dome on the second and third floor levels, typical of capitol designs in other states. This enabled Kletting to design the Central Hall as one unit extending over 300 feet in length and provided an unbroken view over the entire distance, which added significantly to the impressiveness of the design. Marble floors, trim, wainscoting, and subordinate columns united the rotunda area with the other principal public areas; walls and large columns were marble on the main floor and oolite on the other floors. The corridor ceilings and the dome area itself was of ornamental plaster.

Speciality wood wainscoting finished off the lower walls of the café, with mahogany in the Governor’s Suite, the State Reception Room and the Supreme Court Chamber, which was wainscotted from the floor to the bottom of the columns. Each of the special public rooms had distinctive combinations of fine materials and details—the Governor’s Suite--an ornamental plaster cornice, the State Reception Room-- marble fireplaces and door and window trim. The House of Representatives Chamber had marble door and window trim, low marble wainscot, short columns of marble, and mahogany wood trim on the dais and clerks’ desks. The walls up to the cornice, including the arch motive and extending back into the galleries, were to be finished with Caen Stone Cement, a plaster in imitation of stone.



All ceilings, except in specially designed rooms, were tinted with water colors. Executive offices and important rooms on the Main Floor and Ground Floor had walls covered in “Book Cloth” or burlap. Restrooms had walls finished with enamel paint or varnishes. All wood trim throughout was stained and finished to a dull rubbed varnish finish. Most of the door and transom trim in the public corridors were of hand-grained metal to enhance tire resistance.

Many of the secondary doors and rooms had plaster ceilings: corridors, public and private offices and committee rooms on the Third Floor, exhibition space, libraries and art galleries on the Fourth Floor, and the café on the Ground Floor. An ornamental plaster ceiling, painting on the inside of the dome and all interior walls and ceilings were in beautiful bold colors, as in the Governor’s Suite. Walls in the Senate Chamber and House were painted a lighter color with gold leaf bordering the panels in the chambers’ arched ceilings. [See section X., Architectural Finishes]

In addition, murals and other decorative painting enlivened the House of Representatives Chamber and lounging rooms, the Senate Chamber and lounging rooms, the Supreme Court, and many of the main corridors.⁷¹ Art glass in the ceiling lights of the House of Representatives, the Senate Chamber and the Supreme Court, as described by Kletting, were “from plain wired Florentine glass to colored or partly colored ornamental lights, wired or plain, but harmonizing with” the color scheme of the respective rooms, creating an elegant lighting scheme.

Gold leaf was used extensively on interior detailing—23 karat on ceilings, sofas, chairs; 14 karat on ceiling decorations. Gold leaf also was used on tables and chairs, gold thread in wall tapestries and two gold-backed mirrors. In the Gold Room there were wall tapestries and green brocade chairs from Italy which had 14 karat gold thread. Steel doors, steel and glass doors and heavy brass doors were on the exterior entrances; wooden window frames were routine throughout the building.⁷² Kletting approved the use of a dark grey paint for painting the exterior window frames and inside white enamel.⁷³

Stairways were constructed of light Cherokee Georgia marble, columns and balustrades of the corridor and rotunda of the Main/Executive floor of Georgia marble. Public stairs had marble treads and cast iron paneled risers, ornamental iron rails and wood hand rails. Lighting fixtures varied dramatically from room to room. Electric fixtures were for the most part cast bronze, brass and nickel. The Gold Room chandeliers had crystal imported from France. Ten wall chandeliers were also made of French crystal. Lighting fixtures of Utah copper, each bearing the state emblem or initial, were located in various rooms or halls. Lighting was altered over time to update the wiring and illumination to keep up with improved technologies, but in keeping with the original elegance of Kletting’s designs. For instance, lighting flush with the lowered ceilings was installed behind the walls of the Rotunda in 1962.⁷⁴

Cabinet work was given the same attention to detail as other design aspects of the interior. Solid wood molds or models of all carvings had to be submitted first to Kletting for approval. The carvings would be afterwards stained with two coats of shellac so that the carving would stand out “clear and sharp.” Kletting’s specifications went so far as to describe the quality and type of wood to be used for davenport and easy chairs, coat stands, racks in the coat room and hardware on all cabinetry making sure all details harmonized.