

County Dome and Facility Improvements Study

Prepared for:

Manitowoc County Department of Public Works Manitowoc, Wisconsin

Strang Project #2022011

June 30, 2022

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Executive Summary

Study Summary

The County Dome and Facility Improvements Study was commissioned to assist the Manitowoc County Department of Public Works (MCDPW) with project scope and budget considerations for the following five projects under consideration:

- Courthouse Tower Restoration and Repair initiated due to concerns about the cladding weathertightness, loss of the glass dome, and degrading appearance.
- Atrium Interior Dome Restoration exploring the requirements for restoring the dome to its original glazed condition.
- Courthouse Exterior Window Replacement initiated due to concerns about increased maintenance, failure of
 the integral blinds, aesthetic concerns related to both the uneven fading of the anodized frames, and the reduced
 daylighting from the window height reduction to accommodate dropped ceilings when the windows were replaced
 in 1978. At that time, the new and existing transoms were set with opaque spandrel panels.
- VAV Box and Valve Replacement and Controls Modernization initiated as these items have been maintained well beyond their expected service life.
- Main Courtroom Air Handling Unit Replacement initiated as the chillers are currently being replaced, the existing
 AHUs are at a point where cyclical replacement is an option and having the entire system updated at the same
 time simplifies maintenance and scheduling/budgeting for future facility improvements.

Existing conditions for the non-HVAC projects were visually observed and assessed for deficiencies. For the HVAC projects, discussions were held with the MCDPW maintenance and operations staff about equipment performance and maintenance. Recommendations were provided and further developed as scopes of work which were then utilized for developing the conceptual cost estimates. The projects include some "discretionary" work which is best done as part of the overall scope to avoid later excessive costs and impacting completed work. Where conditions were difficult to ascertain or were hidden by construction, they were assumed to require work. This primarily applied to the Courthouse Tower were deficiencies were found to be worse than expected, broader reaching, and presenting a greater concern due to continuing and expanding deterioration attributable to water infiltration through the failing cladding.

Only four alternates within the projects were considered. The alternates for the Tower Restoration include reglazing the dome in lieu of using copper cladding, adding a lightning protection system, and replacing some of the existing exterior light fixtures with LED fixtures. The one alternate for the Atrium Interior Dome Restoration involved replacing the abandoned cornice lighting with a fiber optic system that would preclude the need for lamp replacement at the cornice.

Schedule

The proposed basic schedule is as follows:

- 2022: Project and funding approval, securing of funding.
- 2023: Develop design, produce construction documents, solicit bids over years end.
- 2024: Award work and begin construction
- 2025: Complete construction on two season work (Tower Restoration) or other work if split into phases.

Budget

Two teams were employed to develop conceptual cost estimates for each project. The Concord Group provided an opinion from the viewpoint of a construction consultancy that provides owners representation and project management and have adjusted their opinions for a first quarter 2024 construction start. JP Cullen (JPC) provided an opinion from the viewpoint of a large commercial construction company and actively solicited bids as if these were current active projects scheduled for the third quarter 2022. The JPC estimates were then escalated to the first quarter 2024 start using the 13.5% escalation estimated by the Concord Group. All three numbers include a recommended 10% contingency except for the Courthouse Tower, for which 15% is recommended. All numbers are rounded to the nearest dollar.

Concord Group	JP Cullen	JPC Adjusted
\$11,159,473	\$18,840,998	\$21,384,533
\$2,168,491	\$1,330,086	\$1,509,648
\$5,122,765	\$1,587,562	\$1,801,882
\$1,516,807	\$1,120,150	\$1,271,371
\$1,030,457	\$401,549	\$455,758
	\$11,159,473 \$2,168,491 \$5,122,765 \$1,516,807	\$11,159,473 \$18,840,998 \$2,168,491 \$1,330,086 \$5,122,765 \$1,587,562 \$1,516,807 \$1,120,150

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I. PROJECT OVERVIEW

A. Project Justification

This report was commissioned to assist the Manitowoc County DPW in establishing project scopes and budgets for the following five historic Manitowoc County Courthouse restoration and facility improvement projects:

- 1. Courthouse Tower Repair and Restoration:
 - a. The increasing copper cladding deterioration has resulted in increased water infiltration that has led to the deterioration of the structural clay tile walls backing up the copper cladding, and to significant corrosion of portions of the tower's structural steel frame. The project intent would be a refurbishment of the historic construction to best prepare the tower for the next 100 years.
 - b. The 1950 recladding of the glass dome with stainless steel and removal of original copper detailing and the continued loss of copper ornament has resulted in a distressed and less than proper appearance for a public building of its stature. The project intent would be to restore the tower to much of its original appearance where possible. The dome would be clad either in copper or glass, and the original dome lantern design would be reinstated and modified for safety upon approval from the Wisconsin State Historic Preservation Office (SHPO).
- 2. Courthouse Atrium Interior Dome Restoration:
 - a. To remove the stainless steel infill panels and reinstall textured glass panes and provide supplemental back lighting to restore the borrowed light function of the original dome design.
 - b. The ornamental lighting at the dome drum cornice has failed and was difficult to maintain. An alternate to replace this with a remote light sourced fiber optic system is proposed.
 - Water infiltration from the tower has damaged the plasterwork just under the dome and requires repair.
- 3. Courthouse Exterior Windows Replacement:
 - a. Originally replaced in 1978, the windows have begun to experience maintenance issues, particularly the failing of the integral blinds.
 - b. The dark bronze anodizing has faded to gold in areas that are continually exposed to the sun, resulting in a noticeable uneven appearance.
 - c. To accommodate dropped ceilings, window heights were reduced and transoms were introduced. These transoms, along with existing transoms elsewhere, were all provided with opaque infill panels.
- 4. VAV Box and Valve Replacement and Associated Controls Upgrade Variable Air Volume boxes (VAV), associated valves, and associated controls upgrades:
 - a. The VAV (Variable Air Volume) boxes and valves provide tempered fresh air to the various building spaces. They have greatly exceeded their designed service life and are due for replacement.
 - b. The existing pneumatic control system are outdated would be replaced with current industry standard Direct Digital Controls (DDC), a process already begun in parts of the building.
- 5. Replacement and improvement to the second floor Main Courtroom Air Handling Unit (AHU) and conversion of the pneumatic controls to DDC:
 - a. This equipment is reaching the end of its service life and its replacement would be a follow up to the in progress replacement of the chiller system and allow for better and more efficient separated climate control of the courtroom and the courtroom offices.
 - b. The existing pneumatic control system are outdated would be replaced with current industry standard Direct Digital Controls (DDC), a process already begun in parts of the building.

B. Project Team

Owner: Manitowoc County

- Gerry Neuser, CDT. CCCA, Director, Manitowoc County Department of Public Works
- Craig Breit, Building and Grounds Supervisor, Manitowoc County Department of Public Works

Architect/Engineer: Strang Inc.

- Larry Barton, AIA, CEO
- · Kevin Donahue, AIA, Senior Project Architect
- · Jim Donovan, BIM Technician
- John Kolodzinski, DE, Director of Mechanical Engineering

Cost Estimation - The Concord Group

Seamus Wallace, CPE, Assistant Director, Cost Management, The Concord Group

Cost Estimation - JP Cullen

- Jasun Berka, Project Manager
- · Luis Belmontes Jr., Estimator

C. Study Approach

The study was organized into the following three sequential parts:

Condition Assessment

A limited review of the tower, interior atrium dome, exterior windows were performed by means of visual observations from grade, the roof, and within the building itself, including the tower clerestory and dome, and the lantern on top of the dome. In addition, one panel of the interior atrium dome was temporarily removed with the generous assistance of the staff from Public Works.

As the HVAC systems were at or beyond the recommended operational life and the County was already seeking to replace them, no visual inspections were made. Rather, discussions with the Manitowoc County Public Works staff in charge of the operations and maintenance of the systems were held to understand the systems as well as noticed operating deficiencies and issues.

A review of existing documentation of the Manitowoc County DPW provided resources was also made:

- A review of Drone based photos of the tower lantern.
- A review of the December 4, 2013, Manitowoc County Courthouse Sheet Metal Survey by Renaissance Roofing.
- A review of the January 2008 Courthouse Dome Condition Assessment Report by Engberg Anderson.
- Review of historic photographs from the Manitowoc County Historical Society.
- Review of digital copies of the original 1905 C.H. Tegen Courthouse design and construction drawings.
- Review of the 1984 Heating, Ventilation, & Air Conditioning Projects Courthouse, County Office Building, Expo Merchants Building construction drawings.

Following the visual observations and review of existing documentation, a review and assessment the conditions was made and discussed with Department of Public Works staff. See Part II | Condition Assessment for the assessment.

Work Recommendations

Recommendations to address the observed deficiencies were first developed in narrative form and then expanded as to create a Scope of Work which was then outlined on the Scope Drawings. These were then further refined following discussion and input from Department of Public Works staff. See Part III | Work Recommendations for the narrative and Appendix A for the Scope Drawings.

Conceptual Estimates

The Work Recommendations were provided to two different teams using different means and viewpoints to arrive at their opinion of cost for each project. The intent was not for them to compete but rather to provide the study a broader understanding of the work, what it would take to accomplish that work, and to identify specific critical labor and material costs that may impact the overall project budgets. The teams are:

- The Concord Group, a construction consultancy that specializes in owner's representation, project management, and cost estimating. They draw upon a variety of local and national construction cost data bases as well as their inhouse data base which is based upon their projects and the current trends encountered.
- JP Cullen, a \$400 million+ commercial construction company with experience in large historic restoration and adaptive reuse projects. Their estimate is set up as if bid today and is based upon their own current data base for self-performed work in conjunction with sub consultant partners and material suppliers with whom they are

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familiar. As a result, they can provide an in-depth look into the efforts and costs to achieve the various tasks that make up each construction project.

See Part IV | Conceptual Estimates Summary for a comparison of the resulting estimates on a project by project basis.

D. Building Description

The building is a beaux arts style rectangular three story stone structure with a central copper clad tower with a stainless steel clad dome and copper lantern. The four facades are both vertically and horizontally divided into a classical tripart system. Horizontally this consists of a rusticated brownstone basement base upon which sites the three story limestone body, which in turn is topped with a carved limestone entablature. Vertically, the faced is divided into fenestrated corners and a central projecting colonnaded entrance bay with 6 columns rising from a second floor balcony. Monumental stairs are centered on the primary east façade and secondary north and south facades. The less ornate west façade replaces the center colonnade with large, thick pilasters and omits the monumental stair and entry.

The building's structural system consists of loadbearing exterior and interior masonry walls, interior cast iron columns, and floors consisting of concrete topped clay tile flat arches between steel beams. The roof structure consists of a hipped steel framed roof infilled with a reinforced cindercrete deck. The tower is framed out by 8 steel columns and infilled with structural clay tile to form the backup walls for the copper cladding and ornamentation. The square tower is capped by an octagonal steel framed dome that originally was glazed but subsequently replaced with stainless steel panels and ribs in 1950.







Courthouse viewed from SE circa 2007.

E. Historical Status

The Manitowoc County Courthouse is a designated historic structure, listed on both the National and State Registers of Historic Places, and appears in the Wisconsin Historical Society's Architecture and History Inventory.

Historic Name: Manitowoc County Courthouse

WHS Architecture and History Inventory Reference Number: 16252

State & National Register Reference Number: 81000047

Property Location: 1010 S 8th Street, Manitowoc, Manitowoc Co., Wisconsin

Property Features:

Year Built: 1906

Period of Significance: 1900-1924

Area of Significance: Architecture; Politics/Government

- Applicable Criteria: Event; Architecture/Engineering
- Historic Use: Government: Courthouse
- Survey Date: 1985
- Architectural Style: Classical Revival, Beaux Arts
- Resource Type: Building
- Architect: Christopher Tegen
- Builder: George Rickman & Sons Co.
- Cost: \$159,200

Designations:

- National Register Listing Date: 4/16/1981
- State Register Listing Date: 1/1/1989

Number of Resources within Property:

Contributing Buildings: 1

As a listed historic structure owned by Manitowoc County, per State Statute, all work which may have an adverse effect on the historical property must be reported to the State Historic Preservation Officer (SHPO) for review. If the work is determined to have an adverse effect, per State Statute 44.40 (3), the SHPO "may require negotiations with the State agency to reduce such effects" or per State Statute 44.40 (4) "deny or impose conditions on a permit, license, authorization, variance". As such, all work should be developed in partnership with the SHPO and ultimately submitted for their review.

F. Project Schedule

The project as conceived is based on the following schedule:

- Calendar Year 2022: Development of Project Scopes; Work Recommendations by Project based upon a visual condition assessment of existing conditions; Budget Development based upon construction cost estimates.
- Calendar Year 2023: Final Project Scope(s) established; Design Development and Construction Documentation based upon final Project Scope(s) and additional site investigations as may be warranted by Project Scope(s) and Design; start of Bidding.
- Calendar Year 2024: Bids Due, start of Construction.
- Calendar Year 2025: Pending Projects Scope(s) selected, construction may continue or mark the start of additional Project(s).

G. Project Budgets

See Part IV | Conceptual Estimates Summary for a comparison of each team's opinion of cost for each project.

PROJECT ALTERNATES

Two Project Scopes have Project Alternates. The Tower Restoration has three proposed alternates:

- With cladding the dome in copper as the base price, recladding it in glass will be considered an alternate.
- Replacing the existing 9 clerestory exterior light fixtures with energy saving LED fixtures.
- Adding a lightning protection system for the tower.

Atrium Interior Dome Restoration has one proposed alternate:

Replace the abandoned bare bulb lighting system at the underside of the drum comice with a fiber optic system.
 This system would provide a maintenance free fixture at the cornice and remote lighting sources to the attic where they would be readily accessible for maintenance.

ECONOMIC FACTORS IMPACTING CONSTRUCTION COSTS

Significant extenuating factors are currently impacting construction costs and resulting in record inflation, protracted materials/products delivery schedules, and final project deliveries. The pre-pandemic construction labor shortage has been supplemented by post pandemic general labor shortages, supply chain challenges, transportation backlogs, and the price of fuel. While the cost spikes of some materials and products have begun to reduce, it must be noted that the increased annual rate of inflation which has already occurred, will not. Rather, the future annual rate of inflation will ultimately decrease. An additional factor to consider that will impact costs in 2023 is the scheduled renegotiation of labor agreements for several trade unions.

II. CONDITION ASSESSMENT

A. Tower Architectural Condition Assessment

INTENT

As the Tower needs to be made watertight and corrosion addressed, the County seeks to restore the tower by replicating the original copper cladding and ornamentation, possibly reglazing the dome per the original design, address structural repairs, replace the clerestory windows to emulate the original design but not be operable, and improve flagpole operability.

FLAGPOLE

Observations

A review of historic photos and the original construction drawings indicate that the building as originally designed and constructed did not have a flagpole. Per photographic evidence, the flagpole was added as part of the redesign of the dome lantern sometime before 1950. The flagpole itself is only accessible by use of a lift from grade and cannot be seen from the lantern.

The flagpole is a copper clad pole with either a wood or metal core construction and is topped with a copper sphere. The cladding of the pole is dented in places and polished from the flag, halyard, and rigging rubbing against it. The vertical seams of the copper cladding appear to be slightly pulled apart but it is difficult to confirm due to the distance.

The current rigging fittings appear to be either aluminum or stainless steel and face the southwest. The original fixed copper or bronze truck at the top of the pole is not used and the replacement rigging consists of a fixed pulley clamped to the pole at the top and a lanyard pulley at the base used to hold the halyard against the pole. As the flag is lowered, it hits the lanyard pulley and both flag halyard and lanyard pulley must be lowered as the flag cannot pass through the pulley. There is a stainless steel brake metal panel attached to the copper cornice over which the halyard and lanyard ropes are rigged. Remnants of a horizontal boom that might have held the rigging off the roof can still be seen attached to the roof. The ropes pass though eyehooks on the lantern guardrail and are tied off to the guardrail. The remaining length of rope is then wound around the top and bottom of the guardrail. A broken halyard cleat was observed on guardrail and fasteners holes for other halyards were noted on the east guardrail segment.



Halyards rubbing on dome and pulled taught to edge of comice.



Halyards tied around guardrail. Note rusted anchors for missing cleat on rail.

Assessment

- The condition of the copper cladding of the flagpole likely requires replacement.
- The makeup and condition of the structural core of the flagpole is unknown. This should be further explored during any work on the lantern.
- The original truck at the top of the flagpole is abandoned and may not be functional and may not be repairable.
- The replacement flag rigging system faces the prevailing window from the southwest. As a result, the flag and halyards tending to wrap around the flagpole, typical of such systems.
- The replacement rigging system is incomplete, resulting in damage to the building as the halyards rub against the
 copper dome and the stainless steel brake metal panel installed over the cornice. This type of system typically
 requires a horizontal boom or standoff at the base of the dome to always hold the halyards off the building.
- The halyard and lanyard are tied off directly to the copper clad guardrail in a neat manner but is unsightly from
 grade and may be damaging the guardrail cladding copper cladding and framing by adding undo stress on the
 guardrail.
- Access to the flagpole is via a steel ladder, though the narrow compression ring at the top of the dome framing, and through a small access hatch that takes up a large portion of the lantern floor. The operator of the lanyards cannot see the flag or flagpole from the lantern. As a result, raising and lowering the flag is a minimum of a two person operation, with at least one person to operate both lanyard and halyard while an observer below indicates where the flag is in relation to the top of the pole.

Items for Consideration

- The existing copper or bronze truck may be able to be repaired and reused.
- Change the flagpole to either stainless steel or painted steel and omit the copper cladding.
- Completely redesigning the flagpole and rigging system along with the lantern roof as part of the recladding of the tower. See further discussion in the Considerations portion of Copper Cladding section below.
- Remove the flagpole from the lantern dome and return the lantern to the original design. There is historical
 precedence for this as the building as originally designed did not have a flagpole on top of the lantern. A more
 accessible but suitable symbolic and dignified location maybe in front of the main entry where flag ceremonies
 could also be performed.

COPPER CLADDING

Observations

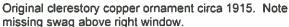
The review of the Tower's copper cladding existing conditions was performed by means of firsthand observations and photography from grade, from the promenade, and from the lantern in addition to reviewing previous drone photographs and the Sheet Metal Survey by Renaissance. In general, numerous pinholes, open joints, improper exposed ferrous fasteners, and missing fastener caps were observed. Copper cladding at the lantern has numerous open seams and failing joints. There are tears in the skyward faces of various copper elements and numerous applied ornaments and pressed ornamental pieces are loose or missing. Two missing 'S' brackets from the panels above the clerestory entablature were found stored in the clerestory. A missing guardrail spindle at the lantern deck was found stored in the interstitial space between the lantern deck and the top of the structural framing compression ring. The wood frame of the spindle appears to have been held in place by one or two finishing nails at either end. The patched ceiling of the lantern is sagging and appears to be wedged in place with wood at the top of the columns.

At the dome base and clerestory below, numerous corroding ferrous fasteners were observed inside and out, as what was seen in the previous survey photos. From inside the dome, the brake metal armature supporting corners was found to be heavily corroded or to have failed. The galvanized steel armature for the dome drum appears in serviceable shape but exhibits varying amounts of surface corrosion. These may not be original to the building given the change in the types of fasteners (square vs. hexagonal) and materials (painted vs. galvanized iron vs. copper or bronze).

When compared to the historic photographs and historic construction drawings, the lantern roof, skirt at the base of the lantern, ornament on top of the entablature, and cladding and ornament around the clerestory windows appear to be simplified versions of the originals or wholly unrelated designs.

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May, 2022: Extensive missing ornament and the simplified window frames of the 1950s repairs.

Assessment

- The copper cladding and is at the end of its serviceable life and requires complete replacement.
- The observation and assessments made in the previous condition reviews of the copper cladding were readily confirmed in this review of existing conditions. These include:
 - Lack of continuous backing for skyward surfaces resulting in deformation, cracks and tears, open joints.
 - o Missing anchorage caps, corrosion of and staining from exposed ferrous anchors.
 - Worn and failed solder joints
 - Worn and failed copper cladding.
- Water infiltration through the failing cladding has impacted various structural elements, armatures, and fasteners.
 Unfortunately, many of the most vulnerable areas and surfaces are hidden from view by construction and cannot be assessed unless opened or the element fails in a manner that exposes the damage.
- The current visual appearance of the tower is a much simplified version of the original and does not fully reflect the
 design and craftmanship of the original. This includes the salvaged bracket stored in the clerestory. It is a simple
 boxed out version of what historic photos show to be originally made with stamped sides.

Items for Consideration

- Lightning Protection System: Currently there is minimal combustible material on the tower. When providing
 continuous solid backing for skyward surfaces, dimensional lumber and plywood sheathing are required which
 will introduce more flammable material to the tower. In addition, protection of the history and current proposed
 reinvestment in the restoration of the tower should be considered. A full lightning protection system should be
 considered.
- Design of the Lantern and Lantern Roof: Consideration needs to be given as to which lantern design should be incorporated into the restoration. The options are:
 - The original historic design consisted of a colonnade surmounted by conical roof and a small cap, no flagpole or guardrail. Fall protection tie-offs must be provided in lieu of the guardrail.
 - Maintain the current design and add a rigging boom that is structurally anchored to the lantern structure.

- A hybrid design that blends the original conical roof with the flagpole, add a structurally secured rigging boom, and provide the guardrail. This would need to be approved of by the State Historic Preservation Office (SHPO) as it is a deviation from the two established historic designs, thereby creating a potential false historical narrative.
- Redesign the dome and flagpole to allow for the flagpole to extend partway into the lantern and an opening or roof hatch to be building in the dome. This would also need SHPO approval and may prove technically difficult as well as expensive.
- Coordinate recladding of tower with cladding of the dome in either glass or copper. In either scenario copper ribs need to be replicated to restore the original appearance of the dome.

STAINLESS STEEL CLADDING

Observations

The stainless steel cladding replaces the original prismatic glass and the copper ornamental vertical ribs and horizontal joint covers. It consists of large panels applied in a shingled manner to promote runoff being drained down and out, which are held in place by applied vertical ribs and horizontal joint covers, both simplified versions of the original design. This whole assembly is secured to the original copper clad glazing iron armature using exposed stainless steel bolts. The regularly spaced bolt locations on the exterior speak to prefabrication of the stainless steel while angled and somewhat random penetration of the armature indicate the holes were then field drilled through the existing structure.

The tops of the vertical rib are partially open to the sky and able to collect some runoff from the copper lantern skirt above. Sealant has been applied to the fasteners and joints between the ribs and panels at several locations on the upper more horizontal portions of the dome. At the horizontal joint covers the upstream joints collect particulate runoff. Weepholes at the downstream side of the cover joints appear to be the source of much of the soiling and staining of the stainless steel panels. Water infiltration through the upstream edge of the horizontal joint covers is drained out through a series of weep holes at the underside of the joint covers.







Note the open tops of the stainless steel ribs.

Assessment

- The stainless steel, although somewhat soiled and stained, appears in good condition.
- The effectiveness of the shingling of the stainless steel panels as executed is questionable given damage seen to the dome armatures and interior framing.
- The partial open tops of the vertical ribs are introducing a limited but regular amount of runoff into the ribbing from the copper lantern skirt just above. Depending on the amount of shingled overlap and its ability to fully cover the armature and structure below, this condition is likely leading to some corrosion of the armature and dome structure. Given this runoff washes across the copper lantern skirt, additional corrosion from galvanic action is possible.

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The full extent of corrosion to the armature and dome structure can only be assessed following the complete removal of the stainless steel cladding and the armature copper wrapping.

The light but noticeable staining on the panels appears to emanate from the weepholes at the underside of the
horizontal ribs covers. Presumably the particulate collecting at the upper side of the horizontal joint covers
eventually overflows the cover or works its way through the skyward joint and weeps out at the underside of the
cover.

Items for Considerations

- If the intent is to maintain the current stainless steel cladding, it should be further reviewed and observed from
 inside during heavy rain to confirm weaknesses in the design and then modified to eliminate these shortcomings
 to the greatest extent possible.
- The current cladding is not historic or sympathetic to the character of the original design. Since the stainless steel
 cladding would need to be at least temporarily removed to address final assessment, repair, and priming and
 painting of the dome structure and support armature, it is well work while to review the cost of reglazing the dome
 or at least replacing the stainless steel with copper panels and copper ribs designed to replicate the original
 copper ribs.
- The 2008 exploratory removal of a stainless steel panel was unable to provide insight into the original means to secure the glazing to the armature. A group of four contiguous panels around a single rib/upper and lower row is likely required. Additionally, design/engineering consultants with experience in restoration of known examples of glass domes/conservatories of the same era should be engaged during the design phase.
- If reglazing the dome is considered, the following requirements will need to be met:
 - Safety glazing is code required. Given the height, laminated glass may preferable over tempered glass even though the dome is not occupied.
 - As prismatic glass the thickness and size of the or the original is not available, careful consideration of alternatives to replicate the original appearance is warranted as clear glass would not be acceptable.
 Patterned glass or laminated glass with a patterned interlayer should be considered.
 - Design of a suitable anchorage system meeting current wind load requirements.
 - The development of profiles to create an approximate replication of the original copper ribs and horizontal joint covers based on historic photographs and original construction drawings.

STRUCTURE AND BOOK TILE INFILL

Observations

Clerestory:

The courthouse tower consists of a steel structural skeleton, infilled with structural clay tile and brick to form walls. It is supported by solid masonry piers in the attic which are connected by three side-by-side steel I-beams that form the lintel supporting the thickened brick base wall of the tower. This base wall supports both the tower and the inner side of the steel and cindercrete promenade deck that encircles the base of the tower. A few randomly spalled bricks were observed as were a few holes cut into the brick. There is some efflorescence and water staining on the walls. The steel framed cindercrete promenade deck was reinforced from the underside with heavy timber beams and thickened plywood decking to help support the weight of work during the 2009 balustrade and roof restoration as the structural capacity of the deck was unknown. While the cindercrete deck showed signs of past water infiltration, no signs of new water infiltration on the reinforcement were observed.

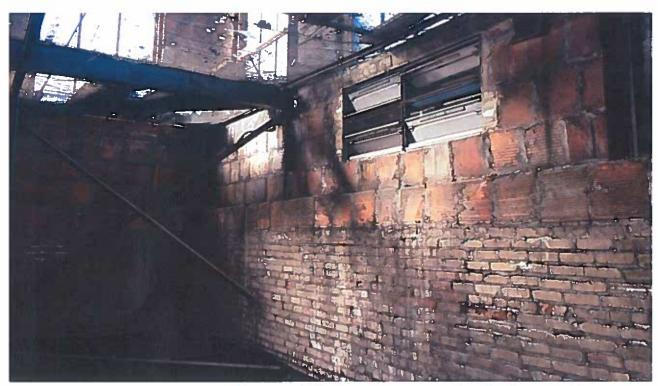
The clerestory portion of the tower rises above the promenade deck level to the underside of the dome floor and consists of steel columns partially embedded in structural clay tile infill walls. The columns are cross braced by a lower and upper level of horizontal beams spanning the open interior, as well as diagonal beam and tension rod bracing. Just below the lower level of beams and centered in each of the structural clay tile walls, a large aluminum barometric relief damper has been cut into the wall. The masonry below the louvers is water stained and there are some limited areas of efflorescence. Just above this level are the clerestory's four facades, each containing three large, monumental windows. A heavy gauge wire mesh debris screen containing remnants of past window breakage is supported by the lower level of cross bracing beams. A narrow wood framed walkway on top of the screen provides access from the stair to the exterior promenade via access doors set in the west elevation's center window. Wood planks provide movable temporary access as needed.

The tower steel is painted black and may be an original coating applied during construction as there are only limited signs of paint on the adjacent masonry infill. The coating is thin and failing. Mild surface corrosion is visible sporadically at the lower steel but becomes increasingly more extensive and severe further up the clerestory. From an area just below the upper level of horizontal bracing through the column attachment to the dome trusses and to the underside of the dome

floor deck, the exposed steel columns, the dome trusses, and horizontal bracing connections are covered in heavy surface corrosion. This also occurs on portions of the embedded steel beams supporting the clay tile ceiling in the corners of the clerestory. These areas originally supported the now missing corner spheres at the base of the dome drum. The extent of corrosion on the embedded portions of the steel columns and beams could not be observed.



Interior of clerestory. Note structural clay tile, steel columns, wood bracing of windows, wood catwalk, and debris screen over lower cross bracing. The ship ladder in the center leads to the dome.



View of the clerestory just below the debris screen. Limited efflorescence and spalling brick indicate a minimum amount of water infiltration of the past 100 years. Note barometric pressure louver below center window.

There is extensive water staining and efflorescence on the clay tile along the ceiling in the corners and adjacent to the columns. Several spalled structural clay tiles, some with mortar repairs, were observed. Some tile between the closely space columns and windows appear loose. At the lower portion of the walls, the structural clay tile infill shows only limited staining and efflorescence. No cracks in the units or mortar joints were observed at these locations. Numerous thru wall anchors attached to sheet metal anchor plates are from previous repairs to the exterior cladding.



Ship ladder to dome. Note dome floor deck and joists.



Water staining and efflorescence on structural clay tile walls and comer ceiling.



Extensive water staining and efflorescence of structural clay tile. Note heavy corrosion of steel column supporting dome truss



Broken infill tile between window and steel column.

The clerestory is capped by the dome floor trusses and deck, likely added as part of the 1950 repair work. It consists of steel joists and corrugated metal decking, topped with a hot mopped felt roof. Supplemental galvanized structural steel has been added where needed to connect the joists to the tower framing. The dome floor structure and deck show only limited surface corrosion, likely the result of condensation rather than a leak in the roofing layer above.

A steep steel ship ladder provides access from the clerestory to the dome floor above. Adjacent to it is the remnant of the original steel ladder to the dome lantern currently provides improvised access to a suspended wood gangplank to the return air duct at the top of the interior dome as well as supporting the winch for the atrium chandelier. Both elements have been

painted over time, but at the rungs and treads the coating has predictably worn off. Only mild general surface corrosion was noticed.

Dome & Lantern:

The dome structural framing consists of a series of eight curved trusses with horizontal secondary trusses and steel members providing cross bracing. At the top of the dome the trusses converge on a compression ring through which the top portion of the original ladder to the lantern still provides access. The ladder, which has light to moderate surface corrosion, stops approximately 2' short of the lantern deck, requiring one to grab the edges of the roof hatches curb to pull oneself up to the lantern deck. The steel columns of the lantern structure rise from the top of the dome trusses to form the 8 columns of the lantern and are tied together by structural iron/steel framing of the lantern roof. A photo from the Renaissance Sheet Metal Survey shows the framing may be from original conical lantern roof but with wood framing applied to form out the curve of the current dome. The flagpole base is also visible but its composition cannot be determined.

The coating on the visible structural steel of the dome and lantern is thin and heavily compromised. Mild surface corrosion can be seen on most surfaces. Of greater concern are the concentrated areas of intense corrosion located about three quarters of the way up on all the trusses. Two of the eight trusses have extensive delamination of the steel angle top chords while the other six exhibit minimal to heavy surface corrosion. Corrosion on the various elements of the trusses continues downstream of these locations. The condition of the lantern framing is hidden within the lantern construction and could not be observed.

The dome floor roofing layer shows signs of deterioration more from age than use. While exposed to temperature fluctuations, it is protected from precipitation and UV by the stainless steel cladding of the dome.



Dome structural trusses connect to a compression ring at top of dome. Note ladder to lantern through ring.



Past leaks have not only corroded the trusses but have also begun to push apart the members.

Cladding Armature:

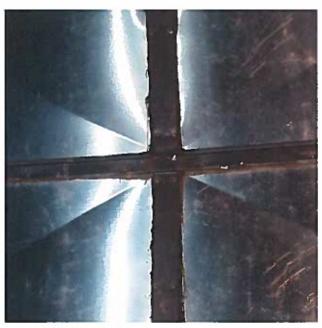
The armature supporting the dome cladding consists of a separate copper wrapped iron or steel vertical and horizontal framework connected back to the roof trusses by means of a series of metal brackets standing off the curved outer chords of the dome trusses. The framing aligns with the dome cladding's vertical ribs and horizontal stainless steel joint covers.

How the original glass was secured to the armature is unknown. Mild to heavy surface corrosion is visible on the unclad ends of the armature framing and on the support brackets at many locations. Most of the armature framing is wrapped in copper and is not visible for observation. Two colors of copper cladding were noticed, a greenish black, likely the original copper cladding, and a reddish brown likely from subsequent repairs.

The armature for the copper clad dome drum consists of galvanized steel members and sheets. Wood flooring was used to provide continuous support the skyward faces. The galvanized sheet metal has mostly rusted away and the galvanized steel members also have some surface corrosion.



Copper clad metal armature originally supported the dome glazing.



While it is unknown how the glass was secured, the stainless steel panels were field drilled and thru-bolted.

Assessment

Clerestory:

- The visible steel structure within in the clerestory along with the ship ladder to the dome and the remaining portion of the original access ladder require repainting to protect them from corrosion. The existing coating is inadequate and has surpassed its useful life and may also contain lead.
- The visible heavy steel corrosion at the top of the clerestory points to long term water infiltration. The condition of the embedded steel is unknown and can only be assessed by a closeup inspection and ultimately removal of the clay tile covering. There is concern about the unknown condition of the steel embedded within the structural clay tile infill and its impact on the structural framing's overall capacity. The conditions should be observed during prolonged rain events to determine if water infiltration is actively occurring, allowing the deterioration of the steel and masonry to continue and intensify. If infiltration is occurring, action should be taken sooner rather than later as structural stability issues will inevitably result.
- The structural clay tile and brick infill up to the upper level of cross bracing requires some attention in the form of
 resetting tile and pointing joints at the narrow areas between window openings and the adjacent columns. Areas
 above this are of greater concern selective replacement in addition to repair, resetting, or repointing is required.
- Several barometric relief vent louver blades appear stuck open and may contribute to water infiltration.
- The use of the bottom half of the original lantern access ladder for anchoring the chandelier winch to is awkward and places an unintended load on the ladder.
- The dome floor joists, metal deck, and the ship ladder to the dome appear to be in serviceable condition with only
 mild surface corrosion and repainting needing to be addressed.

Dome & Lantern:

- The visible steel structure within in the dome and on the remaining portion of the original access ladder require repainting to protect them from corrosion. The existing coating is of minimal protection and at the end of its useful life, and it may contain lead.
- Most of the observed corrosion is likely the result of minor leaks and condensation, however a full removal of the cladding of the dome would be required to determine the full extent of corrosion and damage.
- The upper area of the curved trusses is an area of concern given the corrosion has resulted in the delaminating and rust jacking of the back to back curved steel angle top chords of at least two trusses (facing the southwest). In addition to loss of sound cross section, the rust jacking of the top cords out of plane, although minimal at this point, could create unaccounted for additional stresses on the trusses and deformation of the dome if allowed to continue. If the teaks are active, the continued corrosion and rust jacking would result in expanded and accelerated deformation, resulting in additional leaks. A review of photos from the 2008 Engberg Anderson report could not determine if the damage has increased. The damage at these two trusses will require structural repairs. The remaining 6 trusses would need to be further inspected following the removal of the dome cladding to determine if structural repairs are required.
- The condition of the lantern structure could largely could not be directly determined as it is hidden within the cladding. Based on the Renaissance Sheet Metal Survey photo, there is likely extensive corrosion, possibly requiring replacement of that steel framing.
- The hot mopped dome floor, although likely 70 years old, still performs well given its limited exposure to
 precipitation and UV. Should the dome be restored, this roofing should be replaced.

Cladding Armature:

While most of the observable corrosion on the cladding armature is surface corrosion, additional observations
following the removal of the dome cladding, and ultimately the copper cladding on the armature would be required.
If they are to be reused, all will require cleaning, repainting, and recladding. Some elements may require
replacement due to extensive corrosion or damage from the stainless steel through bolting.

Items for Considerations

- Testing of the coating on the metal should be performed to determine if lead is present. While the tower would likely need to be tented or contained as part of the normal paint removal blasting process, the presence of lead would require specially certified contractors and continued air quality testing around the site during the removal process.
- A metallurgical analysis of the steel may be warranted to determine its composition and structural qualities, and any special requirements for welding should welded repairs be required.
- Review of atmospheric conditions in the attic and clerestory space to determine if venting for temperature and humidity control of the entire attic and clerestory is adequate and if there are additional issues that should be addressed. A review could include wireless temperature and humidity monitoring of both spaces along with an exterior located monitor and a courthouse atrium located control monitor. The review should last a minimum of one calendar year to ensure an understanding of conditions during all seasons.
- Additional inspection of tower's structural steel, the glazing armature, and structural clay tile will be required
 following the removal of the copper and stainless steel cladding. Limited areas of the structural clay tile will need
 to be undertaken to further investigate and inspect corrosion and damage to steel currently embedded in the
 structural clay tile infill.
- Provide a more secure and safer access to the return air duct/dome grille. This could be addressed as part of the Atrium Interior Dome Restoration.
- Replace the wood gangway from the stairs to the Promenade access doors on the west elevation with a steel
 purpose built catwalk with code conforming guardrails.
- Extend a purpose built steel catwalk with code conforming guardrails to include access to the complete perimeter
 of the clerestory to provide safe and quick access to the windows and walls.
- Provide electrical service with convenience outlets and work lights at clerestory and dome levels.
- Perform any repairs to the existing debris screen.

CLERESTORY WINDOWS AND DOORS

Observations

The clerestory level windows consist of three half round topped monumental windows on each of the four clerestory elevations. Per historic photos and the original construction drawings, the original windows consisted of the fixed half round sunburst window on top of a window with a pair of vertically stacked 6 over 6 (side windows) and 8 over 8 (center windows) true divided single glazed sashes. The bottom sash was fixed and the upper sash operated on a horizontal pivot. Per historic photographs, and as was typical of the era, the wood frames were erected first and the infill walls were built

around them. A pair of painted aluminum access doors centered in bottom sash of the west elevation center window provides access to the promenade and courthouse roof.

The half round sunburst windows appear to be the original painted wood windows, and largely contain the original prismatic glass. The exterior brown paint and glazing compound is failing and the sills appear to be heavily weathered. The light grey paint on the interior is thin and worn with only some flaking observed. The wood appears dry but remarkably well preserved if original.



The clerestory windows; the half round sunburst wiindows are original with original glass.



The frame and muntins of the original sunburst windows are thicker than the replacement sash below.



Access from clerestory to promenade deck.

The stacked sash windows consist of dimensional lumber frames and either painted aluminum or wood replacement sash with true divided single glazed frosted glass. All replacement sashes are non-operable and reinforced with 2x4 bracing on the interior. The wood replacement sash muntins are thinner and shallower than those of the half round windows, and are likely easily damaged considering the collection of broken glass and muntins seen on the wire mesh debris screen. The exterior paint has failed, resulting in weathering of the wood.

COUNTY DOME AND FACILITY IMPROVEMENTS STUDY PART II | CONDITION ASSESSMENTS The pair of painted aluminum promenade access doors are narrow as they are sized to fit within the muntin pattern of the windows. They are in good condition but could use new perimeter gaskets and an adjustment to the throw bolts that secure the doors closed. A painted steel stair with handraits provides the transition between the interior access level and the lower exterior promenade level. **Assessment** The existing sunburst windows may be able to be restored and the old growth wood used in them is far more their location and need for continued cyclical maintenance, replacement is a more viable long term solution. complete replacement.

- robust and rot resistant than commercially fast grown wood that is standard today. Given the inaccessibility of
- The frames and fixed stacked sash windows do not match each other and do not match the profiles of the frame, sash, and muntins of the fan/sunburst windows. The wood frames and sash need a complete refinishing if not
- From a distance, the frosted appearance of the stacked sash glazing is slightly more obscuring than that of the original prismatic glass still in the sunburst sash. Given the glass shards inside, switching to a laminated or tempered glass may reduce breakage.
- The operable upper sash of the clerestory windows may have been part of a rudimentary air circulation system. Operable courthouse windows drew in air, circulated up through the interior dome and out the tilt windows of the clerestory by means of the chimney effect produced by the height of the clerestory. This would have supplemented exterior wall vent shafts noted on the original drawings.

Items for Considerations

- The original exterior paint color of the windows is unknown but samples may be found on the original frame and sash of the sunburst windows. In an absence of evidence, a brown to match the adjacent copper would be a
- A full replacement of all windows (sunburst and stacked sash) is appropriate. Returning the upper sash to a fixed pivot would not be required but the appearance of the sunburst window over the stacked 6 over 6 and 8 over 8 sash would need to be maintained. In addition, the profiles of the frame, trim, sash, and muntins of the sunburst sash should be used as the basis for the profiles of the new windows.
- If full window replacement is pursued, consider copper clad ("Kalamein") wood windows. Aluminum or steel framed or clad windows are not appropriate due to the potential for galvanic damage from the surrounding copper. Painted wood windows require monitoring and cyclical maintenance and the standard pine wood available today, despite protective coatings and impregnations with preservatives, does not perform as well as old growth wood or specific species with inherent decay resistance found in the heartwood. Given the inaccessible location and lack of regular monitoring due to the location, a painted wood window is not appropriate. Being set into a masonry opening may present challenges given that masonry stays wet for longer periods and a wood frame may need additional protection. Acetylated wood may be an option as it was used on the Minnesota State Capital Restoration where many of the large operable windows were replaced.
- Reglaze the windows with safety glass, either tempered or laminated, for the increased strength and safety.
- Prismatic glass the thickness and size of the original is not available and clear glass is not acceptable. Use of a lightly frosted or custom pinstripe printed PVB interlayer or applique may simulate the slightly obscuring appearance of the original glass. It is also filters out 95% of UV, resulting in less fading/deterioration of materials.

B. Interior Dome Architectural Assessment

INTENT

The County wishes to consider the possibility of restoring the Counthouse's atrium interior dome to reincorporate glass per the original design and provide appropriate supplemental backlighting.

INTERIOR DOME

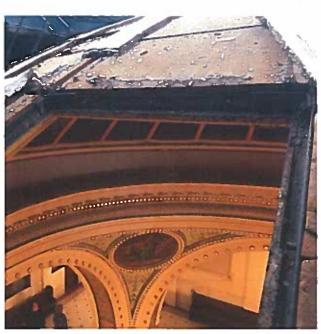
Observations

The atrium interior dome consists of an approximately 30' diameter shallow steel framed dome, faced with bent wood trim and set on a plaster faced structural clay tile drum. Surface corrosion on limited specific areas of the dome were observed. The wood is held to the steel frame by small metal tabs screwed into the trim and which grip the frame. One wood rib is cracked and is slightly warped. The existing bullnosed profiled plaster just below the dome is water damaged in many places. The outer face of the drum is bare structural clay tile wrapped in dust filled batt insulation that is falling of the face of the drum. The dome itself is set with stainless steel panels in lieu of the prismatic glass and is covered in deteriorating

polyisocyanurate insulation. The stainless steel panels, which drape to follow the horizontal and vertical curve of the dome, are held in place by steel pins which are in turn held tight by wood wedges. The domes original 6' diameter center ventilation grate, through which the atrium chandelier is hung, is now attached to the large galvanized sheet metal return air duct. The duct slopes down the dome and would likely be seen in silhouette if the original glazing was still in place.



Insulated topside of Atrium Interior Dome.



Opening in dome frame at removed stainless steel panel.



Metal clip securing wood trim to metal dome frame.



Moisture related damage to plaster at base of dome.

The chandelier can be lowered by means of a pulley, secured to the lower level of horizontal steel bracing in the clerestory, and a hand winch, attached to the base of the remaining lower segment of the original steel ladder to the lantern. When the winch is not in use, the chandelier is secured across the opening of the dome grille with two steel rods. The gathered electric cabling is loosely bundled to the side rather than wound on its own drum.

At the mid-height of the dome drum, there is a plaster cornice, the underside of which contains 72 abandoned bare bulb fixtures between the cornice modillions. Highly inaccessible, the bare incandescent lamps required constant replacement. When fixtures and wiring began to fail over time, the lights were abandoned.

Assessment

- Except for one cracked wood rib trim, the dome frame and trim are in good condition and likely need a cleaning
 or repainting following the repair of the cracked rib trim.
- The plaster bullnosed rib just below the dome needs significant restoration.
- The dome and drum are clad in insulation to reduce heat loss through the dome. The deteriorated and sagging
 insulation needs replacement and a better manner to hold it in place on the vertical face of the drum.
- The chandelier hand winch is poorly located. The loose bundling of the electrical wiring is dangerous and susceptible to breaking or pulling loose.
- The access to the central grate/return air duct sways and is not as safe as it could be. A more secure access should be provided.
- The light ring at the underside of the drum cornice is inaccessible except by scaffolding over the main stair. The
 use of a pole with lamp glove was difficult, dangerous, and may have contributed to the failure of fixtures and
 wiring over time. The lights are currently nonfunctional and abandoned.

Items for Considerations

- Replace the stainless steel panels with insulated safety glazing or, if visually suitable, polycarbonate multi-celled
 panels. The use of a pattern or frosted PVB layer in laminated safety glass would permit both outer surfaces of
 the glass to be easily cleaned while diffusing light from the clerestory and supplemental lighting in the attic while
 matching the appearance in historic photographs.
- Replace hand winch with electric remote controlled winch with a drum for the electric cabling. Relocate the winch
 to the steel I-beam lintels or a masonry pier. Provide a secondary tie-off for securing the chandelier in place when
 winch is not in use.
- Rework the return air duct through the dome's center grill. Modify the existing layout such that the duct is lifted
 off the dome, hangs closer to the underside of the lower level of steel bracing above the dome and come down
 within the reentrant corner of the northwest pier and wrap around it connect to the existing ductwork. It is
 conceivable that the ductwork could be reduced in size pending an analysis of the existing return air system and
 replacing the existing fan with a more efficient fan array. This analysis should be performed.
- Rework the failed abandoned light fixtures at the underside of the drum cornice with fiber optic lit elements. Run
 fiber optic though cornice and collect cables around perimeter of cornice shelf and pass through drum wall to
 remote light source that could be easily maintained.

C. Courthouse Exterior Windows Assessment

INTENT

To replace the existing aluminum replacement windows with new anodized aluminum windows that match the original layout configuration - full height double hung windows single windows and vision glass in the transoms of paired windows. As the ceiling of many of the rooms are at a level flush with the bottom of the current spandrel paneled transoms, light wells would be created in the dropped ceilings to facilitate the return to the full height glazing. New window treatments would also be used throughout.

Observations

The existing courthouse windows are heavily faded dark bronze anodized aluminum replacement windows installed in 1978 over the original wood window frames and exterior trim. As part of the 1978 replacement, the height of the single taller double hung windows at the corner bays of the building were reconfigured as a shorter double hung window with a top spandrel panel to match the appearance of the paired double hung window groupings found at the center bay of each facade. This accommodated dropped ceilings used to hide new mechanical. A limited number of the created spandrel panels are used to host mechanical louvers. Per a review of the 1978 window replacement drawings, the aluminum frames and sash are not thermally broken but sash are double glazed with Solar Bronze glass. In addition, the windows have a supplemental internal removable glazed sash that creates a protective pocket for horizontal blind window treatment and adds to the thermal insulating value.

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Several window openings around the building were designed fully infilled (west elevations) or with infilled transoms (third floor of north, west, and south elevations). Additional windows have been "blinded" since with opaque spandrel panels, notably for mechanical purposes at the basement level and for privacy or security measures at the courtrooms (second floor north elevation infilled with brick, third floor south elevation infilled with limestone). Two windows at the north end of the east elevation have been converted to doorways for the added fire escape.



Typical aluminum exterior window, note fading of dark bronze anodizing. Reduced sash size allows for the insertion of an opaque spandrel panel.



Typical window at interior. Note how dropped ceiling cuts off top of window. The spandrel panel is above the ceiling line.

Assessment

- The failure of the anodized finish on the aluminum replacement windows has a negative visual impact on the courthouse, but in and of itself does not indicate that the windows are failing or in need of immediate replacement. While no leakage was noted, it is expected and has likely been mitigated due to vigilant maintenance.
- The age of the windows (30+ years) does raise concerns about continued serviceability, availability of compatible replacement parts, and the likelihood of increased seal failure on the insulated glazing units.
- Modern units tend to be more energy efficient as the frames can be thermally broken.
- The use of solar bronze or other color coated glazing are prohibited in historic structures unless originally designed with that type of glass. Typically, only a Low E glass with a transmittance of greater than .85 is permitted.

Items for Consideration

If windows are replaced, new window treatments will be required. The reglazing of the half round window tops
presents a challenge for window treatments. They could be left open, provided with a permanent window
treatment, or a roller shade on the wall sized to cover the entire opening may be an option.

D. Limited Mechanical Condition Assessment

INTENT

The County is planning to replace the VAV boxes, valves, and controls. A discussion with Public Works staff regarding the greater mechanical system was undertaken along with a review of the 1984. Heating, Ventilation, & Air Conditioning Projects drawings to ensure the overall scope of the proposed work is appropriate and includes the necessary items while giving due consideration to associated items that may impact or be impacted by the proposed scope and thereby reduce its effectiveness. This is a "best" approach and it is acknowledged that funding and operations may require the adoption of the recommendations in phases based on a "good" or "better" approach.

HEATING PLANT

Observations

The facility currently receives hot water for heating from a steam to hot water heat exchanger within a local utility pump house. The utility steam is metered at the courthouse and the hot water distributed throughout the facility. There is an existing hot water boiler plant that is used for backup upon the rare occasions when the utility hot water cannot meet the facility demand. The hot water distribution piping serves a built-up air handling unit located in the basement, an air handling unit on the second floor and terminal units throughout the facility. The terminal units are utilized around the perimeter of the building and Variable Air Volume (VAV) Boxes are utilized for individual areas on each floor for temperature zone control. The terminal units consist of hot water fin pipe, cabinet unit heaters and convectors. The existing hot water boilers have met their average life expectancy of 25 years and the pumps of 20 years. However due to the infrequency of use and continuous preventative maintenance, replacement of the equipment should only be necessary as it fails.

Assessment

The existing boiler plant has exceeded its life expectancy of 25 years, however, due to its infrequent use and reported preventative maintenance, it may continue to serve the facility for a couple more years. Consideration should be given to its eventual replacement. When it is replaced, the entire plant will need to be updated.

AIR HANDLING SYSTEM

Observations

The air handling system consists of a built-up air handling unit located in the basement. The air handling unit is comprised of a supply air fan, (2) DX cooling coils, and a hot water heating coil. Each DX coil has a remote air cooled compressor-condensing unit located outside. Air is distributed throughout the facility to Variable Air Volume Boxes (VAV) in zones on each floor. There are approximately 62 VAV boxes and 1 fan powered VAV box with hot water reheat. Due to their location within a facility, built-up air handling units are often difficult to remove. Therefore, it is very common for the individual components within the air handling unit be replaced leaving the equipment casing intact. If it is determined that replacing the air handling unit is not a viable option, the replacement of the internal components may be the only viable option.

There is an additional indoor air handling unit serving the second floor courtroom and adjacent offices. The air handling unit is a 3-zone constant volume multizone system and is comprised of a supply air fan, DX cooling coil, and a hot water heating coil. The unit utilizes pneumatic controls. The DX coil has a remote air cooled compressor-condensing unit located on grade that is currently being replaced. Systems of this type have an average life expectancy of 20-25 years.

Assessment

Built-up Air Handling Unit

- Discussions with Manitowoc County Public Works staff indicated a possible issue with the air handling unit's fan
 and motor not being able to properly modulate the fan. This may be the result of the existing fan and motor not
 being fully compatible with the more recently installed variable frequency drive and therefore not compatible with
 the overall existing VAV system or the proposed new VAV system. A balancing contractor is needed to undertake
 test and balance study to provide greater insight.
- VAV boxes with pneumatic controls have an average life expectancy of 20 years. As the majority of the existing
 units were installed in 1984, the equipment has met or exceeded this average and their replacement is warranted.
 As the entire VAV box and associated valves are to be replaced, the planned conversion of equipment controls
 from pneumatic to DDC to match the previous conversions elsewhere in the building is appropriate.

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Second Floor Courtroom Air Handling Unit

- The indoor air handling unit has exceeded its life expectancy and plans should be made for immediate replacement.
- The Manitowoc County Public Works staff is in the process of replacing the chillers for the Courthouse's HVAC system. To take full advantage of the new system and provide adequate air supply and cooling capabilities for the Main Courtroom and the associated offices, replacement of the existing Courtroom AHU is warranted.
- The existing AHU is hidden in an interstitial space just above the offices and can only be fully serviced by crawling into the furthest corners of that space.
- A pneumatic control system manages the HVAC system.

CONTROLS

Observations

The existing building controls system is a combination of Siemens DDC (Direct Digital Controls) and pneumatic controls.

Assessment

Pneumatic controls are an outdated technology that are difficult to maintain and the availability of technicians with knowledge of the systems is becoming scarce. In addition, the tubing and fittings notoriously leak causing the air compressor to cycle on more frequently using unnecessary energy and further reducing the life expectancy of the equipment.

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III. WORK RECOMMENDATIONS

A. Tower

RECOMMENDATION

A full repair of the tower structure and restoration of the tower exterior cladding and ornamentation is recommended. Restoration would include the recladding the tower in copper, recreation of missing or previously simplified copper ornamentation, redesign of the dome lantern to maintain a flagpole while returning to the original historic lantern design, recladding of the tower dome in copper or glass, and the replacement of the tower windows. The scope of work is outlined in the Architectural Scope Drawings, sheets A205 through A502, and is further described as follows:

WORK TASKS

Documentation And Removal Of Existing Exterior Cladding And Ornamentation

- 1. For the purposes of restoring the tower to its original constructed appearance, the copper clad exterior of the tower, from the promenade deck through the flag pole shall be fully documented as material is removed to facilitate repairs and replication of the original cladding and ornament. This work shall include:
 - Documentation of cladding and ornament profiles and dimensions, number and locations, thickness of material.
 - b. Collect examples of all existing original ornamentation for use as patterns.
 - Collect examples of all existing modified or simplified replacement ornamentation for the purposes of informing the size of historical ornamentation to be recreated from historical photos and drawings.
 - d. Document methods of attachment, including types, construction, and profiles of armatures and backing to assist in the replication and attachment of the replicated historical cladding and ornament.
 - e. Document location and condition of building structure and infill used for attachment points.
- 2. At the stainless steel clad dome, for purposes of recladding dome in copper or glass:
 - a. Document dimensions stainless of the stainless steel dome cladding.
 - b. Document the size and profiles of the copper clad dome glazing armature.
 - c. Document size and location of glazing armature and armature attachments back to structural.
- Inspect and assess the tower steel structure, bracing, floor trusses and decking, dome glazing armature, access ladders and stair. Document size and condition to assist in the repair or replacement of deteriorated or damaged elements, both noted and found.
- 4. At top of the clerestory, remove structural clay tile immediately adjacent to all (8) columns to a level 8' down to reveal the embedded portions of columns as part of the structural assessment process.

Structural Repairs And Preparation

- Repair all structural steel, bracing, dome glazing armature, access ladders and stairs as required. Specific repairs include:
 - a. At lantern repairs to roof framing and tops of columns are expected.
 - b. At two dome trusses reinforce or replace 5' lineal feet of the back to back steel angle top chord.
 - c. At three additional dome trusses reinforce 4' of back to back steel angle top chord.
 - d. At top of clerestory, corrosion sufficient to require reinforcing of column to truss connections at the base of the 8 dome trusses is expected.
- 2. Blast clean all exposed steel. Provide additional line item cost for lead abatement should existing steel coating be found to contain lead.
- Prime and paint all exposed steel structure, bracing, floor trusses and decking, dome glazing armature, access ladders
 and stair with an organic zinc primer and double top coat of acrylic top coat (dark grey or black, matt finish, light grey
 at underside of dome floor deck, matt finish). Assume Tnemec protective coatings as the basis of design.
- Inspect the exposed structural clay tile and:
 - Repoint cracked or deteriorated joints with lime mortar to match original formulation.
 - b. Provide mortar repair or cracked or broken tile where appropriate and replace where tile has spalled out or broken beyond repair.
 - c. Provide toothed in structural clay tile infill (not CMU) at areas that were removed for steel inspection.

Clerestory Access And Debris Screen

- 1. Remove existing woven wire mesh debris screen to facilitate prepping and repainting of structural steel.
- Following repainting of steel, provide new PVC coated 5/8" Mesh with .063" diameter wire, 80.9% open and wire together all seams.

- b. OPTION Dome Drum Comice Lighting (see sheet A501): Replace the 72 abandoned surface mounted bare bulb sockets between modillions at underside of cornice at base of atrium dome with fiber optic system:
 - i. Provide fiber optic remote LED light source(s) in attic in attic.
 - ii. Provide fiber optic cables from remote light source(s), through wall of atrium dome drum and run along top side of dome drum cornice.
 - iii. At each existing light fixture location between cornice modillions, drill though plaster and wood framed cornice and extend fiber optic cable through cornice to underside and terminate with fiber optic end fixture that simulates light spread of bare bulb. Secure end fixture to cornice and patch plaster and touchup paint as required.

C. Courthouse Windows

RECOMMENDATION

Replacement of aluminum framed courthouse windows is recommended and window sash to be returned to original layout unless noted otherwise. The scope of work is outlined in the Architectural Scope Drawings, sheets A204 and A501, HVAC Scope Drawing HV-3, and is further described as follows:

WORK TASKS

Removal & Preparation

- 1. Remove existing abandoned louvers and ductwork.
- 2. Relocate existing louvers and ductwork to locations indicated on sheets A401 through A404.
- Remove existing aluminum window system and clean sealant off stonework.

Replacement Scope

- Provide new thermally broken aluminum window system, simulated double hung unless noted otherwise. Single windows to be returned to double sash, no transom unless noted otherwise. Paired windows to maintain transoms and to be glazed.
- At the north elevation, second floor, center bay, remove masonry infill abandoned windows and provide paired windows with glazed transoms to match style of adjacent openings. Provide interior transparent finished oak wood trim, sill, skirt to match original profiles.
- 3. Provide manually controlled roller shades at all windows.
 - At square topped openings (single and paired windows) set roller shade in window opening.
 - At round top windows fur out roller shades to be flush with face of trim on wall with shades width of trim surround.
- 4. At first floor windows in rooms with dropped ceilings, create painted GWB recessed lightwells 2' wider than window opening, 4' back from wall, 3'-6" above dropped ceiling. Relocate lay-in 2x4 light fixtures where required.
- At second and third floor windows in rooms with dropped ceilings, create painted GWB recessed lightwell 2' wider than window opening, 4' back from wall, 2'-6" above dropped ceiling. Relocate lay-in 2x4 light fixtures where required.

D. Heating Plant

RECOMMENDATION

For the purposes of the cost estimate portion of this report, there is no Heating Plant scope. The following recommendations are provided as a guide for when the County does wish to pursue the boiler replacement.

WORK TASKS

Replacement Scope - When Needed

- The new boiler plant should be high efficiency sealed combustion. A condensing boiler can be considered if the reheat
 coils within the existing equipment are sized appropriately to support a lower entering water temperate. This can be
 determined with further investigation.
- Install piping insulation and replace all missing and/or damaged insulation.
- 3. Cap combustion air intake louver/cap with an insulated sheet metal panel, sealed weathertight,
- 4. Inspect the existing chimney to verify adequate size and condition to accommodate the new boiler vent and intake.

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5. Install controls to integrate direct digital control (DDC) with the existing building automation system for the new boiler plant. The control logic shall include hot water reset, pressure differential reset and scheduled occupied/unoccupied operation. The boiler control panel shall energize and modulate the boiler system pump(s). The DDC programmed sequence shall modulate the bypass valve(s) as required to maintain return water temperature as determined by the reset schedule. All existing heating terminal units shall be inspected for proper operation. New isolation and control valves shall be installed if required and integrated to the DDC sequence.

E. Built-Up Air Handling Unit

RECOMMENDATION

Replacement of the VAV boxes and associated valves, and the upgrade of controls to DDC is recommended.

WORK TASKS

The scope of work for the replacement of VAVs, valves, and controls related to the Built-up Air Handling Unit is outlined in the HVAC Scope Drawings, sheets HV-1 through HV-5, and is further described below.

Preparation

- 1. Prior to the equipment replacement, engage a qualified contractor to perform a pre-construction test and balance to record the existing total supply air, return air and outdoor air at the air handling unit. In addition, the balancing contractor should measure and record the air volume at each supply, return and exhaust air grille/register.
- 2. Inspect the existing supply fan, motor, and drive to determine if it is compatible with today's more efficient VAV systems. For the purposes of the cost estimation portion of this report, assume that the existing motor and drive are not fully compatible should be replaced. Provide a fan array comprised of multiple smaller direct drive fans with EC motors. They utilize a smaller section of the air handling unit which makes the installation easier, and because they are direct drive EC motors it eliminates the need for the VFD which can be removed.
- Inspect and clean the air handling unit hot water heating coil with a high concentration of detergent and water. Inspect
 the isolation, balancing and control valves for proper operation. For the purposes of cost estimating portion of this
 report assume replacement is required.

Replacement

- 1. Replace all VAV boxes and valves in their entirety. Remove the existing pneumatic control system and replace with DDC controls to match the previously converted DDC system in the building.
 - a. All new equipment should be furnished and installed with Direct Digital Controls (DDC) and fully integrated into the existing Building Automation System. Provide networking to DDC equipment using current communication standards according to ASHRAE standard ANSI/ASHRAE 135 for interoperability with smart equipment and for the main BACnet/IP communication trunk to the BAS Server.
- 2. Inspect and clean all ductwork, repairing and replacing as required.

F. Indoor Air Handling Unit

RECOMMENDATION

Replacement of the existing AHU with two separate AHUs is recommended.

WORK TASKS

The scope of work for the replacement of second floor courtroom Indoor Air Handling Unit is outlined in the HVAC Scope Drawings, sheet HV-3, and is further described below.

Preparation

- 1. Prior to the equipment replacement, perform a pre-construction test and balance to record the existing total supply air, return air and outdoor air at the air handling unit.
- 2. The balancing contractor to also measure and record the air volume at each supply, return and exhaust air grille/register.

Replacement

- 1. When replaced, (2) units should be installed. (1) unit shall be a single zone VAV unit comprised of an EC fan motor and/or fan array, hot water heating coil with a modulating control valve, DX cooling coil, economizer for free cooling and DDC. The system shall be controlled to meet the temperature setpoint within the room and shall serve the existing courtroom. (1) unit shall be a multizone variable air volume and consist of an EC fan motor and/or fan array, hot water heating coil with a modulating control valve, DX cooling coil and DDC. VAV boxes with hot water reheat shall be utilized within each space downstream of the air handling unit and shall be controlled to meet the temperature setpoint within each space. This unit shall serve the offices adjacent to the courtroom. Both units shall be installed on a on the existing mechanical platform, to be modified as needed, above the court offices. Special care to be given to placement for sound and vibration sensitive applications as the modified mechanical platform will be open to the courtroom. The condensing units shall be installed outdoors on grade and shall contain at least one digital scroll compressor or hot gas bypass.
- Rework or replace existing ductwork as required to separate the courtroom ductwork from the office ductwork. All ductwork shall be insulated. Existing ductwork insulation to remain to be repaired or replaced as required. Provide sound boots at Jury Room, two private offices, and the open office.
- 3. All new equipment should be furnished and installed with Direct Digital Controls (DDC) and fully integrated into the existing Building Automation System. Provide networking to DDC equipment using current communication standards according to ASHRAE standard ANSI/ASHRAE 135 for interoperability with smart equipment and for the main BACnet/IP communication trunk to the BAS Server.

IV. CONCEPTUAL ESTIMATES SUMMARY

A. Conceptual Estimates Comparison

		Conceptual Estimates					
	Recommended	Concord Group		JP Cullen		JPC - Adjusted*	
Projects	Contingency	(Start 1st Q 2024)		(Bid 3rd Q 2022)		(Start 1st Q 2024)	
Tower Restoration				П			
Estimated Construction Cost		\$	9,703,889.00	\$	16,383,476.44	\$	18,595,245.76
Construction Contingency	15.00%	\$	1,455,583.35	\$	2,457,521.47	\$	2,789,286.86
Total Estimated Construction Costs		\$	11,159,472.35	\$	18,840,997.91	\$	21,384,532.62
Alternates							
Reglaze Dome		\$	684,766.00	\$	(41,651.49)	\$	(47,274.44)
Replace Tower Base Lighting		\$	72,942.00	\$	339,293.31	\$	385,097.91
Lightning Protection System		\$	142,617.00	\$	141,136.98	\$	160,190.47
Total Alternate Budget		\$	900,325.00	\$	438,778.80	\$	498,013.94
Interior Dome Restoration							
Estimated Construction Cost		\$	1,971,355.00	\$	1,209,169.13	\$	1,372,406.96
Construction Contingency	10.00%	\$	197,135.50	\$	120,916.91	\$	137,240.70
Total Estimated Construction Costs	-	\$	2,168,490.50	\$	1,330,086.04	\$	1,509,647.66
Alternates							
Cornice Lighting System		\$	98,847.00	\$	174,528.73	\$	198,090.11
Total Alternate Budget		\$	98,847.00	\$	174,528.73	\$	198,090.11
Courthouse Exterior Windows							
Estimated Construction Cost		\$	4,657,059.00	\$	1,443,237.76	\$	1,638,074.86
Construction Contingency	10.00%	\$	465,705.90	\$	144,323.78	\$	163,807.49
Total Estimated Construction Costs		\$	5,122,764.90	\$	1,587,561.54	\$	1,801,882.34
VAV, Valve, and Controls Replacement							
Estimated Construction Cost		\$	1,378,915.00	\$	1,018,318.49	\$	1,155,791.49
Construction Contingency	10.00%	\$	137,891.50	\$	101,831.85	\$	115,579.15
Total Estimated Construction Costs		\$	1,516,806.50	\$	1,120,150.34	\$	1,271,370.63
Main Courthouse AHU & Controls Replacement							
Estimated Construction Cost	•	\$	1,030,457.00	\$	365,044.33	\$	414,325.31
Construction Contingency	10.00%	\$	103,045.70	\$	36,504.43	\$	41,432.53
Total Estimated Construction Costs		\$	1,133,502.70	\$	401,548.76	\$	455,757.85
Sub Total (No Alternates)		s	21,101,036.95	s	23,280,344.59	\$	26,423,191.11
Total (With Alternates)		\$	22,100,208.95	\$	23,893,652.12	\$	27,119,295.15

^{*} JP Cullen did not have an opinion as to cost escalation for 1st Q 2024 given the unpredictability of the current economy, therefore the 13.5% used by Concord was applied.

See Appendix A for the detailed Conceptual Estimate provided by the Concord Group and Appendix B for the detailed Conceptual Estimate provided by JP Cullen.

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APPENDIX B. CONCORD GROUP: CONCEPTUAL EXTIMATE BACKUP



55 East Monroe Street
Suite 2850
Chicago, IL 60603
312.424.0250 T

Manitowoc County Courthouse County Dome & Facility Improvements Study

1010 S. 8th St. Manitowoc, WI 54220

Conceptual Estimate

May 25, 2022 **DRAFT**

Project: 2021A081

Prepared For:

Strang 811 E. Washington Ave. Madison, WI 53703



Manitowoc County Courthouse County Dome & Facility Improvements Study

Conceptual Estimate 05/25/2022 DRAFT

NOTES REGARDING PREPARATION OF ESTIMATE

This estimate was prepared based on the following documents provided by Strang:

- 1. Concept Design Pricing Package received May 02, 2022.
- Information regarding the project was also obtained via meetings, phone conversations, and email messages that clarified the project scope.

BIDDING PROCESS - MARKET CONDITIONS

This document is based on the measurement and pricing of quantities wherever information is provided and/or reasonable assumptions for other work not covered in the drawings or specifications, as stated within this document. Unit rates have been generated from current material/labor rates, historical production data, and discussions with relevant subcontractors and material suppliers. The unit rates reflect current bid costs in the area. All unit rates relevant to subcontractor work include the subcontractors overhead and profit unless otherwise stated.

Pricing reflects probable construction costs obtainable in the Manitowoc, Wisconsin area on the bid date. This estimate is a determination of fair market value for the construction of this project. It is not a prediction of low bid. Pricing assumes competitive bidding for every portion of the construction work for all subcontractors with a minimum of 3 bidders for all items of subcontracted work and a with a minimum of 3 bidders for a general contractor. Experience indicates that a fewer number of bidders may result in higher bids, conversely an increased number of bidders may result in more competitive bids.

Since The Concord Group has no control over the cost of labor, material, equipment, or over the contractor's method of determining prices, or over the competitive bidding or market conditions at the time of bid, this statement of probable construction cost is based on industry practice, professional experience and qualifications, and represents The Concord Group's best judgment as professional construction cost consultants familiar with the construction industry. However, The Concord Group cannot and does not guarantee that the proposals, bids, or the construction cost will not vary from opinions of probable cost prepared by them.

CURRENT MARKET CONDITIONS

It should be noted that there is ongoing volatility in the construction materials market due to the effects of the pandemic on both the production and supply of materials. Due to the lack of in stock materials suppliers are struggling to fulfill orders in a timely manner, which in turn leads to much longer than normal lead times. The impact of ongoing global raw material shortages and fuel price increases adds to the overall spike in material pricing coupled with the increased demand for construction that the construction industry is now seeing. These factors should be considered when determining the bidding strategy and schedule for projects.

ASSUMED CONSTRUCTION PARAMETERS

The pricing is based on the following project parameters:

- A bid opening date of Q1, 2024.
- The contract will be competitively bid to multiple contractors.
- 3. All contractors will be required to pay prevailing wages.
- There are phasing requirements.
- The contractors will have full access to the site during normal working hours
- Estimate detail includes pricing as of May 2022.

Manitowoc County Courthouse County Dome & Facility Improvements Study

> Conceptual Estimate 05/25/2022 DRAFT

EXCLUSIONS

The following are excluded from the cost of this estimate:

- 1. Professional Design Fees
- 2. Testing Fees
- 3. Owner Contingencies/Scope Changes
- 4. Premium Time / Restrictions on Contractor Working Hours
- 5. Cost Escalation Beyond a Start Date of Q1 2024
- 6. Finance and Legal Charges
- 7. Temporary Owner Facilities
- 8. Equipment (Owner Furnished/Installed)
- 9. Loose Furniture
- 10. Third Party Commissioning
- 11. Future Cost Impacts Based on Supply Chain Impacts



ATRIUM INTERIOR DOME RESTORATION

EXTERIOR WINDOW REPLACEMENT

Manitowoc County Courthouse County Dome & Facility Improvements

Study

Conceptual Estimate 05/25/2022 DRAFT

BUILDING TOTAL

\$10,674,278

\$2,168,490

\$5,122,765

\$1,516,806

\$684,766

\$72,942

\$1,030,457

TOTAL ESTIMATED CONSTRUCTION COSTS

VAV/VALVE REPLACEMENT W/ PNEUMATIC CONTROL CONVERSION

REPLACEMENT OF 2ND FLOOR COURTROMM INTERIOR AHU

Alternate #4: Dome drum cornice light fixture replacement

\$20,512,797

ALTERNATES

COST SUMMARY

TOWER RESTOTATION

Alternate #1: Clad tower dome in glass in lieu of copper panels Alternate #2: Upgrade of tower exterior architectural lighting Alternate #3: Tower lightning protection system

ADD \$142,617 **ADD** \$98,847

ADD

ADD

Grand Summary

D

Manitowoc County Courthouse County Dome & Facility Improvements Study

	TOWER RESTORATION		BUILDING TOTAL
01000 02000	GENERAL REQUIREMENTS EXISTING CONDITIONS		\$1,788,545 \$440,510
	CONCRETE MASONRY METALS		\$0 \$164,344 \$400,020
07000	WOODS, PLASTICS & COMPOSITES THERMAL & MOISTURE PROTECTION SYSTEM OPENINGS		\$0 \$1,919,289 \$865,633
10000	FINISHES SPECIALTIES EQUIPMENT		\$0 \$0 \$0
13000	FURNISHINGS SPECIAL CONSTRUCTION CONVEYING EQUIPMENT		\$0 \$0 \$0
	FIRE SUPPRESSION PLUMBING HEATING, VENTILATING & AIR CONDITIONING		\$0 \$0 \$0
27000	ELECTRICAL COMMUNICATIONS ELECTRONIC SAFETY AND SECURITY		\$35,079 \$0 \$0
32000	EARTHWORK EXTERIOR IMPROVEMENTS UTILITIES		\$0 \$0 \$0
	SUBTOTAL		\$5,613,421
	DESIGN CONTINGENCY GENERAL CONDITIONS/BOND/INSURANCE CONTRACTOR'S FEES ESCALATION TO MID-POINT OF CONSTRUCTION	15.0% 25.0% 6.0% 13.5%	\$842,013 \$1,613,858 \$484,158 \$1,150,439
	TOTAL ESTIMATED BID		\$9,703,889
	CONSTRUCTION CONTINGENCY	10.0%	\$970,389
_	TOTAL ESTIMATED CONSTRUCTION COSTS		\$10,674,278
	ALTERNATES Alternate #1: Clad tower dome in glass in lieu of copper Alternate #2: Upgrade of tower exterior architectural ligi Alternate #3: Tower lightning protection system		ADD \$684,766 ADD \$72,942 ADD \$142,617

Manitowoc County Courthouse County Dome & Facility Improvements Study

Conceptual Estimate 05/25/2022

DRAFT

	ATRIUM INTERIOR DOME RESTORATION			BUILDING TOTAL
01000 02000	GENERAL REQUIREMENTS EXISTING CONDITIONS			\$153,864 \$173,873
03000 04000 05000	CONCRETE MASONRY METALS			\$0 \$16,582 \$63,880
06000 07000 08000	• 50.00 90.00			\$150,939 \$0 \$175,893
09000 10000 11000	FINISHES SPECIALTIES EQUIPMENT			\$0 \$8,835 \$0
12000 13000 14000	FURNISHINGS SPECIAL CONSTRUCTION CONVEYING EQUIPMENT			\$0 \$0 \$13,806
21000 22000 23000	FIRE SUPPRESSION PLUMBING HEATING, VENTILATING & AIR CONDITIONING			\$0 \$0 \$278,782
26000 27000 28000	ELECTRICAL COMMUNICATIONS ELECTRONIC SAFETY AND SECURITY			\$19,446 \$0 \$0
31000 32000 33000	EARTHWORK EXTERIOR IMPROVEMENTS UTILITIES			\$0 \$0 \$0
	SUBTOTAL			\$1,055,900
	DESIGN CONTINGENCY GENERAL CONDITIONS/BOND/INSURANCE CONTRACTOR'S FEES ESCALATION TO MID-POINT OF CONSTRUCTION	15.0% 35.0% 6.0% 13.5%		\$158,385 \$425,000 \$98,357 \$233,713
	TOTAL ESTIMATED BID			\$1,971,355
	CONSTRUCTION CONTINGENCY	10.0%		\$197,135
	TOTAL ESTIMATED CONSTRUCTION COSTS			\$2,168,490
	ALTERNATES Alternate #4: Dome drum cornice light fixture replacement	nt	ADD	\$98,847

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	EXTERIOR WINDOW REPLACEMENT		BUILDING TOTAL
01000 02000	GENERAL REQUIREMENTS EXISTING CONDITIONS		\$0 \$448,676
	CONCRETE MASONRY METALS		\$0 \$16,023 \$0
07000	WOODS, PLASTICS & COMPOSITES THERMAL & MOISTURE PROTECTION SYSTEM OPENINGS		\$0 \$0 \$1,722,077
	FINISHES SPECIALTIES EQUIPMENT		\$402,698 \$0 \$0
13000	FURNISHINGS SPECIAL CONSTRUCTION CONVEYING EQUIPMENT		\$59,925 \$0 \$0
22000	FIRE SUPPRESSION PLUMBING HEATING, VENTILATING & AIR CONDITIONING		\$0 \$0 \$29,576
27000	ELECTRICAL COMMUNICATIONS ELECTRONIC SAFETY AND SECURITY		\$15,000 \$0 \$0
32000	EARTHWORK EXTERIOR IMPROVEMENTS UTILITIES		\$0 \$0 \$0
	SUBTOTAL		\$2,693,975
	DESIGN CONTINGENCY GENERAL CONDITIONS/BOND/INSURANCE CONTRACTOR'S FEES ESCALATION TO MID-POINT OF CONSTRUCTION	15.0% 25.0% 6.0% 13.5%	\$404,096 \$774,518 \$232,355 \$552,115
	TOTAL ESTIMATED BID		\$4,657,059
	CONSTRUCTION CONTINGENCY	10.0%	\$465,706
	TOTAL ESTIMATED CONSTRUCTION COSTS		\$5,122,765



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Manitowoc County Courthouse County Dome & Facility Improvements Study

	VAV/VALVE REPLACEMENT W/ PNEUMATIC CON	ITROL CONVERSION	BUILDING TOTAL
01000 02000	GENERAL REQUIREMENTS EXISTING CONDITIONS		\$0 \$75,000
03000 04000 05000	CONCRETE MASONRY METALS		\$0 \$0 \$0
06000 07000 08000	WOODS, PLASTICS & COMPOSITES THERMAL & MOISTURE PROTECTION SYSTEM OPENINGS		\$0 \$0 \$0
09000 10000 11000	FINISHES SPECIALTIES EQUIPMENT		\$0 \$0 \$0
12000 13000 14000	FURNISHINGS SPECIAL CONSTRUCTION CONVEYING EQUIPMENT		\$0 \$0 \$0
21000 22000 23000	FIRE SUPPRESSION PLUMBING HEATING, VENTILATING & AIR CONDITIONING		\$0 \$0 \$662,977
26000 27000 28000	ELECTRICAL COMMUNICATIONS ELECTRONIC SAFETY AND SECURITY		\$600 \$0 \$0
31000 32000 33000	EARTHWORK EXTERIOR IMPROVEMENTS UTILITIES		\$0 \$0 \$0
	SUBTOTAL		\$738,577
	DESIGN CONTINGENCY GENERAL CONDITIONS/BOND/INSURANCE CONTRACTOR'S FEES ESCALATION TO MID-POINT OF CONSTRUCTION	15.0% 35.0% 6.0% 13.5%	\$110,786 \$297,277 \$68,798 \$163,476
	TOTAL ESTIMATED BID		\$1,378,915
	CONSTRUCTION CONTINGENCY	10.0%	\$137,891
	TOTAL ESTIMATED CONSTRUCTION COSTS		\$1,516,806

D

Project: 2021A081

Manitowoc County Courthouse County Dome & Facility Improvements Study

	REPLACEMENT OF 2ND FLOOR COURTROOM IN	TERIOR AHU	BUILDING TOTAL
01000 02000	GENERAL REQUIREMENTS EXISTING CONDITIONS		\$0 \$30,000
03000 04000 05000	CONCRETE MASONRY METALS		\$0 \$0 \$0
06000 07000 08000	WOODS, PLASTICS & COMPOSITES THERMAL & MOISTURE PROTECTION SYSTEM OPENINGS		\$0 \$0 \$0
09000 10000 11000	FINISHES SPECIALTIES EQUIPMENT		\$0 \$0 \$0
12000 13000 14000	FURNISHINGS SPECIAL CONSTRUCTION CONVEYING EQUIPMENT		\$0 \$0 \$0
21000 22000 23000	FIRE SUPPRESSION PLUMBING HEATING, VENTILATING & AIR CONDITIONING		\$0 \$0 \$454,959
26000 27000 28000	ELECTRICAL COMMUNICATIONS ELECTRONIC SAFETY AND SECURITY		\$16,800 \$0 \$0
	EARTHWORK EXTERIOR IMPROVEMENTS UTILITIES		\$0 \$0 \$0
	SUBTOTAL		\$501,759
	DESIGN CONTINGENCY GENERAL CONDITIONS/BOND/INSURANCE CONTRACTOR'S FEES ESCALATION TO MID-POINT OF CONSTRUCTION	15.0% 35.0% 6.0% 13.5%	\$75,264 \$201,958 \$46,739 \$111,059
	TOTAL ESTIMATED BID		\$936,779
	CONSTRUCTION CONTINGENCY	10.0%	\$93,678
	TOTAL ESTIMATED CONSTRUCTION COSTS		\$1,030,457

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\$440,510

DESCRIPTION OTY **UM UNIT COST TOTAL COST BASE BID TOWER RESTOTATION** 01000 GENERAL REQUIREMENTS 01600 **Construction Access** 18 **MNTH** 50,000.00 900,000 Hoisting & Access - Allowance Tubular scaffolds - exterior 19,000 **SQFT** 16.47 312,862 Tubular scaffolds - interior 10,000 **SQFT** 19.23 192,330 Winter conditions including tenting & heat **MTHS** 300,000 50,000.00 6 **Subtotal: Construction Access** \$1,705,192 **Miscellaneous General Requirements** HRS Document all profiles, dimensions, locationss, thicknesses, connections etc. as 640 130.24 83,354 material is being removed. Collect examples for oringal ornamentation **Subtotal: Miscellaneous General Requirements** \$83,354 TOTAL: GENERAL REQUIREMENTS \$1,788,545 02000 **EXISTING CONDITIONS** 02100 **Selective Demolition** 7,351 Remove & salvage roof pavers 1,355 **SQFT** 5.42 Remove copper cladding & backing, blocking, armatures, moldings, raised **SQFT** 85,603 5,665 15.11 **SQFT** 26,706 Remove dome cladding panels & ornmental ribs 1,571 17.00 Remove window, 6'-6"x10'-9" 4 **EACH** 1,016.88 4,068 Remove window, 5'-6"x10'-9" 8 **EACH** 1,016.88 8,135 Remove window, half round, 5'-6"x2'-6" 8 **EACH** 508.44 4,068 Remove window, half round, 6'-4"x3'-2" **EACH** 508.44 2,034 4 **Subtotal: Selective Demolition** \$137,963 02200 **Environmental Abatement** Lead based paint abatement allowance LSUM 1 150,000.00 150,000 **Subtotal: Environmental Abatement** \$150,000 02800 **Temporary Construction** LNET 17,541 Protect balustrade 153 114 65 Protect balustrade corner pieces 4 **EACH** 881.44 3,526 Protect existing roof 1,355 **SQFT** 5.84 7,920 Temporary shoring system to support scaffolding/deck **SQFT** 27.06 51,259 1,894 16.50 31,258 Temporary shoring system to support scaffolding/deck 1.894 **SQFT** Remove temporary protection at balustrade 153 LNFT 81.72 12,503 Protect balustrade corner pieces 4 **EACH** 595.96 2,384 Protect existing roof **SQFT** 4,845 1,355 3.58 Temporary shoring system to support scaffolding/deck 1.894 **SQFT** 11.25 21,311 **Subtotal: Temporary Construction** \$152,547

TOTAL: EXISTING CONDITIONS
04000 MASONRY

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Project:

Manitowoc County Courthouse County Dome & Facility Improvements Study

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				DRAFT
ESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
04900 Miscellaneous Masonry				
Remove top 8'-0" of structural clay tile at column for structural repair	8	EACH	3,836.55	30,692
Tooth in replacement structural clay tile	8	EACH	5,115.68	40,925
Tuckpoint deteriorated structural clay tile joints. Replace damaged tile	6,355	SQFT	14.59	92,726
Sub	ototal: Misce	ellaneous	Masonry	\$164,344
OTAL: MASONRY				\$164,344
05000 METALS				
05100 Structural Steel				
Remove & replace top 6'-0" of steel column & connection to dome truss	8	EACH	8,017.50	64,140
Catwalk, 32" wide w/ guardrails	383	SQFT	209.00	80,046
Replace corroded curved steel ribs at lantern	8	EACH	6,713.13	53,705
Sister or splice in top chords of dome truss	7	EACH	5,438.57	38,070
	Subtota	l: Structo	ıral Steel	\$235,961
05500 Metal Restoration & Cleaning				
Blast existing clerestory structure & deck. Inspect, prime & paint w/ high performance coating	2,683	SQFT	23.26	62,408
Blast existing dome, lantern & glazing armature/structure. Inspect, prime & paint w/ high performance coating	3,020	SQFT	26.77	80,838
Blast, prime & paint existing stair to dome	1	EACH	10,793.09	10,793
Subtotal:	Metal Resto	oration &	Cleaning	\$154,039
05900 Miscellaneous Metals				
Remove & replace debris screen w/ PVC coated 5/8" mesh	982	SQFT	10.20	10,020
	ubtotal: Mis	•	us Metals	\$10,020
OTAL: METALS	Marine.	-	A STREET	\$400,020
				4400,020
07000 THERMAL & MOISTURE PROTECTION				
07400 Roofing				
Replace dome floor "roof". Provide tapered rigid insulation w/ adhered PVC roof membrane incl. flashing & counterflashing	981	SQFT	33.45	32,813
Clad dome in copper panels over a layer of rosin paper over high temperature rated self-adhered self-sealing membrane flashing on exterior grade 5/8" plywood sheathing attached to the existing glazing armature. Panels range in size from 6'x3' to 3'x3'	112	EACH	1,714.27	191,999
Recreate original latern roof & skirt design, 19' high, 14' wide. All skyward surfaces to have solid continuous backing. Provide bonze pipe guardraul. Provide copper roof hatch & shaft for flag pole	1	EACH	67,927.74	67,928
Recreated primary & secondard ornamental copper ribs (379 LF)	120	EACH	564.28	67,713
		Subtotal:	Roofing	\$360,453
07500 Roofing Specialties				
Reinstall salvaged roof pavers	1,355	SQFT	8.17	11,068
Reclad flagpole w/ new rigging to extend through roof hatch in lantern roof	1	EACH	3,914.16	3,914
	Subtotal: R	loofing Sp	pecialties	\$14,983
07600 Metal Panel Systems				
Copper cladding over backing, blocking, armatures, moldings & raised panels	2,638	SQFT	165.43	436,395

Project:

2021A081

Manitowoc County Courthouse County Dome & Facility Improvements Study

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			DIGHT
QTY	UM	UNIT COST	TOTAL COST
16	EACH	28,176.80	450,829
737	SQFT	188.51	138,933
8	EACH	15,499.81	123,998
16	EACH	3,842.80	61,485
4	EACH	24,268.26	97,073
12	EACH	8,685.61	104,227
8	EACH	12,128.41	97,027
total: Met	al Panel	Systems	\$1,509,968
		9-2-10-6-3-2	33,886
ermal & Mo	isture Pi	rotection	\$33,886
100		THE RESERVE	\$1,919,289
4	EACH	ED 0E0 64	232,20
٦	LACIT	38,030.04	2,20,
8	EACH	51,050.64	408,405
8	EACH	13,033.76	104,270
4	EACH	17,033.76	68,135
Su	btotal: 1	Windows	\$813,013
4	FACH	12 033 76	48,13
•		* 23	\$48,135
DOOLS, I TO	1103, 001	isi aware	\$40,133
4	EACH	1.121.41	4,486
		O P CONTROL OF PER	\$4,486
			\$865,633
4	EACH	3,309.84	13,239
4	EACH	2,806.56	11,22
2	EACH	2,756.56	5,513
6	EACH	850.00	5,100
	16 737 8 16 4 12 8 9total: Met 4 ermal & Mo 4 Su Doors, Fran 4 Subtotal: 4 4 4 4 2	16 EACH 737 SQFT 8 EACH 16 EACH 16 EACH 1 EACH 12 EACH 8 EACH 10 EACH 12 EACH 8 EACH 14 EACH 16 EACH 17 EACH 18 EACH 18 EACH 19 EACH 19 EACH 19 EACH 10 EACH 10 EACH 11 EACH 12 EACH 13 EACH 14 EACH 15 EACH 16 EACH 17 EACH 18 EACH 18 EACH 18 EACH 18 EACH 18 EACH 18 EACH 19 EACH 10 EACH 10 EACH 11 EACH 12 EACH 12 EACH 13 EACH 14 EACH 15 EACH 16 EACH 17 EACH 18 EACH	16 EACH 28,176.80 737 SQFT 188.51 8 EACH 15,499.81 16 EACH 3,842.80 4 EACH 24,268.26 12 EACH 8,685.61 8 EACH 12,128.41 Pototal: Metal Panel Systems 4 EACH 8,471.41 Permal & Moisture Protection 4 EACH 58,050.64 8 EACH 13,033.76 4 EACH 17,033.76 Subtotal: Windows 4 EACH 12,033.76 Doors, Frames, & Hardware 4 EACH 1,121.41 Subtotal: Louvers & Vents

Manitowoc County Courthouse
County Dome & Facility Improvements
Study

Conceptual Estimate

05/25/2022 DRAFT

DESCRIPTION QTY UM UNIT COST TOTAL COST

Subtotal: Lighting

\$35,079

TOTAL: ELECTRICAL

D

\$35,079

TOTAL: TOWER RESTOTATION

\$5,613,421

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Manitowoc County Courthouse County Dome & Facility Improvements Study

Conceptual Estimate 05/25/2022 DRAFT

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ESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
ATRIUM INTERIOR DOME RESTORATION				
01000 GENERAL REQUIREMENTS				
01600 Construction Access				
Tubular scaffolds - interior	8,000	SQFT	19.23	153,864
	btotal: Co	nstructio	n Access	\$153,864
OTAL: GENERAL REQUIREMENTS				\$153,864
02000 EXISTING CONDITIONS				
02100 Selective Demolition				
Remove existing stainless steel panels & lites at dome	746	SQFT	23.44	17,485
Remove insulation on dome drum	930	SQFT	4.18	3,886
Su	btotal: Sel	ective De	emolition	\$21,371
02800 Temporary Construction				
Temporary partitions	7,700	SQFT	14.47	111,434
Temporary door, frame & hardware	3	EACH	1,694.61	5,084
Remove temporary partitions	7,700	SQFT	4.59	35,375
Remove temporary door, frame & hardware	3	EACH	203.06	609
	al: Tempo	rary Cons	struction	\$152,502
OTAL: EXISTING CONDITIONS				\$173,873
04000 MASONRY				
04900 Miscellaneous Masonry				
Repair or replace any cracked or damaged structural clay tile	488	SQFT	33.98	16,582
· 100 · 100	otal: Misce	llaneous	Masonry	\$16,582
OTAL: MASONRY				\$16,582
				410/301
05000 METALS				
05100 Structural Steel			40.455.54	11112
Provide 24" wide metal catwalk w/ open grate & guardrails hung from steel.	1	EACH	19,155.24	19,155
structure above, 10'-0". Modify existing abandoned original steel ladder to connect to catwalk				
Connect to Catwark	Subtotal	: Structu	ıral Steel	\$19,155
05500 Metal Restoration & Cleaning	Jubtotu	. Structu	indi Secci	415/155
Blast, prime & paint existing steel ladder to catwalk	1	EACH	8,027.96	8,028
Blast existing dome frame/structure. Prime & paint w/ high performance coating	535	LNFT	68.59	36,697
Subtotal: N				\$44,724
	Total Hose	Tution &		\$63,880
OTAL: METALS				<u> </u>
06000 WOODS, PLASTICS & COMPOSITES				
06900 Miscellaneous Woods, Plastics & Composites		_		
Remove, document & salvage wood trim from underside of dome (535 LF)	170	EACH	262.98	44,707
Remount wood trim repairing one broken piece (535 LF)	170	EACH	624.89	106,232
Subtotal: Miscellaneous W	loods, Plas	tics & Co	mposites	\$150,939
OTAL: WOODS, PLASTICS & COMPOSITES				\$150,939

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				DRAFT
DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
08000 OPENINGS				
08700 Special Glazing Systems				
Provide 1" thk laminated insulated glass frosted safety glass panels, 1'-0"x4'-0"	24	EACH	1,223.51	29,364
Provide 1" thk laminated insulated glass frosted safety glass panels, 2'-4"x4'-7"	24	EACH	2,684.68	64,432
Provide 1" thk laminated insulated glass frosted safety glass panels, 3'-5"x4'-3"	24	EACH	3,420.68	82,096
	al: Specia	Glazing	•	\$175,893
TOTAL: OPENINGS				\$175,893
10000 SPECIALTIES				
10900 Miscellaneous Specialties				
Remove, salvage & reinstall chandelier	1	EACH	8.835.36	8,835
	l: Miscella		,	\$8,835
TOTAL: SPECIALTIES	iii Tiiseella	neous sp	Columbia	\$8,835
				\$0,033
14000 CONVEYING EQUIPMENT				
14900 Special Conveying Equipment				
Repalce chandelier hoist system w/ electric remote controlled 1000 lbs hoist w/ cable drum & electric cable coiling drum system	1	EACH	13,806.48	13,806
Subtotal: S	necial Com	evina Fa	uinment	\$13,806
	pecial con	reying Eq	афіненс	
TOTAL: CONVEYING EQUIPMENT				\$13,806
23000 HEATING VENTILATION & AIR CONDITIONIN	IG			
23100 Selective Demolition				
Disconnect, demo, and remove AHU HW coil	1	EACH	8,263.04	8,263
Sul	btotal: Sel	ective De	molition	\$8,263
23200 Ventilation & Exhaust				
Replace existing AHU fan(s)/motor w/fan array system	1	EACH	65,394.56	65,395
Replace existing AHU HW coil	1	EACH	20,263.04	20,263
HW coil connections, AHU - valves, fittings, specialties, and pipe insulation	1	EACH	17,261.76	17,262
Route new large diameter spiral duct at Atrium area	120	LNFT	730.00	87,600
Subt	total: Vent	ilation &	Exhaust	\$190,519
23600 Temperature Controls				
DDC controls - AHU's w/new fan arrays	1	EACH	30,000.00	30,000
Subt	total: Tem	perature	Controls	\$30,000
23700 Testing, Balancing, & Commissioning				
Perform preconstruction airflow testing on built-up AHU	1	EACH	25,000.00	25,000
Perform postconstruction airflow testing on built-up AHU	1	EACH	25,000.00	25,000
Subtotal: Testing, E	Balancing,	& Commi	ssioning	\$50,000
TOTAL: HEATING VENTILATION & AIR CONDITIONING				\$278,782
26000 ELECTRICAL				
26500 Lighting				
Provide 8 wall mounted LED spot light fixtures to backlight dome	8	EACH	2,154.92	17,239
·	S	ubtotal:	Lighting	\$17,239
				,



Manitowoc County Courthouse County Dome & Facility Improvements Study

Conceptual Estimate 05/25/2022 DRAFT

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
26700 Mechanical Equipment Connections & Feeders Motors connection, disconnect switches and associated feeders - Chandelier hoist system	1	EACH	2,206.56	2,207
Subtotal: Mechanical Equi	pment Conn	ections &	Feeders	\$2,207
TOTAL: ELECTRICAL				\$19,446
TOTAL: ATRIUM INTERIOR DOME RESTORATION				\$1,055,900

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DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
WINDOW REPLACEMENT				
02000 EXISTING CONDITIONS				
02100 Selective Demolition				
Remove, salvage, reinstall existing furniture as necessary to install windows	119	EACH	918.83	109,341
Remove AL framed louver, 3'-3"x3'-9"	3	EACH	3,354,22	10,063
Remove AL framed window, 3'-4"x6'-6"	3	EACH	635.55	1,907
Remove AL framed window, 3'-6"x7'-6"	8	EACH	635.55	5,084
Remove AL framed window, 4'-4"x3'-7"	19	EACH	508.44	9,660
Remove AL framed window, 4'-4"x8'-2"	12	EACH	762.66	9,152
Remove AL framed window, 4'-4"x8'-10"	16	EACH	762.66	12,203
Remove AL framed window, 4'-8"x9'-0"	18	EACH	762.66	13,728
Remove AL framed window, 6'-0"x8'-9"	12	EACH	1,016.88	12,203
Remove AL framed window, 6'-4"x3'-8"	1	EACH	635,55	636
Remove AL framed window, 6'-8"x6'-9"	1	EACH	762,66	763
Remove AL framed window, 6'-8"x8'-4"	10	EACH	1,016.88	10,169
Remove AL framed window, 6'-8"x8'-8"	12	EACH	1,016.88	12,203
Remove AL framed window, 8'-5"x10'-6"	1	EACH	1,525.32	1,525
Remove HM door, frame & hardware	1	EACH	456.88	457
	Subtotal: Sel	ective De	emolition	\$209,092
02800 Temporary Construction				
Miscellaneous temporary protection allowance	1	LSUM	75,000.00	75,000
Temporary weather enclosures	4,700	SQFT	28.89	135,794
Remove temporary weather enclousures	4,700	SQFT	6.13	28,790
Se	ubtotal: Tempo	rary Con	struction	\$239,584
TOTAL: EXISTING CONDITIONS				\$448,676
04000 MASONRY				
04900 Miscellaneous Masonry				
Reopen existing masonry infilled opening. Prepare for new window (174 SF)	3	EACH	5,341.08	16,023
	Subtotal: Misce		*	\$16,023
TOTAL: MASONRY	1323			\$16,023
08000 OPENINGS				
08100 Windows				
AL framed simulated double hung window, 3'-4"x6'-6"	3	EACH	8,371.10	25,113
AL framed double hung window, 3'-6"x7'-6"	8	EACH	10,471.10	83,769
AL framed simulated double hung window, 4'-4"x3'-7"	19	EACH	6,116.88	116,221
AL framed simulated double hung window, 4'-4"x8'-2"	12	EACH	13,125.32	157,504
AL framed simulated double hung window, 4'-4"x8'-10"	16	EACH	14,025.32	224,405
AL framed simulated double hung window, 4'-8"x9'-0"	18	EACH	15,225.32	274,056
AL framed simulated double hung window, 6'-0"x8'-9"	12	EACH	19,133.76	229,605
M. Samuel standard devials have used and C. All 21 Oli				

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15

EACH

EACH

EACH

8,771.10

16,225.32

22,233.76

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AL framed simulated double hung window, 6'-4"x3'-8"

AL framed simulated double hung window, 6'-8"x6'-9"

AL framed double hung window, 6'-8"x8'-8"

8,771

16,225

333,506

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CRIPTION	QTY	UM	UNIT COST	TOTAL COS
AL framed simulated double hung window, 6'-8"x8'-4"	10	EACH	20,133.76	201,3
AL framed double hung window, 8'-5"x10'-6"	1	EACH	34,050.64	34,0
Extra for insulated transom panel	75	SQFT	15.00	1,1
	S	Subtotal:	Windows	\$1,705,68
08300 Exterior Doors, Frames, & Hardware				Tik.
HM door, frame & hardware w/ transom panel, 4'-3"x12'-0"	1	EACH	5,562.88	5,5
	Exterior Doors, Fr	ames. & F	lardware	\$5,56
08800 Louvers & Vents	Exterior Doors, Ti	ames, a i		7-/
AL framed louver, 3'-3"x3'-9"	3	EACH	3,608.44	10,8
ne trained loavery 3 3 x3 9	956	i: Louver:	•	\$10,82
AL OPENINCS	Subtota	i: Louver:	S & VEIICS	
AL: OPENINGS				\$1,722,07
09000 FINISHES				
09100 Plaster & Gypsum Board		EACH.	2 +00 51	6.3
Repair interior plaster wall at removed masonry opening for window	3	EACH	2,100.51	6,3
Create gyp board light well/soffit	12,215	SQFT	23.85	291,2
	Subtotal: Plaste	er & Gypsi	ım Board	\$297,58
09400 Ceiling Finishes				
Rework existing dropped ceiling to create light well soffit as necessary	98	EACH	570.95	55,9
	Subtota	al: Ceiling	Finishes	\$55,95
09600 Paints & Coatings				
Prepare & paint patch plaster wall	800	SQFT	3.78	3,0
Prepare & paint gyp board light well/soffit	12,215	SQFT	3.78	46,1
	Subtotal:	Paints &	Coatings	\$49,16
AL: FINISHES				\$402,69
12000 FURNISHINGS				
12100 Window Treatment				
Roller shades, manual	4,571	SQFT	13.11	59,9
	Subtotal: \	-	reatment	\$59,92
AL: FURNISHINGS	545000			\$59,92
	TONING			405,32
23000 HEATING VENTILATION & AIR CONDIT	ITONING			
23100 Selective Demolition	2	EACH	1 027 00	2.0
Disconnect and remove exhaust fan			1,032,88	2,0
	Subtotal: Se	elective De	emolition	\$2,06
23200 Ventilation & Exhaust			2 600 00	
Provide new exhaust fans to replace existing	2	EACH	2,689.32	5,3
Provide new exhaust ductwork to replace existing at area of window replace		LSUM	6,131,52	6,1
	Subtotal: Ve	ntilation 8	Exhaust	\$11,51
23600 Temperature Controls				
DDC controls - exhaust fans	2	EACH	3,000.00	6,0
	Subtotal: Ter	nperature	Controls	\$6,00
23700 Testing, Balancing, & Commissioning				

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Manitowoc County Courthouse County Dome & Facility Improvements

Study

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DESC	RIPTION	QTY	им	UNIT COST	TOTAL COST
	Air testing and balancing	1	LSUM	5,000.00	5,000
	LISTAC auchors commissioning	4	1.01114	E 000 00	E 000

TOTAL: HEATING VENTILATION & AIR CONDITIONING 26000 ELECTRICAL				\$29,576
26500 Lighting				
Relocate lay-in 2x4 light fixtures where required	1	LSUM	10,000.00	10,000
	S	Subtotal: Li	ghting	\$10,000
26700 Mechanical Equipment Connections & Feeders				
Motors connection, disconnect switches and associated feeders - exhaust fans	2	EACH	2,500.00	5,000
Subtotal: Mechanical Equipme	ent Conn	ections & F	eeders	\$5,000
TOTAL: ELECTRICAL			10000	\$15,000

TOTAL: WINDOW REPLACEMENT

\$2,693,975

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\$738,577

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
VAV/VALVE REPLACEMENT W/ PNEUMATIC				
CONTROL CONVERSION				
02000 EXISTING CONDITIONS				
02800 Temporary Construction				
Miscellaneous temporary protection allowance	1	LSUM	75,000.00	75,000
	Subtotal: Tempo	orary Cons	struction	\$75,000
TOTAL: EXISTING CONDITIONS				\$75,000
23000 HEATING VENTILATION & AIR CONDIT	IONING			
23100 Selective Demolition				
Disconnect and remove VAV terminal w/reheat coil	62	EACH	774.66	48,029
Disconnect and remove fan-powered terminal w/out reheat coil	1	EACH	774.66	775
Demo/abandon existing pneumatic/DDC controls throughout bldg	1	LSUM	80,524.80	80,525
	Subtotal: Se	lective De	emolition	\$129,328
23200 Ventilation & Exhaust				
Fan-powered terminals w/HW reheat coil	1	EACH	2,952.88	2,953
Variable air volume terminals w/HW reheat coil	62	EACH	2,172.88	134,719
Reheat coil connections, FPB/VAV - valves, fittings, and insulation	63	EACH	2,190.90	138,027
	Subtotal: Ver	ntilation &	Exhaust	\$275,698
23600 Temperature Controls				
DDC controls - fan-powered terminals w/reheat coil	1	EACH	2,600.00	2,600
DDC controls - VAV terminals w/reheat coil	62	EACH	2,000.00	124,000
Thermostats/temperature sensors	63	EACH	450.00	28,350
Miscellaneous points & devices	1	LSUM	30,000.00	30,000
Engineer's station	1	LSUM	18,000.00	18,000
Programming, testing, and training	1	LSUM	25,000.00	25,000
	Subtotal: Ten	nperature	Controls	\$227,950
23700 Testing, Balancing, & Commissioning				
Pipe system testing and balancing	1	LSUM	20,000.00	20,000
HVAC system commissioning	1	LSUM	10,000.00	10,000
Subtotal: To	esting, Balancing	, & Commi	issioning	\$30,000
TOTAL: HEATING VENTILATION & AIR CONDITIONING				\$662,977
26000 ELECTRICAL				
26700 Mechanical Equipment Connections & Feeders	•			
Motors connection, disconnect switches and associated feeders - Fan-pow terminals		EACH	600.00	600
Subtotal: Mechanica	l Equipment Con	nections &	Feeders	\$600
TOTAL: ELECTRICAL				\$600

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TOTAL: VAV/VALVE REPLACEMENT W/ PNEUMATIC CONTROL CONVERSION

Manitowoc County Courthouse County Dome & Facility Improvements

Study

Conceptual Estimate 05/25/2022 DRAFT

DESCRIPTION QTY UM UNIT COST TOTAL COST

i pototal: Tempo JING Subtotal: Sel 2 2 2 1 1 Subtotal: Vent 2 Subtotal: Tem	EACH EACH EACH LSUM LSUM cilation & E	10,328.80 nolition 97,911.00 49,911.00 50,986.40 8,000.00 Exhaust	99,82 50 ,98 8,00
iTNG Subtotal: Sel 2 2 1 1 Subtotal: Vent	EACH EACH EACH LSUM LSUM EACH EACH	10,328.80 nolition 97,911.00 49,911.00 50,986.40 8,000.00	\$30,00 \$30,00 10,32 \$10,32 195,82 99,82 50,98 8,00
iTNG Subtotal: Sel 2 2 1 1 Subtotal: Vent	EACH EACH EACH LSUM LSUM EACH EACH	10,328.80 nolition 97,911.00 49,911.00 50,986.40 8,000.00	\$30,000 \$30,000 10,32 \$10,32 195,82 99,82 50,98 8,00
Subtotal: Sel	EACH EACH EACH LSUM LSUM cilation & E	10,328.80 nolition 97,911.00 49,911.00 50,986.40 8,000.00 Exhaust	\$30,000 10,32 \$10,329 195,82 99,82 50,98 8,00
Subtotal: Sel	EACH EACH LSUM LSUM Silation & E	97,911.00 49,911.00 50,986.40 8,000.00 Exhaust	10,32 \$10,32 195,82 99,82 50,98 8,00
Subtotal: Sel	EACH EACH LSUM LSUM Silation & E	97,911.00 49,911.00 50,986.40 8,000.00 Exhaust	\$10,329 195,82 99,82 50,98 8,00
Subtotal: Sel	EACH EACH LSUM LSUM Silation & E	97,911.00 49,911.00 50,986.40 8,000.00 Exhaust	\$10,329 195,82 99,82 50,98 8,00
2 2 1 1 Subtotal: Vent	EACH EACH LSUM LSUM cilation & E	97,911.00 49,911.00 50,986.40 8,000.00 Exhaust	195,82 99,82 50,98 8,00
2 2 1 1 Subtotal: Vent	EACH EACH LSUM LSUM cilation & E	97,911.00 49,911.00 50,986.40 8,000.00 Exhaust	195,82 99,82 50,98 8,00 \$354,630
2 1 1 Subtotal: Vent	EACH LSUM LSUM silation & E	49,911.00 50,986.40 8,000.00 xhaust	99,82 50 ,98 8,00
1 1 Subtotal: Vent	LSUM LSUM cilation & E	50,986.40 8,000.00 Exhaust	99,82 50 ,98 8,00
1 Subtotal: Vent	LSUM illation & E EACH	8,000.00 Exhaust	50,98 8,00
Subtotal: Vent	EACH	xhaust	ŕ
2	EACH		\$354,63
_			
_			
ubtotal: Tem	_	30,000.00	60,00
'	perature C	ontrols	\$60,000
	•		
1	LSUM	20,000.00	20,00
1	LSUM	10,000.00	10,00
ıg, Balancing,	& Commis	sioning	\$30,000
	_		\$454,959
4	EACH	4,200.00	16,80
uipment Conn	ections & F	eeders	\$16,80
		1000	\$16,80
			4F04 3F4
DR AHU			\$501,759
16			quipment Connections & Feeders

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Manitowoc County Courthouse County Dome & Facility Improvements Study

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\$360,107

DESCRIPTION	QTY	UM	UNIT COST	TOTAL COST
ALTERNATE #1: CLAD TOWER DOME IN GLASS IN LIEU OF COPPER PANELS				
TOWER RESTOTATION				
07000 THERMAL & MOISTURE PROTECTION 07400 Roofing Clad dome in copper panels over a layer of rosin paper over high temperature rated self-adhered self-sealing membrane flashing on exterior grade 5/8" plywood sheathing attached to the existing glazing armature. Panels range in size from 6'x3' to 3'x3'	-112	EACH	1,714.27	-191,999
		Subtotal:	Roofing	(\$191,999)
TOTAL: THERMAL & MOISTURE PROTECTION				(\$191,999)
08000 OPENINGS 08700 Special Glazing Systems				
Provide laminated glass panels, exterior glazed with custom patterned & PVB interlayer. Panels range in size from 6'x3' to 3'x3'	112	EACH	3,505.85	392,655
Rewrap existing glazing armature in copper to form glazing frames	380	LNFT	333.68	126,798
Subtotal:	Specia	l Glazing :	Systems	\$519,453
TOTAL: OPENINGS				\$519,453
26000 ELECTRICAL 26500 Lighting				
Dome floor mounted fixtures	8	EACH	2,206.56	17,652
Upgrade existing architectural lighting control system	1	LSUM	15,000.00	15,000
	5	Subtotal:	Lighting	\$32,652
TOTAL: ELECTRICAL				\$32,652
TOTAL: TOWER RESTOTATION				\$360,107

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TOTAL: ALTERNATE #1: CLAD TOWER DOME IN GLASS IN LIEU OF COPPER PANELS

Manitowoc County Courthouse County Dome & Facility Improvements Study

> Conceptual Estimate 05/25/2022 DRAFT

DESCRIPTION

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QTY

1

UM

UNIT COST

TOTAL COST

ALTERNATE #2: UPGRADE OF TOWER EXTERIOR ARCHITECTURAL LIGHTING

TOWER RESTOTATION

26000 ELECTRICAL

26500 Lighting

Replace existing (9) Promenade level outdoor architectural light fixtures

New lighting control

9 EACH

EACH

3,706.56 5,000.00

33,359

Subtotal: Lighting

5,000 **\$38,359**

TOTAL: ELECTRICAL

\$38,359

TOTAL: TOWER RESTOTATION

\$38,359

TOTAL: ALTERNATE #2: UPGRADE OF TOWER EXTERIOR ARCHITECTURAL LIGHTING

\$38,359



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Dem Namen	Description	UDM	Quantity	Med.Cost	Brond Total Cost
SUBDIVISION: 0 Base Budget					\$20,419,242.28
NORK PACKAGE: A Tower			المسجية		\$16,383,476.44
NORK PACKAGE: B Interior Dome, Atrium Restoration	The state of the s		Sinches and		51,209,169,13
NORK PACKAGE: C Courthouse Windows, Exterior Window Replace				2000	51,443,237.76
WORK PACKAGE: D HVAC					\$1,383,358.95

SUBDIVISION: A Alternates				al language	51,748,487.09
WORK PACKAGE: A Tower		0.00			51,573,958.36
WORK PACKAGE: B Interior Dome, Atrium Restoration					5174,528.73
	GRAND TOTA	BASE	BUDGET A	ALTERNATES	\$ 22,167,729

WORK BY DIVISION

VBS2: CZ.S. Windows, Replacement: At 2nd & 3nd floor, creets a GWB Recessed Lightweed 2'-5" above Calling @ Recess with Accustocal Calling, Release Lights	
WISCONS: 02 STE WORK	\$214,297.90
852 CL.) Windows, Removal; Remove Existing Aluminum Window System & Clean Sealants Off Stonowork	\$14,297.90
VISIONS: 08 MASCINEY & DE MO / REMOVALS	\$40,001.16
SS2-CL1 Windows Removed: Removed Mandaned Lauren & Ductwork	\$1,261.70
SS: CL3 Windows, Removed Remove Casting Aluminam Window System & Clear Soldents Off Stonowork	\$17,370.58
527 C.2.2 Windows, Implementant Remove Manager Will, Fall Police Windows with Glazed Transport to match adjacent openings. Fall Internal Wood Trim to match	53,584.59
SEC CCA Windows, Randowsman: At 34t Roor Windows, name of Will Room of Windows, College & Rooms with Activation College & Room	52,371.39
13.2: C. 5 Windows, Replacement: All held Styl Roor, proofs of Will Received Light and T. 6 above Calling & Rooms with Accounted Lights.	55,708,90
	\$2,312,51
VISIONS: 08 WORD & PLASTICS	\$2,3(2.5)
\$33: CLT Windows, Represented. Remove Memory Intil. F&I Pained Windows with Clared Transmits on seich will remove the Clared Transmits on seich will remove the Control of	\$500,365,26
NISIONS: 08 DOORS & WINDOWS	5482 356 36
832: C2.1 Windows, September F8: New Trenmally Broken Aluminum Window System, Simulate Double Hung unless acted	\$18,009.00
1852: C2.2: Windows, Replacement: Remove Messary Infill, FSI Faired Windows with Glazed Transors to metch adjacent covings. FSI Intentor Wood Trim to metch	\$268,308,80
MISIONS OF FINISHES	528.50E.80
1952 C2.4 Windows, Explorament: At 1st Floor Windows, create a GWB Recessed Lightwell 3'-6" above Calling & Rooms with Acoustical Ceiling, Relocate Light Flatures	
1952 C2.5 Windows, Replacement: At 2nd 5.3rd Floor, create a GWB Recessed Lightwell 2"4" above Celling & Recess with Accustical Calling, Release Lights.	\$1,89,546,50
TYSI CIPIC 17 FURNISHINGS	\$59,225.00
852: C2.3 Windows, Replacement, F& Manual Roller Shades @ All Windows	\$59,725.00
DISSONS 15 ME CHANICAL	\$38,818.25
SS2: CLI Mindows, Remove Abandoned Louvers & Ductwork	\$5.00
1832 CL J Windows, Removal: Relocate Louvers & Ductown To Locations per A401 through A404	\$38,818.25
WISIONS: 16 ELECTRICAL	\$52,125.00
1952 C.Z.A Windows, Resignment: At the Pager Windows, greats a GWS Received Lightwell 21-5" above College Booms with Accountical College Relocate Light Returns	\$20,930.00
1832 CLS Windows Resistance At 2nd 3 and floor create a GWS Research Lightness 2 4" above Colleg @ Rooms with Accustical Celling Relocate Lightness	\$31,995.00
	51,383,358,95
YORK PACKAGEID HVAC	\$284,873.76
IVISIONS OF SERFERAL REQUIREMENTS	\$294.873.76
662:	209/3/2/19
1852; E1. 1 HVAC, Heat Plant: No Heat Plant Wart, Reporting for Future Work Crity	
1852; U.S. 1 HVAC, Bulls Up AHU: Before replacement perform a Test & Balance to Record Existing Total Susping Air, Return Air & Quidoor Air at the AHU & of Gallery Registers	
INCO DO 2 HVAC Bull-United for Motor & Drive to Deterring Compatibility with Efficient VAV Sytems. Among NOT Compatible and Regions per Scope Document	
recty DZ 3 INVAC must the Artist Inspect & Clean Artist Hot Water Heat Coll, Inspect Societies, Balancing & Control Valve for proper operation. Assume Replacement is required	The second secon
VEST: D2.4 RYAC Built Up ANU: Replace ALL VAV Boxes and Valves complete. Remove Pnounatic Control Systems with DDC, match convened DOC System in building	
VESC: DZ,3 NYAC, Built Up ANU. Impert and Clean All, Durthorth, Repair and Replace on Respired.	TOM SHEET IT SHEET SHEET
WSS; DS.; HVM, Indoor Arts. Before replacement perform a Test & Before to Record Enting Total Supply Air, Return Air & Curdoor Air at the ANU & at Grider, Registers	
VRSZ D3.2 MAC (edges ANU): Replace ANU, secreted bits, install 2 Units. Separate Coursepos Ductions is from Office Ductions is New Easterness, New DOC Consult Integrated BAS	
MISIONS: ON MASONRY & DIMO / RIMOVALS	\$24,009.09
7832: D2.4 NW.K. Suith-Up ANY: Replace All VAV Boxer and Vehral Complete, Remove Procurate Control Systems Replace with DDC mesch converted DDC System in Suith-Up Any: Replace All VAV Boxer and Vehral Complete, Remove Procurate Control Systems Replace with DDC mesch converted DDC System in Suith-Up Any: Replace All VAV Boxer and Vehral Complete, Remove Procurate Control Systems Replace with DDC mesch converted DDC System in Suith-Up Any: Replace All VAV Boxer and Vehral Complete, Remove Procurate Control Systems Replace with DDC mesch converted DDC Systems In Suith-Up Any: Replace All VAV Boxer and Vehral Complete, Remove Procurate Control Systems Replace and Vehral Control Systems Replace All VAV Boxer and Vehral	524 009 09
	\$135,819.60
OVSUORS OF RINSAES 975 107.5 WAS Dath 14 ANU: Replace All VAY Speed and Valver complete. Remove Programatic Control Systemson, Replace with DDC, match converted DDC Systems in Inciding	5175.819.60
	\$957,156,50
IVISIONS 15 MECHANICAL	5945,656.50
(852)	\$5,750.00
1932 D2.2 MVAC, Built Un ANU: Setore replacement performs a Test & Release to Record Existing Total Supply Air, Return Air & Quidoor Air at the ANU & of Entire Resources	Bolowes.
95.2: DE2 et/AC Built-Up AHU: Inspert Fam, Mostor & Drive to Determine Compatibility with Efficient VAV Systems. Assume NOT Compatible and Eaglans per Scope Document	
TEST: 192.5 MV AC, But Up ANU: Import & Clean And Her Water Heat Coll. Import Including, Balancing & Control Valve for proper operation. Assume Regisconnes is required	
FISS2: D2.4 MV AT Built Up AHU Register ALL VAV Bouns and Valves complete. Remove Programmic Control Systemson, Replace such DOC, match converted DOC System on Building	
VSS2: D2.5 HVAF, Suith-Up AHU: Impact and Goon ALL Ductowerk, Report and Replace on Required.	
PREST IN A 1948 A Sudan Abit: Before resiscement performs Test & Balance to Secure Labora Air Section Air & Outdoor Air at the Airt & ot Galley Taglitters	\$5,750.00
VBS2 D I.2 INVAC Indoor AHU: Replace AHU, exceeded life. Invalit 2 Units. Separate Courtroom Ductwork from Office Ductwork. Now Engineering, New DOC Controls Interpreted BAS	\$0.00
HYLLIGONS: 16 ELECTRICAL	\$11,500.00
WEST DIS HVMC Indeer ANU Regime ANU exceeded big, install I Units. Separate Courtment Ductivors from Diffice Districts. New Equipment, New DOC Controls Integrated BAS	\$11,500.00

SUBDIVISION: A Alternates				\$1,748,487.0
WORK PACKAGE A Tower	3 2 3		Marine Street, or other Designation of the last of the	\$1,573,958,36
PALAMEE A TOWN				\$291,479.41
		100	Management 100	5293,479.41
WISS:		The manager la	April and California	
WBS2:			9	1
WBS2: A5. 3 Tower, Exterior: Dome Cladding	1		Company of the last	
HEST: ASS Tower, Estating: Tower Windows, Replace Clerency Windows with Copyer Cled Micromental Wood Core or Metal Core				The state of the s
WBS2: A7.3 Tower, Exterior Lighting: ALTERNATE, Lin Architectural Lighting Upgrade, Run aca 9 Promonade Level Lighti with U.D. & Controls	+	+		
WEST: ALL Tower, Lightney Protection: ALTERNATE, FEI Lightney Protection System for Tower	-	-		\$90,997.33
DEVISIONS: 05 METALS	_	-	Company of the last	\$14,997.33
W852: #5.3 Tower, Exterior: Dome Cleaning	-	-		\$99.146.62
PHIS ON I OT THE RMAL & MOISTURE PROT.	-	-		199.146.62
VBS2: A5.3 Tower, Exterior: Domn Cladding	-	-	-	SEAS HTS.OD
DIVISIONS OF DOORS & WINDOWS	-		-	V- Control Control
WBS3: AS.3 Tower, Exterior: Dome Cadding	-	1	-	5646,875.00
WSS2: AS.S Tower, Enterior: Tower Windows, Employer Clerestory Windows with Copper Cled Managemental Wood Core or Metal Core				56.00
DIVISIONS: 18 ELECTRICAL				\$437,460.00
W853; AS.3 Tower, Exterior: Dome Garlding		-	-	\$46,000.00
WESZ. A7.3 Tower Laterior Lightney: ALTERNATI, Est Arendermal Lightney Upg. adv. Replace 9 Promonade Level Lights with LED, & Controls.	-	-		\$276,460.00
WES2 A8.1 Tower Lightness Protection: ALTERNATE FELL Lightness Protection Futern for Tower			100	\$115,000 00
WORK PACKAGE: Il Interior Dome, Atrium Restoration				5174,528.73
DIVISIONS: OI GENERAL REQUIRE MENTS			-	\$12,120.52
MINEY:	the Secretary		10	537,300.57
WEST, BLS During Recognition: Lighting, LED Spanlights to light Darine		Annual Control		50.00
DOUSSIONS OF FINISHE			1000	\$27,708.21
WISS: 41.5 Penns, Retraction: Lighting, LED Spottights to light Dome			0,-1	\$27,208.23
WEST SOUTH INTERFERENCE AND ADDRESS OF THE SOUTH	100			\$125,000.00
pursions: le lake invalu. WHSE: 83.5 Opene, ferrierosion: Lightney, LED Sportigins to light Dome	1	10		\$115,000.00
WISS: ESS DOWN, RELEASED TOTA	DACE	BUDGET &	ALTERNATES	S 22,167,729



06/09/22

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21-0156B Manitowoc County Courthouse Dome & Facility Improvements Budget

DIVISION: 0 B	Description (UOM	Quantity	Unit Spire	520,419,242.28
00	SCHEDULE: 78 WEEKS	WEEK	78.00		Section and the section of
K PACKAGE: A T					\$16,383,476,44 \$1,600,330.45
ONS: OS GENERAL RE	OUNCMENTS				\$3,094,012,73
00	A TOWER GENERAL CONDITIONS TOWER	\$\$\$\$	1 00 13,435,458 00	5 0.092	\$1.230
93	CONTRACTOR'S BOND: Bond Each Work Breakdown	LS	3.00	5 108.186.250	\$10
97	CONSTRUCTION CONTINGENCY 10%	5555	14.693,603 00	\$ 0.215	\$1,685
00	A1. Tower. Document & Remove Extenor Cladding & Ornamentation	****	1.00		
00	A2 Tower: Structural Rejians & Prejianation A3 Tower: Cerestiny Access & Debris Screen		1.00		
00	A4 Tower Betoration of Tower Eaterlot	0000	1.00		
00	A5 Tower Tower Work Lights & Electrical Service	****	1.00		
Al.1 Tower, Donum	As 1.1 Tower, Documentation: Document Exterior of Tower, Copper Clad & Ornamentation	0000	100		\$400.510.50
11	A1.1 a Tower, Exterior Ded New Cross Cladd to Elements, Decorations based on Original Examples. Include Armature, Blocking Sheat	****	1.00		1
12	A1.1 b Tower Documentation: Collect Examples of all Existing Original Ornamentation to use as Patterns A1.1.c Tower, Documentation: Collect Examples of Existing Modified or Samplified Resistement Orangents for Recreation From Historical Photos	****	1.00		
14	A3.3.d Tower, Documentation: Document Methods of Attachment, Frees. Construction, and Profiles of Armature and Backing to Assist in Replication of Cladding & Oc.		1 00		
15	A3.3 e Tower, Documentation. Document Location & Condition of Building Structure and Infill used for Attachment Points DIV-07 DOCUMENT EXTERIOR TOWER, COPPER CLAD & DRIVANENTS, ASSES & DOCUMENT	15	1.00	\$ 207,000.000	\$20
00	DIV-D7 DOCUMENT EXTERIOR TOWER, COPPER CLAD & DRNAMENTS Profiles. ALSO AL.2	0000	1.00		
QD 00	DIV-07 DOCUMENT. EXTENDE TOWER, COLLECT EXAMPLES OF ORIGINAL ORNAMENTS FOR USE AS PATTERNS, INCLUDED. DIV-07 DOCUMENT. EXTERIOR TOWER, COLLECT EXAMPLES OF MODIFIED DRIVAMENTS OR SIMPLIFIED DRIVAMENTS FOR RETREATION, INCLUDED IN A.L.	0000	1.00		
.00	DIV-07 DOCUMENT EXTERIOR TOWER, ME HOE OF ATTACHMENT, TYPES, CONSTRUCTION, PROFILES OF ARMATURE FOR REPLICATION OF CLAD & ORNAMENTS, IN		1 00		
A1 2 Tower Procure	JPC DOCUMENT TOWER, LOCATION & CONDITION OF BLEIG STRUCTURE & INFILL USED FOR ATTACHMENT PRINTS Readalogs: Document Standons Stand Documents rescind with Company or Glass	1.5	1.00	\$ 193,510,500	\$12.819.23
20	A1.2 Tower, Documentation: Document Stainless Steel Dome for rectad with Course or Glass	****	1.00		POSITION
22	A1.2.a Tower, Documentation, Stanless Dome: Document Universions of Stanless Steel Dome Cladding A1.2 b Tower, Documentation, Stanless Dome: Document Size and Profile of Copper Cladding on Dome Glazing Armature	****	1.00		
23	A1.2.c Tower, Documentation, Stanless Dome Document Size and Location of Gianna Armature and Armature Attachments back to Structural	****	1.00		
00	ONLOT DOCUMENT STAINLESS DOME FOR RECIAD WITH COPPER OR GLASS, By DW-07, included in A1.1 DIVIGT DOCUMENT EXTERIOR TOWER, DOME, DIMENSIONS OF STAINLESS DOME (LADDING, By DW-07, Included in A1.1)	****	1 00	_	
00	DIV OF DOCUMENT EXTERIOR TOWER, DOME SIZE & PROFILE OF COPPER CLADSING ON DOME GLAZING ARMATURE By D=07. Included in AL.1	4000	1 00		
Al.1 Tower, Decare	IPC DOCUMENT EXTERIOR TOWER, DOME, SIZE & LOCATION OF GLAZING ARMATURE & ATTACHMENTS BACK TO STRUCTURAL MERCHANISMS MARGINET PROPERTY SERVER SHOULD SERVER. BENEFIT, More Transpt, Docking, Dome Claring American, Labelers, States	WEEK	4 00	5 5.704 807	\$2. \$47,065.46
30	A1.3 Tower, Documentation: Inspect and Assess Tower Steel Structure, Bracing, Floor Trusses, Deckmy, Dome Glazing Armature, Ladders, Stairs		1.00		
34	BIM ENGINEER DOCUMENT DOCUMENT: INSPECT & ASSESS TOWER STEEL STRUCTURE, BRACING, FLOOR TRUSSES, DECKING, DOME GLASS ARMATURE, LADDERS, STAIRS	WEEK	2.00		\$1
ALA Tower, Docum	mentation: Clarestery Seructural Assessment, Romovo Structural Clay Tile ment to all 8 Columns, to 8" down to reveal instended Column	1111	100		\$4,512.73
34	A1.4 Tower, Documentation: Clerestory Structural Assessment, Remove Structural Cary Tile next to all 8 Columns, to 8" down to reveal imbedded Column Bild Englister (DOCUMENT	WEEK	1.00	5 2.827.922	\$
.00	DOCUMENT: CLERESTORY STRUCTURAL ASSESMENT	WEEK	1.00		\$
AZ.1 Structural Rep 110	A2.3 Structural Repair Repair Structural Stort, Beachg, Dome Glazing Armature, Access Ladders, & Stairs	****	1.00		35117,875.00
12	ED GREBE ENGINEERING: 10WER STEEL	LS	1.00		\$2
AZ.2 Structural See	CONSULTANT nate: Sandblat all Exposed Steel. Look Abstracted Additional Cost	LS.	1.00	\$ 88,090,000	SAI
20	AZ.2 Structural Reside: Sandtkest all Exposed Steel. Lead Absternant Additional Cost	****	1.00		
A2.3 Structural Rep 30	Part all Exposed Seed Structure, Bracker, Place Treases, Docking, Dome Glass Armetose, Ladders, Stars (4.2.3 Structural Repear Parts all Exposed Street Structure, Bracker, Floor Trusses, Decking, Dome Glass Armetose, Ladders, Stars	****	1.00		
	Inspect Exposed Neurobusin Clay Tile, Regulari Crucked, Deteriorated Index, with Lines Morter. Fasts in Clay Tile at Removal for Steel Inspection [A2 4 Structural Repair: Inspect Exposed Structural Clay Tile of Report Cracked, Deteriorated Joints, with Lime Morter. Tooth in Clay Tile at Removal for Steel Inspection.		1.00		\$5,704.E3
100	DOCUMENT INSPECT STRUCTURAL CLAYTINE	WEEK	1.00	\$ 5,704 807	5
A3.1 Corestory: Re	A3.3 Clerestory: Remove Wire Mesh Debris Screen to lactifate painting structural steel		1.00		
	projet & Install New PVC Coased Steel Mask S/E" as Debris Screen		W		
120	A3.2 Cleaston: Furnish & Install New PVC Coated Stool Mesh S/8" as Debris Screen & Gale Stool Coupels with Balls, Perinapter Walls & Down Center of Tower Short A305		1.00		
130	A3.3 Freestory F& Galv Steel Catwalks with Rafs, Perimeter Walls & Down Lenter of Tower Sheet A205		1.00		
A4.1 Bergmetric De	Art Septic Demokric Demokris Report Operable First of 4 Barometric Dampers A4.3 Barometric Dampers: Report Operable First of 4 Barometric Dampers	0000	1.00		100
AS.1 Tower, Exterio	or: Copper Cod Derestory, Borns Bare, & Lordon		0		
110	A5.1 Tower, Exterior: Copper Clad Clerestory, Dome Base, & Lantern A5.1 a Tower, Exterior, Copper Clad New Copper Cladding, Elements, Decorations based on Original Examines - Include Armature, Blocking, Sheething	****	1.00		
12	AS 1.b Tower, Exterior, Cover Clad. Dome Lantern, Skirt, Roof to be restored to original designin, Bronze Guard Rad. Roof Hatch. & Shaft for Fing Access	****	1.00	200	
At 2 Towns February	A.S.E. Tower, Exterior (James Clad. New Cooper Louvers 72x30 with Insect Screen and Bird Screen, at Exterior Side Clarestory's 4 Bargmetric Rahef Dampers or Plagacia, Radial with Cooper	2010	1.00	0 9	
520	AS.2 Tower, Exterior. Flagpoie, Reclad with Cooper	4004	1.00		
521	A5.2 a Tower, Exterior, Flag Pole: Rectad Flagsole with Lobber, Replace Cooper Softers at top of Pole A5.2 b Tower, Exterior, Flag Pole: New Cooper Clad Fixed Flagsole Truck If Ensieting Cannot be Repaired	0000	1.00		
32.1	A5.2 c. Tower, Extensor, File Pole: Remove and Install New Reging System. Septem Clad Boom/Stand-off at base of Dome with 2 Haivard Cleans	****	1.00		
AS.3 Tower, Extend	AS.2.d Tower, Exterior, Flag Pole: F&12 LED Jellins at Courthouse Routings to Rummate Flag	1	1.00	CONTRACT DO	
30	A5.3 Tower, Exterior Dome Cladding	0000	1.00		
ALA Tower Exterio	A5.3 a Tower, Exterior, Dome Cladding: Copper Clad Dome, Panels over a layer of Rosin Pager, High Temp Self-Seal Membrane Fashing on Treated 5/8" Phywood She ar: Dome Rose, Ramove Boofing & Planking	a	1.00		
40	AS 4 Tower, Exterior Dome Floor, Remove Roofing & Fleshing	0000	1.00		
42	A5.4 b Tower, Exterior, Dome Floor - Remove Booking & Flashing A5.4 b Tower, Exterior, Dome Floor - F& New Agnered Membrane Roof over Mineral Wool Insulation, Tapered		1.00		
4)	AS 4.c. Tower, Exterior, Dome Floor - Flash Roofing into Structural Penetrations , Roof Hatch, Steel Ladder, Base of Dome	****	1.00		
A5.3 Tower, Exterior	or: Tower Windows, Replace Covering Windows with Capper Cled Monumental Wood Care or Metal Care A.S. Yower, Extenor: Tower Windows, Replace Careston Windows with Copper Clad Monumental Wood Care or Metal Care	****	1.00		
551	All 5.a Tower, Exterior, Tower Windows: Remove and Install New Clerestory Windows. Custom Copper Elad Monumental Wood Core, or Metal Core, Match Existing I		1.00		
A6.3 Tower, Electric	Inchi Decimical Service, Weatherproof Duplor Quality, of Star, West Decim, Top of Star in Dome, below Roof Natch A&1 Yower, Electrical Electrical Service, Weatherproof Cheller Outlets, at Star, West Doors, Top of Star in Dome, below Roof Natch	****	1.00		
	cal: Work Lights, Cleratory Level & Dome Level	10000	1.00	Contract of the	C
OWS: GZ SITEWORK	AL2 Tower, Sectingal Work Lights, Clerestory Level & Dome Level	(2.447		\$1,947,731.15
	PORT REPORT BETWEEN BETWEEN BETWEEN BETWEEN ACCESS LANGUAGE, & SEATS [SCAFFOLD: TOWER EXTERIOR: ENECT & REMOVAL	15	1.00	\$ 433,759.300	\$1,947,733.15
A2.1 Structural Reg	SCAFFOLD: TOWER EXTERIOR, RENTAL	WEEK	78.00	\$ 5,313 000	\$41
A2.1 Structural Rep (10 112	SCAFFOLD, TOWER INTERIOR: FRECT & REMOVAL	£S.	1.00 78.00		\$34 \$26
A2.1 Servetural Rep 910 917 970			- 1000		\$10
(A2.1 Smothers) Rep 910 917 910 922	SHORING PROMENADE DECK: ERECT & REMOVAL	WEEK US		\$ 103,065,300	
A.2.1 Percentural Rep 910 912 976 922 930	MURROLD. TOWER HITERIOR: RENTAL SHORING PROME NADED CEC:: RELT E. REMOVAL SHORING PROMERANDED CEC.: RENTAL	US WEEK	78 DO	\$ 3,109 600	524
42.1 Servettural Rep 910 912 919 922 930 930 940 942	SHORING PROMENADE DECK: ERECT & REMOVAL	1.5		\$ 3,109 4/0 \$ 48,409,250	\$4 \$10
10 processed log 10 processed log 110 processed log 122 processed	MARI FOLD. TOWER HITERIOR: RENTAL SHORING PROME NADED DECE: ERECT IS REMOVAL SHORING PROME NADED DECE: RENTAL PEDISTRIAN CANODY: PERIMETER OF COURTHOUSE ERECT IS REMOVE PEDESTRIAN CANODY: PERIMETER OF COURTHOUSE RENTAL S	US WEEK	78 DO 1.00	\$ 3,109 4/0 \$ 48,409,250	\$100 \$100 \$100
10 processed log 10 processed log 110 processed log 122 processed	SMARING PROMERADE DECE: FREETE REMOVAL SHORING PROMERADE DECE: REST A. SHORING PROMERADE P. SHORING P. SH	US WEEK US WEEK	78 DO 1.00 28 OO 192.00	\$ 3,109 400 \$ 48,409,250 \$ 1,335,150 \$ 25,939	\$40 \$10 \$100 J48 07 \$3,791 67 \$
A2.1 Senetheral leg 110 117 117 117 117 117 117 117 117 117	SIGNING PROMERANDE DICK. ERICT & REMOVAL SHORING PROMERANDE DICK. RENTAL SHORING PROMERANDE DICK. RENTAL SHORING PROMERANDE DICK. RENTAL SHORING PROMERANDE VICK. RENTAL PROSSTRAM CARDOW. PERMETER OF COURTHOUSE. REST & REMOVE PROSSTRAM CARDOW. PERMETER OF COURTHOUSE. RENTAL S CHAPT REMOVALS. REMOVE CLAY PRICE VICK. AMBRITISH OF COURTHOUSE. RENTAL REMOVE CLAY FILE VICK. RENT TO 8 COLUMNS TO REVEAL IMBEDDED STEEL COLUMN ARKHOVE CLAY FILE VICK. RENT TO 8 COLUMNS TO REVEAL IMBEDDED STEEL COLUMN.	WEEK US WEEK	78 DO 1.00 78 DO	\$ 3,109 400 \$ 48,409,250 \$ 1,335,150 \$ 25,939	\$4 \$10 \$100 J44.07 \$3.781 67 \$
A2.1 Senetheral leg 110 117 117 117 117 117 117 117 117 117	SMARING PROMERADE DECE: FREETE REMOVAL SHORING PROMERADE DECE: REST A. SHORING PROMERADE P. SHORING P. SH	US WEEK US WEEK	78 DO 1.00 28 OO 192.00	\$ 3.109 400 \$ 48.409.250 \$ 1.335.150 \$ 25.939 \$ 4.269	\$40 \$10 \$100 J48 07 \$3,791 67 \$

					WOIN	
0400.100	FRI YEIDS W/MORTAR	CUYD	2.28	5 360 820		5808.24
0401 001	CLEAN CLAY BRILK	SQFT	192.00			5288 47
0401 010 0405.303	BISH2 CLAY BRUX STREECHER - 2.25 PCS/SQFT (# #1 4	EACH	462.00	5 0 060 5 31 517		\$13.0 \$14,560.65
0415 300	PARGE COAT ON BIDTK # CLAY BRICK	SQFT	192.00	5 4 443		\$853.05
0425 122	B* DUR A WAL HOT DIPPED GALV	LINET	115.20	5 0.795		591 62
0425.201 0425.222	PDS TIE MASONRY RESTEE MASONRY	CWT	1.50		-	\$1,973.00
0479 060	**UCKPOINT 26-50% 7/MNHR*HARD/SCAT/LNT (RACELO DETERIORATE) JOHNTS @ TOW! R. Area 31 * 36 's 4 sides = 4 464 SQFT	INFT.	3, 48 00			\$46 021.63
	emove Wire Mesh Debris Screen to facilitate patreing structural steel	1000	Access Links		52,752,54	
0487.010	ALMILIVE WIRE MESH DEBRIS SCREEN @ CEERESTORY	SQFT	325 00	5 B 468	54,968.7%	\$2,752.14
0490.145	ALMOYE FLAG POLE OF TOWER FOR RECLAD	EACH	1 00	5 3.666 699	35,700,13	\$3,666.70
0490 146	REMOVE FLAG POLE RIGGING SYSTEM	EACH	1 00			\$1,322.08
W832: A3.4 Tenuor, Exterio 0490 105	OF: Dame Roor, Remove Raceing & Rushing REMOVE MEMIRANE ROOFING DOME FLOOR	2112	0.00	4 2	-	0.00197
0490.125	REMOVE SHEET METAL FLASHING: DOM: 1 000	****	0.00			
WBS2: AS.S Tower, Exterio	or: Tower Windows, Replace Clerestory Windows with Copper Clad Monumental Wood Core or Metal Core	100			516,462.95	
0410.400	REMOVE WOOD WINDOWS CLERESTORY TO WIR	TACH	12.00	\$ 1,373,579	5814,454,78	\$16,482.95
DIVISIONS: 05 METALS WEST: All 1 Structural Res	pair: Repair Structural Steel, Bracing, Dame Stating Armshure, Acres Ladders, & States			E	\$277,531.54	1.5
0512144	ERECT BEAM >W36 REPAIR STRUCTURAL STEEL	EACH	8 00	5 5,973.780		\$47,790.24
0512.147 0512.157	ERECT CHANNE (REPAIR BRACING & DOAR) [RECT VS.STRICT B AM > 2 REPAIR DOME GLASS ARMATURE	EACH	00 8 00 8	\$ 5,973.780 \$ 5,978.780		\$47,790.24
0517 157	A2.1 # (RECT % STRUCT BEAM *12 LANT(AN REPAIRS TO ROOF FRAMING & TOPS OF COLUMNS	EACH	8 00			547,790.2
0512 184	AZ.3 b. ERECT STRUCTURAL TRUSSES. REPAIR TRUSSES @ DOME, REINFORCE OR REPLACE 5 INFT OF BACK TO BACK STEE. ANGLE TOP CHORD	EACH	2.00	5 5,973 780		\$11,947.50
0512 184 0517 184	A2.1 c ERECT STRUCTURAL TRUSSES. REPAIR TRUSSES @ DOME, REINFORCE N' OF BACK TO BACK STEEL ANGLE TOP CHORD A2.1 d IRECT STRUCTURAL TRUSSES. REPAIR TRUSSES @ DOME, REINFORCE COLUMN TO TRUSS COMMICTION @ BASE OF B DOME TRUSSES	EACH	3 00			\$17,921.3 \$47,790 J
2512.184	STRUCTURAL STEEL MATERIAL ALLOWANCE	LS	1.00			\$1,455.9
2551 032	MISTALL STEEL STAIRS **LABOR** REPAIR STEEL STAIRS	EACH	1.00			\$4,075 4
0551 036	STEE LADDER W/CAGE REPAIR ACCESS LADDERS	EACH	1 00	\$ 3,180,151	ON PAROLES IN THE PARAMETER AND PARAMETER AN	\$3,180.1
W852: A3.2 Clerestory Fu 2552:900	ATTIGE SENSES NEW PVC Cooled Steef Mesh 1/4" as Debris Screen \$1844 GRATING: STEEL MESH 5/8" PVC VINY3 COATED, DEBRIS SCREEN, File	SQFT	325 00	\$ 548 095	\$178,130.96	\$178,130 9
	&1 Gath Steel Catwalks with Gath, Perimeter Walls & Down Center of Tower Short A205	3001	34.700	74077	\$294,707.13	9210,190 3
0552 0 02	1-1/2" K 1/4" STEEL GRATING. GALV CATWALE. 160 (NIT * 2 67"	INIT	160 00			\$276,000 0
2513.802 MESS - 85.1 Tomate Fabrica	RAIUNGS STANDARD BLINE (STI): GALV CATWAL	NFT	164 00	5 114 068	51.076.41	\$18,707.1
W#52: A3.1 Towner, Experts 05:11.020	or: Copper Claff Cereitory, Deine Base, & Lattern ROOF SING RACING! BROKZE GUARO RAIL	INIT	27.00	5 39 867	SEASON TO	51.076 4
WBS2: AS.2 Tower Exterio	or: Finguise, Reclad with Corpora	10000		-	\$10,608,75	
2522 650 2522 650	FALL PROTECTION THEORET. WELDED OWN A TESTING, CERTIFICATION FOR THE OFFS	EACH EACH	2.00	\$ 3,254,500		\$6,509.0
2572 650 WBS2: A5.3 Tower, Enterio		EACH	1 00	\$ 4,099.750	\$52,440.00	54.099 7
15.79 998	ORNAMENTAL METALS, FAL DRIMAMENTAL RIBS, VIRTICAL IN CURRER, MIDSPAN, HISTORIC PHOTOS: 38" EACH * 8	1967	304 00	\$ 172,500	15	\$57,440.0
DIVISIONS: DE WOOD & PL					540,285.50	
WB52: A5.1 Tower Exterio 3611 040	OF CASES BLOG PAPER OF DOME PARELS	505	16 00	\$ 68.154	530,550.38	\$1,090 40
3612 111	ZR6 WD BLK ROOF TREATED: Clerestory, Dome, Lantern	LHET	3,700 00			\$19.984 65
3612.303	1/4" / YWDDD SHIS TREATED: Clerestory, Dome, Lantern	SQFT	1,600 00		1000	\$9,475.20
WBS2; AS.3 Tower, Extents 0611 0407	ME DROSAN BLOG PAPER OF DOME PANELS	505	24 00	5 676 2	\$22,500.35	\$1,627.68
M12 303	THE PLANCOD HITS TREATED. OF DOME CLANCING	SQFT	2,400.00		20000	\$20,877 67
WBS2: A5.5 Tower, Enterio	or Tower Western, Replace Chemistry Windows with Copper Clod Monumental Wood Copper Metal Core		Part Lawrence	10000	\$7,294.77	
0612.701	286 WD BIK @ WINDOWS TREATED: TOWER	HIT	530 00	5 17651	43 Fee 033 00	\$7,734 71
DIVISIONS OF THERMAL &	S MOSTURE PROT. er: Coppet Clad Corpolory, Dorne Bake, & Lietern	-	13		\$7,514,877.99	
3762 020	COPP IN CLADDING: ELEMENTS, DECORATIONS PEN ORIGINALS	****	0.00			
3762 020	OPPER CLADDING ARMATURE	2000	0.00			
0762 020 0762 021	COPPER CLADDING DOME LANTERN COPPER CLADDING SKIRT	1111	0 00			
3762 022	COPPLE CLADDING. ROOF	7717	0.00		Contract of the	5 . o occ-
1761 999	OPPER CLAD @ LERESTORY, DOME BASE AND END FRAGPOL, & LOUVERS INCLUDES AS, A, AS 1 & 6 AS 1 C	SOFT	2,400 00			16 61 / 500 00
1783 000 1783 901	ROOF HATCH LADDER FOR ROOF HATCH	EACH	1.00			52 581 16 \$2,796 83
WHEE AS.3 Tower, Exterio		CALT	100	2,790.029	5805,000.00	22,779 B3
0762 020	COPPER CLADDING: DOME, PANILS 6'X3 TO 3 X3	****	2,400,00		2000	
0763 001	MEMBRANE FLASHING, HIGH FEMP, SELF SEAL DOME CLADONIC	1117	7,400 00			fitor pon po
0763 999 MRS1- AS A Towner Fatoric	MAIN DOAL OPPER CLADDING or: Dome Floor, Remove Annual & Remove	SOFT	2,400,00	5 335.417	592,000.00	\$805,000.00
759 998	DOME INTERIOR MEMBRANE ROOF, ADHEDRED, W/MINERAL WOOL INSULATION, TAPERED	LS	100	\$ 97,000,000	100000	\$92,000 00
7779 997	METAL ROOF FLASHING : ID STRUCTURAL PENETRATIONS, ROOF HATCH, STEEL LADDER, ID DOME BASE	****	1.00			777
DIVISIONS OF DOORS & W	PRODOWS or: Tower Windows, Replace Clorestory Windows, with Copper Clad Monumental Wood Core or Metal Core				\$1,753,913.05	
3849 989	ACCESS DOORS & FRAME, WEATHERSTRIP. @ TOWER, ZEA	EACH.	2.00	5 2,002 699	1011-1011-101	54 005 40
0869 800	WOOD WINDOWS NEW CLERESTORY TOWER COPPER WOOD CORE, LAMINATE GLASS	HOAT	12.00			542.157 69
DIVISIONS: 09 FINISHES	WOOD WINDOW SUPPLIER	EACH	12 00	\$ 142,317 500		\$1,707,750 00
	pair: Sandblast off Exposed Steel. Load Abstoment Additional Cost					
7994 820	EAD ABAY MENT ADDITIONAL COST, IF PAINT IS LEAD	Fig. Cal.	Maria Laboration	0	\$352,800.00	
1994 990		501	D-00		\$172,500.00	
mest: At 3 Structural Reg	TOWER SANDBLAS EXPOSED STEE FRAMEWORK AT DWANCE	501		\$ 172,500 000	\$172,500,00	\$172,500-00
	TOWER SANDBLAST EXPOSED STEEL FRANKEWORK, ASTOWANCE Front All Exposed Stool Structure, Brook Trusten, Docking, Dome Glass Armature, Ledden, Stairs		1.00	\$ 172,500 000		\$177,500.00
7994 808 7994 816	TOWER SANDBLAST EXPOSED STEEL FRAMEWORK, ALLOWANCE FROM BIT From Steel Structure, Brink, Proc Trume, Decking, Dome Glass Armeture, Ladden, Stairs PAINT EXPOSED STEEL STRUCTURE, DECKING PAINTING, PRIME & PAINT TOWER STEEL, BRACKUS, (LOOK TRUS), DOME ARMATURE	SOFT IBIT	1.00 0.00 0.00	5 172,500 000	\$172,500,00	\$372,500.00
7994 816 7994 817	TOWER SANDBAST EMPOSED STEEL PRANKEWORK ALCOMANCE FOR All Executed Stock Structure, British, Floor Trusts, Dorbits, Dome Glass Armeture, Ladden, Stairs Paint Exposition Structure, Declaric Painting Prints & Prints (Prints Paint) Tower Structure, British, Brachus, (100h Trust), Dome Armature Ranke (Painting) Franke & Painting Prints	SQFT (RFF	0 00 0 00 0 00		\$172,500,00	\$377,500-00
J994 816	TOWER SANDBLAST EXPOSED STEEL FRAMEWORK, ALLOWANCE FROM BIT From Steel Structure, Brink, Proc Trume, Decking, Dome Glass Armeture, Ladden, Stairs PAINT EXPOSED STEEL STRUCTURE, DECKING PAINTING, PRIME & PAINT TOWER STEEL, BRACKUS, (LOOK TRUS), DOME ARMATURE	SOFT IBIT	0 00 0 00 0 00 0 00 0 00		\$172,500,00	
7994 816 7994 817 7994 817 7994 990	TOWER SANDBLAST EMPOSED STEEL PRANKEWORK ALCOMANCE	508 Y 548 Y 548 Y 548 Y 548 X	0 00 0 00 0 00 0 00 0 00	5 172,500 000	\$172,500,00	\$172,500 (st
0994 816 1994 817 1994 817 1994 990 WBS2: AS.5 Tower Exterio 1994 812	TOWER SANDBAST EMPOSED SITE I FRAMEWORK. ALCOMANCE were from all levens stood Structure, British, Brook Traines, Dethies, Dome Glass Armsture, Ledden, Stains PRAINT EMPOSED SITE IS STRUCTURE. DECENIG PRAINTING FRAME & PARKET TOWER STRUCTURE STRUCTURE, FLOOR TRUSS, DOME ARMATURE PARKETING FRAME & PARKET TOWER STRUCTURE PARKET TOWER STRUCTURE. ALCOMANCE OF TOWER STRUCTURE. ALCOMANCE COLOR STRUCTURE. ALCOMANCE OF TOWER STRUCTUR	SOFT SHIT SHIT SHIT SHIT	0 00 0 00 0 00 0 00 0 00	5 172,500 000	\$172,500.00 \$172,500.00 \$12,800.00	\$172,500 (st
1994 816 1994 817 1994 817 1994 817 1994 819 1994 812 DIVISIONS: 10 SPECIAL THS	TOWER SANDBUSS EXPOSED STEEL PRAKEWORK ALCOWANCE	508 Y 548 Y 548 Y 548 Y 548 X	0 00 6 00 0 00 0 00 1 00	5 172,500 000	\$172,500.00 \$172,500.00 \$12,800.00	\$172,500 (st
1994 816 1994 817 1994 817 1994 817 1994 990 WRSZ: AS. 9 Tower Exterio 1994 812 POVISIONS: 10 SPECIALTIES WRSZ: AS. 2 Tower, Exterio 1035-100	TOWER SANDBUSS EXPOSED STEEL PRANKE PROVIDED TOWERS DONE Glass Armsture, ladders, Stairs	SOFT SHEE SHEE SHEE SACH	1.00 0.00 0.00 0.00 0.00 1.00	\$ 172,500,000 \$ 1,150,000 \$ 688,271	\$172,500.00 \$172,500.00 \$12,800.00	\$172.500 gc \$13,800 gc \$688.21
1994-816 1994-817 1994-817 1994-90 WMSZ: AS.5 Tower Extents 1994-812 DRVISIONS: 10 SPICIALTIES WMSZ: AS.2 Tower, Extents 1035-100	TOWER SANDBLAST EMPOSED STEEL PRANKEWORK ALCOMANCE	SSET SHET SHET SHES SACH SACH SACH SACH	1.00 0.00 0.00 0.00 0.00 1.00 12.00	\$ 173,540,000 \$ 1,150,000 \$ 688,77 \$ 4682,152	\$172,500.00 \$172,500.00 \$12,800.00	\$172,500 cc \$13,800 cc \$688,27 \$4,682 11
1994 816 1994 817 1994 817 1994 90 1985 90 1994 812 1995 818 1995 818 1995 818 1995 818 1995 818 1995 818 1995 818 1995 818 1995 818	TOWER SANDBAST EMPOSED STEEL PRAKEWORK. ALCOMANCE WER Form All Even Stood Structure, British. Root Travers, Derkin. Dome Glass Armature, Ladders, Stains PRAINT EXPOSED STEEL STRUCTURE. DECRAGE PRAINTING PRINCE & PRAINT TOWER STEEL, BRACKWE. FEDON TRUSS. DOME ARMATURE PRAINTING PRINCE & PRAINT TOWER STAIRS. PRAINT TOWER STRUCTURE. BLOWANCE. OF TOWN TWO STRUCTURE. BLOWANCE. OF TOWN TWO STRUCTURE. BLOWANCE. PRAINT TOWER STRUCTURE. BLOWANCE. OF TOWN TWO STRUCTURE. BLOWANCE. PRAINT TOWER STRUCTURE. BLOWANCE. PRAINT TOWER STRUCTURE. BLOWANCE. OF TOWN TWO STRUCTURE. BLOWANCE. PRAINT TOWER WOOD WINDOWS & CLERSTON TOWER. PRAINT TOWER STRUCTURE. BLOWANCE. PRAINT TOWER STRUCTURE. PRAINT TOWER STRUCTURE. BLOWANCE. PRAINT TOWER STRUCTURE. BLOWANCE. PRAINT TOWER STRUCTURE. BLOWANCE. PRAINT TOWER STRUCTURE. PRAINT TOWER STRUCTURE. BLOWANCE. PRAINT TOWER STRUCTURE. PRAINT TOWER	SOFT SHEET THEF THE T SACH SACH SACH SACH SACH	1.00 0.00 0.00 0.00 0.00 1.00 12.00 1.00	\$ 1,150,000 \$ 1,150,000 \$ 688,77 \$ 4682,152 \$ 4,061,283	\$172,500.00 \$172,500.00 \$12,800.00	\$172,500 cm \$13,800 cm \$688,27 \$4,682.11 \$4,061,28
1994-816 1994-817 1994-817 1994-90 WMSZ: AS.5 Tower Extents 1994-812 DRVISIONS: 10 SPICIALTIES WMSZ: AS.2 Tower, Extents 1035-100	TOWER SANDBUSS ERPOSED STEEL PRAKEWORK. ALCOWANCE **PORT ALL EXPOSED STEEL STRUCTURE. DECEMB. Floor Trusts. Dorbits. Dome Class Armsture, Labdies. Stain Paint EXPOSED STEEL STRUCTURE. DECEMB. PAINTING PRIME & PAINT TOWER LADDERS. PAINTING PRIME & PAINT TOWER LADDERS. PAINTING PRIME & PAINT TOWER STAIRS. PAINTING PRIME & PAINT TOWER STAIRS. PAINT TOWER STAINCTURE. ALCOWANCE OF TOWER Windows. Registed Corontory Windows with Conser Clad Monumental Wood Core or Metal Core PAINT TOWER STAINCTURE. OF TABLES OF THE STAINCTURE STAINCTURE TOWER STAINCTURE. PAINTING WINDOWS ARE STAINCTURED TO STAIN TOWER STAINCTURED	SSET SHET SHET SHES SACH SACH SACH SACH	1.00 0.00 0.00 0.00 0.00 1.00 12.00	\$ 1,150,000 \$ 1,150,000 \$ 688,77 \$ 4682,752 \$ 4,061,283	\$172,500.00 \$172,500.00 \$12,800.00	\$172,500 cc \$13,800 cc \$688,27 \$4,682 11
9994 816 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7994 812 7994 812 7994 812 7994 812 70955053 10 \$FECHATIS 7095 100	TOWER SANDBLAST ERPOSED STEEL PRANKE FOOT THINKS, DONE Glass Armeture, Ladders, Stein	SSPT URT URT URT URT URT URT URT URT URT UR	1.00 0.00 0.00 0.00 0.00 1.00 12.00 1.00 1	\$ 173,540,000 \$ 1,150,000 \$ 688,271 \$ 4,682,152 \$ 4,052,000	\$177,500.00 \$177,500.00 \$13,800.00 \$13,800.00 \$40,441,71 \$40,441,71	\$13,800 00 \$13,800 00 \$688,27 \$4,682.11 \$4,052,00
9994 \$16 9994 \$17 9994 \$17 9994 \$17 9994 \$17 9994 \$17 9994 \$17 9994 \$12 9994 \$12 0995 \$12 0995 \$12 0095 \$12 0095 \$100 1099 \$00 1009 \$00 10	I TOWER SANDBAST ERPOSED SIEE I PRARAWORK. ALCOMANCE WER Find Bit Jewes Seed Structure, Britche, Broth Province, Desire, Dome Glass Armsture, Ledden, Stairs PRAINT ERPOSED SIEE I STRUCTURE. DECRING PRANTING PRINE & PARKE JOHNER STEEL, REACHE, FLOOR TRUSS, DOME ARMATURE PAINTING. PRINE & PARKE TOWER STEEL, REACHE, FLOOR TRUSS, DOME ARMATURE PAINTING. PRINE & PARKE TOWER STEEL, REACHE, FLOOR TRUSS, DOME ARMATURE PAINTING. PRINE & PARKE TOWER STEEL, REACHE	SOFT SHEET THEF THE T SACH SACH SACH SACH SACH	1.00 0.00 0.00 0.00 0.00 1.00 12.00 1.00	\$ 174,540,000 \$ 1,150,000 \$ 688,271 \$ 4,682,152 \$ 4,061,283 \$ 31,050,000	\$172,500.00 \$172,500.00 \$13,800.0	\$172,500 cm \$13,800 cm \$688,27 \$4,682.11 \$4,061,28
9994 \$16 9994 \$17 9994 \$17 9994 \$17 9994 \$17 9994 \$17 9994 \$17 9994 \$12 9994 \$12 0995 \$12 0995 \$12 0095 \$12 0095 \$100 1099 \$00 1009 \$00 10	TOWER SANDBLAST ERPOSED STEEL PRANKE FOOT THINKS, DONE Glass Armeture, Ladders, Stein	SSPT URT URT URT URT URT URT URT URT URT UR	1.00 0.00 0.00 0.00 0.00 1.00 12.00 1.00 1	\$ 1,150,000 \$ 1,150,000 \$ 688,271 \$ 4,687,192 \$ 4,061,783 \$ 31,050,000	\$172,500.00 \$172,500.00 \$13,800.00 \$13,800.00 \$40,441.71 \$40,441.71	\$172,500.00 \$13,800.00 \$688,27 \$4,662.21 \$4,052,00 \$72,772.75
9994 816 9994 817 9994 817 9994 817 9994 817 9994 990 WRS27 AS, 3 Tower, Exterior 9994 990 WRS27 AS, 3 Tower, Exterior 10994 990 1099 1007 1007 1099 1007 1099 1007 1099 1007 1099 1007 1099 1007 1099 1007 10	HOWER SANDBASE EMPOSED SIEE I PRAKEWORK. ALCOMANCE WERE FRIEND RESIDENCE OF THE PRAKEWORK ALCOMANCE PRAINT EMPOSED SIEE IS STRUCTURE. DECRING PRAINTING PRINTE & PARKE SPARE TOWNER STEEL, BRACKE, FLOOR TRUSS, DOME ARMATURE PAINTING PRINTE & PARKE TOWNER STEEL, BRACKE, FLOOR TRUSS, DOME ARMATURE PAINTING PRINTE & PARKE TOWNER STEEL, BRACKE, FLOOR TRUSS, DOME ARMATURE PAINTING PRINTE & PARKE TOWNER STEEL, BRACKE, FLOOR TRUSS, DOME ARMATURE PAINTING PRINTE & PARKE TOWNER STEEL, BRACKE, FLOOR TRUSS, DOME ARMATURE PAINTING PRINTE & PARKE TOWNER STEEL, BRACKE, FLOOR TRUSS, DOME ARMATURE OF TOWNER PRINTED. PAINTING PRINTED. PAINT	SACH SACH SACH SACH SACH SACH SACH SACH	1:00 0:00 0:00 0:00 0:00 1:00 1:00 1:00 1:00 1:00 1:00 1:00	\$ 1,150,000 \$ 1,150,000 \$ 688,271 \$ 4,687,152 \$ 4,061,783 \$ 31,050,000 \$ 18,067,938	\$172,560.00 \$112,560.00 \$13,860.00 \$23,860.00 \$40,441.71 \$40,441.73 \$40,441.73 \$72,727.75 \$72,850.00 \$82,660.00	\$172,500.05 \$13,800.00 \$688,21 \$4682.21 \$4,062,21 \$4,050.00
9994 816 7994 817 7994 817 7994 817 7994 817 7994 817 7994 812 7994 812 7994 812 7994 812 7994 812 7994 812 7994 812 7994 812 7994 812 7994 812 7994 812 7994 812 7994 812 7994 7994 7995 7995 7995 7995 7995 7995 7995 7995 7997 7995 7997 7997 7997 7997 7997	HOWER SANDBASE EMPOSED SIEE I PRAKEWORK. ALCOMANCE WERE FRIEND RESIDENCE OF THE SERVICE DESCRIPTION THE PROPERTY DONE GLOS ARMSTURE, Ladden, Stairs PARK EMPOSED SIEE STRUCKURE. DECRIPT PARK EMPOSED SIEE STRUCKURE. DECRIPT PARK TOWNER SPARE TOWNER STEEL, BRACKE, FLOOR TRUSS, DOME ARMATURE PARK THOMER SPARE TOWNER STEEL, BRACKE, FLOOR TRUSS, DOME ARMATURE PARK THOMER STRUCKURE. DECRIPTION OF THE SERVICE	SOFT HET HET THE TENTS SHEET SACH SACH SACH SACH SACH SACH SACH	1.00 0 00 0 00 0 00 0 00 1 100 1 2 00 1 1 00 1 1 00 1 1 00 1 00	\$ 1,150,000 \$ 1,150,000 \$ 688,271 \$ 4,682,152 \$ 4,061,783 \$ 31,050,000 \$ 18,067,938 \$ 5,462,500	\$172,500.00 \$172,500.00 \$13,800.00 \$13,800.00 \$23,842.71 \$24,441.71 \$24,271.75 \$72,271.75 \$72,271.75	\$177,500 gg \$13,800 gg \$688,21 \$4,682,21 \$4,061,21 \$31,050 gg \$72,273,75 \$31,850 00
9994 816 9994 817 9994 817 9994 817 9994 817 9994 990 9994 990 9994 990 9994 990 9994 990 9995 9904 9995 9905 9905 9995 9904 9995 9905 9905 9995 9905 9905 9995 9905 9995 9905 990	I DOWER SANDBLAST ERPOSED SIEE I PRAKEWORK. ALCOMANCE WER Form all Expensed Sood Structures, Britisher, Body Trusses, Derkine, Dome Glass Armature, Ladden, Stains PRAINT EXPOSED SIEE STRUCTURE. DECRING PRAINTING PRINE & PRAINT FOWER STEEL, BRACKWE, FLOOR TRUSS, DOME ARMATURE PRAINTING PRINE & PRAINT TOWER STAIRS PRAINTING PRINE & PRAINT TOWER STAIRS PRAINTING PRINE & PRAINT TOWER STAIRS PRAINT TOWER STAINCHOME ALCOMANCE OF TOWER STAINCHOME ALCOMANCE OF TOWER STAINCHOME ALCOMANCE OF TOWER STAINCHOME ALCOMANCE OF TOWER STAINCHOME ALCOMANCE FOR TOWER STAINCHOME AND STAINCH S	SACH SACH SACH SACH SACH SACH SACH SACH	1:00 0:00 0:00 0:00 0:00 1:00 1:00 1:00 1:00 1:00 1:00 1:00	\$ 171,540,000 \$ 2,150,000 \$ 688,271 \$ 4682,152 \$ 4,051,783 \$ 31,050,000 \$ 18,061,938 \$ 5,462,500	\$172,500.00 \$112,500.00 \$13,800.00 \$23,800.00 \$25,841.71 \$40,441.71 \$40,441.73 \$72,771.75 \$73,850.00 \$12,000.00 \$12,000.00	\$177,500 00 \$13,800 00 \$688.27 \$4,682.21 \$4,081.28 \$31,050 00 \$72,271.75 \$31,810 00
9994 816 9994 817 9994 817 9994 817 9994 907 9994 907 9994 907 9994 907 9994 907 9994 907 9995 907 9995 907 907 907 907 907 907 907 907 907 907	I DOWER SANDBLAST ERPOSED SIEE I PRAKEWORK. ALCOMANCE WER Find Bit Beyend Stock Struckfurdt. Bitchen, Brown, Brow	SOFT HET HET THE TENTS SHEET SACH SACH SACH SACH SACH SACH SACH	1.00 0 00 0 00 0 00 0 00 1 100 1 2 00 1 1 00 1 1 00 1 1 00 1 00	\$ 121,540,000 \$ 1,150,000 \$ 688,271 \$ 4682,152 \$ 4,061,783 \$ 31,050,000 \$ 18,067,938 \$ 5,462,500	\$172,500.00 \$172,500.00 \$13,800.00 \$13,800.00 \$40,441.71 \$40,441.71 \$54,121.73 \$72,272.75 \$21,800.00 \$13,000.00 \$13,000.00	\$177,500 ag \$13,800 au \$688,21 \$4,662,21 \$4,061,71 \$31,050 au \$72,278,27 \$21,850 ac \$22,000 ac
9994 816 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7994 817 7998 817 799	HOWER SANDLASS EXPOSED SIZES FRAMEWORK ALCOMANCE WERE FRIEND RESIDENCE OF THE SERVICE PROPER PROPERTY THE PROPERTY OF THE SERVICE OF THE SER	SACH UNIT UNIT UNIT UNIT UNIT UNIT UNIT SACH SACH SACH SACH SACH SACH SACH SACH	1.00 0.00 0.00 0.00 0.00 1.00 1.00 1.00 1.00 4.00 1.00 4.00 1.00	\$ 12,150,000 \$ 1,150,000 \$ 688,271 \$ 4,682,152 \$ 31,050,000 \$ 18,067,938 \$ 5,462,500 \$ 5,750,000	\$172,500.00 \$112,500.00 \$13,800.00 \$23,800.00 \$25,841.71 \$40,441.71 \$40,441.73 \$72,771.75 \$73,850.00 \$12,000.00 \$12,000.00	\$172,500 00 \$13,800 00 \$588,27 \$4,682.31 \$4,082.72 \$31,050 00 \$72,771.39 \$23,000 00 \$13,500 00
1994 816 1994 817 1994 817 1994 817 1994 817 1994 900 1994 900 1995 905 199	HOWER SANDLASS EXPOSED SIZE I PRAKEWORK. ALCOMANCE WER Find all Exposed Society Courte, British, Brook Province, Device, Dome Glass Armsture, Ledders, Stairs PRAINT EXPOSED SIZES STRUCKTURE. DECRING PRAINTING PRINE & PRAINT FOWER STATES, BRACKER, FLOOR TRUSS, DOME ARMATURE PRAINTING PRINE & PRAINT FOWER STATES, PRAINTING PRODUCT STATES, PRAINTING PRINE & PRAINTING PRINCE STATES, PRAINTING P	SOFT HET HET HET HET HET HET HET HET HET HE	1.00 0 00 0 00 0 00 0 00 1 00 1 2.00 1 100 1 4 00 4 00	\$ 121,540,000 \$ 1,150,000 \$ 688,271 \$ 4682,152 \$ 4,061,783 \$ 31,050,000 \$ 18,067,938 \$ 5,462,500	\$172,500.00 \$172,500.00 \$13,800.00 \$13,800.00 \$40,481.71 \$44,221.75 \$72,273.75 \$21,250.00 \$43,000.00 \$13,000.00 \$13,000.00	\$172,500 00 \$13,800 00 \$588,27 \$4,682.31 \$4,082.72 \$31,050 00 \$72,771.39 \$23,000 00 \$13,500 00
1994 816 1994 817 1994 817 1994 817 1994 817 1994 900 1994 900 1995 905 199	HOWER SANDLASS EXPOSED SIZES FRAMEWORK ALCOMANCE WERE FRIEND RESIDENCE OF THE SERVICE PROPER PROPERTY THE PROPERTY OF THE SERVICE OF THE SER	SACH UNIT UNIT UNIT UNIT UNIT UNIT UNIT SACH SACH SACH SACH SACH SACH SACH SACH	1.00 0.00 0.00 0.00 0.00 1.00 1.00 1.00 1.00 4.00 1.00 4.00 1.00	\$ 1,150 000 \$ 1,150 000 \$ 688,271 \$ 4682,152 \$ 4,061,283 \$ 31,050 000 \$ 18,061,938 \$ 5,462,500 \$ 23,000 000 \$ 5,750 000 \$ 2,875 000	\$172,500.00 \$172,500.00 \$13,800.00 \$13,800.00 \$40,441.71 \$40,441.71 \$54,121.73 \$72,272.75 \$21,800.00 \$13,000.00 \$13,000.00	\$172,500,00 \$13,800,00 \$688,27 \$4,662,18 \$4,662,18 \$33,050,00 \$72,878,25 \$23,000,00 \$13,500,00 \$11,500,00
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				WORK DETAIL
952-95.2 Done, Documentation. Sensore Return Air Duct Iron backside of Done and along Done	0350	None and	-	Co.
302.239 B.1.2 Done, Documentation: Remove Return Air Duct from backside of Done and along Dome 952 B.1.3 Done, Recommentation: Document & Remove Wood Tries underside of Done, Save for Reinstall	****	1.00		
300.130 81.3 Dame, Documentation: Document & Remove Wood Trim underside of Dome, Save for Remstall	****	1.00		
(EDC ELT. Durse, Swycharpi Report, Annes Demo Sent Structure S. Structurel Clay/Tip Drum for Dursey Sp. Report 101,210	****	Description of		
100.210 R2.1 Dome, Structural Repair. Assess Dome Steel Structural ClayVie Drum for Dumage & Repair 1952-82.2 Dome, Several Repair: Sandbrian, Prime & Paint Dome Franceurin	0000	1.00		
IRI-220 B-2 Dome, Structural Repair. Sandblast, Prime & Paint Dome Framework	++++	1.00		
1812 B Dame, Senetar of Repair, Replace any Demograt Senetarial Clay Tile 1002.230 92.3 Dome, Structural Repair. Replace any Demograt Structural Clay Tile	****	1.00	-	-
100 B.J. Donn, Bestermon: Reput Inciden Wood Time & Belentill street to Under side of Donn Farming	1000	100		
83.3 10 83.3 10me, Restoration: Reside broken Wood Trim & Reinstell trim to Underside of Dome Francis	****	1.00		
PET 81.2 Dome, Restoration: PE1.1" thick insulated Disaring Units with Luminated Safety Glass & France PVB Interlayer 88.2 Dome, Restoration: FE1.1" thick insulated Gisaring Units with Luminated Safety Glass & Frosted PVB Interlayer	****	1.00		
1957-83.3 Dome, Restoration: Nework Return At Duct, shi Duct off Dome. Test & Belance Report	100	A		
III. 330 83.3 Dome. Restoration: Rework Return Air Duct, Lift Duct off Opine: Tass & Balance Report	****	1.00		
#822 B3.4 Dome, Acceptance Regulate Chandelers Winch with Electric Unit, Remote Control, 1,000b load, Dynases Chandeler Host System 883.4 Dome, Restoration: Replace Chandelers Winch with Electric Unit, Remote Control 1,000b load, Dynases Chandelers Host System	****	1.00	-	
ISES BLS Dome, Restriction: Lighting, LID Spetifyins to light Dome	0.000	0-2	Ø 7	
100 150 B3 S Dome, Restoration: Lighting, LED Sportspires to light Dome 100 150 B3 S a Dome, Restoration: Lighting: FELB Wall Mount LED Suit Lights to backlight Dome. Tig Into Lighting Courted System.	****	1.00		
PRISONS DE MASORIET & DEMO, REMOVALS	1000	1.00		\$310,800.54
1852-81.1 Donne, Donumentation: Earness translation on Donne & Donne Druste, Remove Materium Purate at Utus	2.5	100		\$32,672.42
199 997 DEMOUTION REMOVE INSULATION ON DIGME & DIGME DRUM, Inside 199 998 DEMOUTION REMOVE INTERIOR STAINLESS PARELS # INTERIOR DIGME 24 Sections X 3 Rows = 72 Panels, 868 SQFT	SOFT	\$6\$ 00 \$6\$ 00		\$795.6 \$31.876.7
1853 B1.3 Done, Documentation: Document & Remove Wood Tries underside of Done, Save for Boinstall	A STATE OF	pod DO	30.774	\$14,907,30
192 130 REMOVE MISC WOOD TRIME TAG. UNDERSIDE OF DOME, SAVE FOR REINSTACE	INFT	552.00	\$ 16 662	\$9,197.
199-998 DEMOUTION. DOCUMENT WOOD TRIM UNDERSIDE OF DOME (PSE: B.T.) Dome, Structural Repair. Assess Dome Steel Structural Experie Drum for Demago & Repair	WEEK	1.00	\$ 5,704.807	55,704 8 511,409 61
199 997 EVALUATE DOME STEEL STRUCTURE FOR DAMAGE & REPAIR	WEEK	1.00	\$ 1,704 807	\$5,704.8
	MEEK	1.00	5 5.704.807	\$5.704 8
18.52 B Donne, Stryctonial Segulatic Stryctonia Congress Stryctonial Congress 400.001 MGRTAR	CUYD	4.55	\$ 573 295	\$750,493 87
+00 020 +COST SAFEWAY SCAT 1D OVER 12"	SQFT	160.00		5214.2
00.100 Fit VOIS W/NORTAR 01.00 Fit VOIS W/NORTAR	CUYD	21.70		518.767.8
	EACH	1,860 00 2,101.80		\$9,406.4 \$177.2
405.364 365x12 CLAY BRICK STRETCHER. 2.25 PCS/SQFT	EACH	4,270.00	\$ 31.517	\$134,575.7
115,300 PARGE COAT DN BLOCK @ CLAY BRICK 425.122 8° DUR -A-VYAL-HOT DIPPED GALY	SQFT	1,860 00		58.263 8
	EACH	706.80		\$887.5 \$19,102.9
425.222 RESTEE & MASONRY	CWT	14 55	\$ 151.558	52,205.1
	SOFT	1.860 00		\$40,246.2
190.045 SAWCUT CAN TILL VENEER 1852 BL4 Crows, Senteration Regulate Chandelean Winch with Electric Usin, Sonocio Coverol, 1,000b load, Dynapac Chandelean Hole System	LNFT	1.860 00	5 3.247	\$6,039 S
487.102 REMOVE CHANDE ALIER WINCH	EACH	1 00	\$ 1,372.077	51.322.0
WYSONS Q MITALS	0.000			\$2,180.45
PESE: BLA Dome, Sentention: Replace Chandelon Winch with Electric Unit, Semone Control,),000th load, Dynamic Chandelon Holes Systems 512.136 ERECT BEAM: BRACE INTELS TOGHETHER ID WINCH	EACH	2 00	\$ 1,090.723	\$2,180.45 \$2,180.45
PVISIONS: 05 WOOD & PLASTICE	-			\$15,729.44
7812: \$1.1 Down, Senteration, Report broken Wood Trim & Revested trim to Underside of Dome Francisco. 320:410 WOOD TRIM, 116 REPAIR BROKEN WOOD @ UNDERSIDE DOME.	THIT	552.00	S 15 008	\$15,729.46 \$8,284.25
UZ BOR WOOD TRIM. ING OAK INSTALL SALVAGED IF UNDERSIDE OF DOME	trial T	554.00		\$7.445.17
IVISONS: 68 DOORS & WIRDOWS	-	Sec. 16.5	100	\$224,505.00
#SE: 8.2 Down, Restantion: F&1" thick insolved Glazing Unity with Laminated Substy Glass & Fronted P/S Interlayer UN 1810 IN 1810 DOME GLASS: NEW DOME GLASS 1"THICK LAMINATE GLASS	SOFT	864 00	\$ 258.750	\$224,545.00
PYTICHS OF FINANCS	100000			\$234,940.00
785) 813 Down, Structural Agents, Serphiles, Priya & Paint Come Francescon 794 816 PAINTING PRINT DOME STEEL FRANCWORK	(7,77)-	MAX NO.		\$734,940.00
PRAISE PAINTING PRINT DONE STEEL FRANCWORK SANDBLAS INTERIOR DOME STEEL FRANCEWORK ALSOWANCE	ISMET CS	304 00	5 172 S00 5 172,500 000	\$52,440.00 \$177,500.00
PYSONS: 15 MICHANICAL			Annual States	\$1,54,660,00
#\$ES: \$E.S. Done, Decumentation: Remove Return Air Duct from backalds of Dones and along Dones \$793.100 hyu.C. RemOye Return Air Duct Featurn Restauds and Along Dones	UMFT	64 00	\$ 516,602	\$33.062.50
1997; 34-3. During Replanation: Review Entern Air Durit, IM Duct off Durine, Yest & Science Report		94.00	310 603	\$104,917.50
599.100 HVAC REWORK RETURN AIR DUCT, LIFT DUCT OFF DOME	UNIT	54.00	\$ 1,549 805	\$99,187.50
599.101 MVAC: TEST & BALANCE REPORT RVISIONS: 16 ELECTRICAL	1.5	1.00	5 5,750 000	\$5,750 0
1652-61.4 Done, Restriction: Replace Chandeleer Winds with Electric Unit, Remote Control, 1,000th load, Syrupac Chandeler Hold System	2.0	Sec. 1979	S	\$23,000.00
	EACH	1.00	5 23,000 000	\$23,000 0
MALE SALE Desires, Residentians, LED Sport Lights to Light Desire 199 100 ELECTRICAL LED SPORT LIGHTS TO LIGHT DOME	UNIT	II DO	\$ 5,750,000	\$46,000.0
YORK PACKAGE: C Courthouse Wilodows, Exterior Window Replace	1000			51,443,237.76
WISHONS: 01 GENERAL REQUIREMENTS		-	No. of the last	\$367,681,89
1882: 1803 000 C COURTHOUSE WINDOWS, EXTERIOR WINDOW REPLACE	5555	1.00		\$367,M8.89
003.100 C1 Windows Removal & Preparation	****	100		
103 3/00 (2 Windows Replacement biologie 198 3/00 (SEREAL CONDITIONS COURTISOUSS WINDOWS	cecc	1.00	6 0.001	S S S S S S S S S S S S S S S S S S S
193.193 CONTRACTOR'S BOND: Bond Each Work Breakdown	72	1.183.228 00	\$ 9,872,750	\$108.856.9
199.197 CONSTRUCTION CONTINGENCY 10%	\$555	1.294,384 00		\$148,854.1
7812 CL 1 Windows, Removed Removed Abendoned Louvers & Ductwork 303110 CL 1 Windows, Removel - Removel - Remove Abendoned Louvers & Ductwork	****	1.00		
(BE2: CL.2 Windows, Removal: Balacele Louises & Ductivier's to Latetions per ARDI strongs ARDI	2.5	140 - 1,000		
203.320 C3.2 Windows, Removal: Relocate Louvers & Ductwork to Locations per A401 through A404	****	1.00		
MEE CL.1 Windows, Removal: Revisions Existing Aleminism Window System & Clean Sealants Off Sonsworts 003.130 [Cl.3 Windows, Removal: Removal: Removal: Existing Aleminism Window System & Clean Sealants Off Stonework	****	100	1	
#52 CL1 Window, Replacement: ESI Now Thermody Braken Aluminum Window System, Simulate Deuble Hung unless nated	1.5	4-24-		
003:210 C2.1 Windows, Replacement: #8 New Thermally Broken Aluminum Window System Similate Double Hung unless noted 1851 C3.2 Windows, Replacement, Remove Mesonry with P& Paint Windows with Glasse Transcor to ments adjacent opening. #85 Interior Wood Trim to match	****	1.00		
003.220 C2.2 Windows, Replacement: Remove Missonry Ind. I Exi Paired Windows with Glazed Transom to match advanced spaced	****	1.00		
RSS: CL.1 Windows, Replacement: F&I Manual Roller Studes @ All Windows	0 0		455 75 7	
203.230 C2.3 Windows, Replacement, F&I Manual Roller Shades (II All Windows 652 C2.4 Windows, Replacement, At Let Food Windows, create a GWS Represed Listened T-C, show Calling & Represent At Let Food Windows 652 C2.4 Windows, Replacement, At Let Food Windows, create a GWS Represed Listened T-C, show Calling & Represent At Let Food Windows 652 C2.5 Windows, Replacement, At Let Food Windows, create a GWS Represed Listened T-C, show Calling & Represent At Let Food Windows 653 C2.5 Windows, Replacement, At Let Food Windows 654 C2.5 Windows, Replacement, At Let Food Windows 655 C2.5 Windows 6	****	100		
The state of the s	****	100		
1852 CLA Windows, Applicament: At 1st Floor Windows, create a GWB Recessed Lightwell 21-5" above Ceiling @ Rooms with Acoustical Ceiling, Relocate Light Fatures. 103240 C2 4 Windows, Replacement: At 1st Floor Windows, create a GWB Recessed Lightwell 21-5" above Ceiling @ Rooms with Acoustical Ceiling, Relocate Light Fatures.		-0.0		
303.240 C2 4 Windows, Replacement: At 1st Floor Windows, create a GWB Recessed Lightness 3" 6" above Ceiting IP Rooms with Acoustical Ceiting, Relocate Light Fatures REC C3 5 Windows, Replacement: At 1st 8 And Floor, create a GWB Recessed Lightness 4" 4" above Ceiting IP Rooms with Acoustical Ceiting, Balance Lightness A 2 and 3 and 4 and 5				\$214,297.90
1832 CLS Windows, Replacement: At 2nd & 3nd Room, create a CRMB Recessed Lightwell 2 -6" above Celling IP Rooms with Accounts of Calling, Beloate Lights 1003.250 C2.5 Windows, Replacement: At 2nd & 3nd Floor, create a GWB Recessed Lightwell 2 -6" above Cering IP Rooms with Acoustical Cering, Reloate Lights	****	1.00	25 111032	
PRESE CES. Windows, Replacement At 2nd & 3nd Fines, crease a CWN Recessed Lightwell 7 -6" slove Calling (P Rooms with Accustical Calling, Release Light) CES. Windows, Replacement. At 2nd & 3nd Finos, create a GWN Recessed Lightwell 2'-6" above Centing (P Rooms with Accustical Centing, Release Lights NISSONS OF STEWORK PRESE CES. Windows, Removal: Remove Existing Aluminum Window System & Class Septems Off Sonewark				\$214,297.90
ASSECTS Windows, Regiscomment, At 2nd & 3nd Reverse a SWM Recessed Subtract 7nd Subove Calling & Rooms with Accounted Calling, Belazer Lights OCLS Windows, Replacement, At 2nd & 3nd Room, create a GWB Recessed Lightwell 2nd Subove Ceiting & Rooms with Acousted Ceiting, Rebate Lights NRSDORS OF STEWORK RESECTLS Windows, Removal Removal Education Advances Windows System & Clean Eastern Off Stenewark 1509 PM SCAFFORD WINDOWS: ERECT & RINDOWS SCAFFORD WINDOWS: ERECT & RINDOWS	L3	1.00	\$ 103.787.500	5214,297 90 5103,787.5
ASSECTS Windows, Replacement, AS and & Joe Prov., create a GWB Recessed Eightwell 7:4" above Calling & Rooms with Accounts Calling, Behave Lights O01350 C2.5 Windows, Replacement, AS and & Joe Froor, create a GWB Recessed Lightwell 2:6" above Ceiting & Rooms with Accounts Ceiting, Rebate Lights PRESCELS Windows, Removals, Removals, Emproved Existing Advantage Windows System & Clean Sealants Off Sonnewas PRESCELS Windows, Removals, Removals, Removals, Removals, Report & RIMOVE SCAFFOLD WINDOWS, ERECT & RIMOVE SCAFFOLD WINDOWS, RENTAL				\$214,297.90 \$103,787,5 \$110,510.4
INSEC CLS - Windows, Replacement, At 2nd & 3nd Reversed Electron 8 7 - 2 above Calling - Recent Accounts Calling, Belazer Lights OCLS - Windows, Replacement, At 2nd & 3nd Received Electron 7 - 2 above Calling - Received Lights NRSS-CLS - Windows, Removal: Remove Existing Aluminum Windows Eyelen & Clean Selferts Off Stonewerk 1852-CLS - Windows, Removal: Remove Existing Aluminum Windows Selfert - Clean Selferts Off Stonewerk 1854-CLS - Windows, Removal: Remove Existing Aluminum Windows Selfert - Clean Selferts Off Stonewerk 1854-CLS - Windows, Removal: Remove Existing Aluminum Windows Selfert - Clean Selferts Off Stonewerk 1854-CLS - Windows, Removal: Remove Existing Aluminum Windows Selfert - Clean Selferts Off Stonewerk 1854-CLS - Windows, Removal: Remove Aluminum Windows Selfert - Clean Selferts Off Stonewerk 1854-CLS - Windows, Removal: Remove Aluminum Windows Selferts - Clean Selferts Off Stonewerk 1854-CLS - Windows, Removal: Remove Aluminum Windows Selferts - Clean Selferts Off Stonewerk 1854-CLS - Windows, Removal: Remove Aluminum Windows Selferts - Clean Selferts Off Stonewerk 1854-CLS - Windows, Removal: Remove Aluminum Windows Selferts - Clean Selferts Off Stonewerk 1854-CLS - Windows, Removal: Remove Aluminum Windows Selferts - Clean Selferts Off Stonewerk 1854-CLS - Windows, Removal: Remove Aluminum Windows Selferts - Clean Selferts Off	WHE	1.00 52.00	\$ 2,125,200	\$214,287.90 \$103,787,5 \$110,510.4 \$40,005.16 \$1,265.70
2013 Windows, Residence of All Tell & See Press, reside a CHEF Section of Engine of Engine of Received Calling, Sections Lights CCS Windows, Residence Lights CCS Windows, Residence Calling, Religion of Engine Calling, Religion of Engine Calling, Religion of C	L3	1.00 52.00	\$ 2,125,200 \$ 12,983	\$103,787.56 \$103,787.56 \$110,510.40 \$40,000.16 \$1,266,70 \$233.66
2013 Windows, Residence of All Tool & See Press, center a Chief Received F.C. 1 Windows and Couling Report Lights 1013 Windows Report Couling Report Lights 1014 Fig. 1 See Press Report Couling Report Lights 1014 Fig. 1 See Press Report Couling Report Lights 1014 Fig. 1 See Press Report Couling Report Lights 1014 Fig. 1 See Press Report Couling Report Lights 1014 Fig. 1 See Press Report Couling Report Lights 1014 Fig. 1 See Press Report Rep	US WHEK SOFT	1.00 52.00	\$ 2,325,200 \$ 12,983 \$ 12,983	\$114,287 90 \$103,787.5 \$110,510 4 \$40,001 16 \$1,264.70 \$233.6 \$623.11
2013 Windows, Residencement, All 2nd 8 Jul Plans, create a GWB Received Early Science Letting & Rooms with Accounted Calling, Behavior Letting CC3 Windows, Residence Letting, Relation Letting,	SQFT SQFT SQFT	1.00 52.00 18.00 48.00 7.00	\$ 2,325,200 \$ 12,983 \$ 12,983 \$ 57,833	\$214,397.90 \$103,787,5 \$110,510.4 \$40,005.16 \$1,269,70 \$233.6 \$423.1 \$404.8
2013 Windows, Residence of All Tool & See Press, center a Chief Received F.C. Server Land & Tool Received Land & Tool Re	SOFT SOFT SOFT	1.00 52 00 18 00 48 00 7.00	\$ 2,325,200 \$ 12,983 \$ 12,983 \$ 57,833 \$ 6,616	\$103,787.90 \$103,787.95 \$110,510 40 \$110,510 40 \$11,051 70 \$233.65 \$404.85 \$17,270 58 \$1,151.15
2013 Windows, Research Afford 3 of Proc. create a GWB Received Ending & Rooms with Accounted Casing, Behave Light CC3 Windows, Removal: R	SQFT SQFT SQFT	1.00 52.00 18.00 48.00 7.00	\$ 2,125,200 \$ 12,983 \$ 12,983 \$ 5,7,833 \$ 6,616 \$ 171,697	\$110.787.90 \$103.787.95 \$110.510.40 \$1,284.70 \$1,284.70 \$1,27.70.58 \$1,7.70.58 \$1,7.70.58
2013 Windows, Research Afford & And Rever ceited & Green State 1 (1994) CC3 Windows, Replacement Afford & And Rever ceited & Green State 1 (1994) CC3 Windows, Replacement Afford & Itel Force, Create & Green Reversed Lymnwell 2"-6" above Civing & Reports with Acoustical Ceiling, Related Lymns NASIONAL OF STRUMBER REPLACES & Windows, Remarks. Remarks Existing Abundance Mindows England & Clean Seatent Off Stonewest SCAF COLD & WINDOWS: FRECT & REMOVE SCAF COLD & WINDOWS: REPLACE SCAF COLD & WINDOWS: REPLACE SCAF COLD & WINDOWS: REPLACE SCAF COLD & WINDOWS REPLACE SCAF COLD & WINDOWS: REPLACE	SOFT SOFT SOFT SOFT SOFT LINFT EACH EACH EACH	1.00 52.00 18.00 48.00 7.00 17.00 17.00 14.00	\$ 2,125,200 \$ 12,983 \$ 12,983 \$ 57,833 \$ 6616 \$ 171,697 \$ 171,697	\$214,397.90 \$103,787,95 \$110,510.40 \$40,001.16 \$1,251.70 \$2336 \$47,270.50 \$1,151,11 \$2,918,8 \$2,003,7 \$2,575.40
2013 Windows, Research Af 2nd 3 of Rev. crisis a Child Section 2 1 acres 2 GWB Recessed Lymnold 2*-6* above Calling 8 Reports Upon 1001330 CC3. Windows, Removal, Removal Research At 2nd 3 acres 5 GWB Recessed Lymnold 2*-6* above Calling 8 Reports with Acoustsal Celling, Rebotte Lymni 10014004 PRESC LS Mindows, Removal, Removal Education Windows Eyetim 8 Deep Seatemen 0ff Monavoria 10014004 SCAF CRU @ WINDOWS - ERICT B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERICT B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERICT B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERICT B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERICT B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERICT B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERICT B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERICT B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERICT B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERIC B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERIC B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERIC B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERIC B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERIC B RIMOVE 10014004 SCAF CRU @ WINDOWS - ERIC B RIMOVE 10014004 SCAF CRU @ WINDOWS - SHGIE 10014004 SCAF CRU @ WINDOWS - SHGIE 100140004 SCAF CRU @ WINDOWS - SHGIE 10014004 SCAF CRU @ WINDOWS - SHGIE 100140004 SCAF CRU @ WINDOWS - SHGIE 10014004 SC	SOFT SOFT SOFT SOFT SOFT LINFT EACH EACH EACH EACH	1.00 52.00 18.00 48.00 7.00 174.00 14.00 15.00 33.00	\$ 2,325,200 \$ 12,983 \$ 12,983 \$ 57,833 \$ 6616 \$ 171,697 \$ 171,697 \$ 171,697	\$214,287.90 \$103,787.5 \$110,510.4 \$110,510.4 \$12,287.70 \$233.6 \$423.1 \$404.8 \$1,72,70.58 \$1,72,70.58 \$2,00,7 \$2,775.6 \$3,20,75.6
2013 Windows Research At 2nd 3 of Revenue 1 State Section 2 State Section 2 State Section 2 State Section 3 St	SOFT SOFT SOFT SOFT SOFT EACH EACH EACH EACH EACH	1.00 52.00 18.00 48.00 7.00 17.00 14.00 15.00 33.00 11.00	\$ 2,125,200 \$ 12,983 \$ 12,983 \$ 6616 \$ 171,697 \$ 171,697 \$ 171,697 \$ 348,760	\$103.787.56 \$103.787.56 \$110.510 #0 \$12.843.70 \$233.66 \$623.11 \$404.80 \$1.770.58 \$1.151.11 \$2.916.80 \$2.2.03.76 \$2.575.46 \$3.566.00 \$3.866.00 \$3.866.00 \$3.866.00 \$3.866.00 \$3.866.00 \$3.866.00 \$3.866.00
2013 Windows, Removed At Test 8 of the Processing Received F. C. Several Processing Received Carling Related Lights 1013 Windows, Responsed Received Received Lights Received Lights Received Lights Received Lights 1014 Fig. Scale Coll. Windows, Removed Existing Received Received Lights Received Lights Received Lights 1014 Fig. Scale Coll. Windows, Removed Received Received Received Lights Received Lights 1014 Fig. Scale Coll. Windows, Removed Received Received Received Lights 1015 Fig. Scale Coll. Windows, Removed Received Lights Received Received Lights 1015 Fig. Scale Coll. Windows, Removed Received Lights Received Received Lights 1015 Fig. Scale Coll. Windows, Removed Received Lights Received Rec	SOFT SOFT SOFT SOFT SOFT EACH EACH EACH EACH EACH EACH EACH	1.00 52 00 18 00 48 00 7.00 174 00 17.00 33 00 11.00 12 00	\$ 2,225,200 \$ 17,983 \$ 12,983 \$ 5,7833 \$ 6116 \$ 171,697 \$ 171,697 \$ 171,697 \$ 171,697 \$ 171,697 \$ 348,760 \$ 348,760 \$ 348,760	\$103.787.56 \$103.787.56 \$110.510 #6 \$110.510 #6 \$12.843.70 \$233.66 \$523.11 \$400.85 \$1.77.58 \$1.77.58 \$2.77.58
2013 Windows Received At 2nd 3 of 19th Actions 12th Section 12th Secti	SOFT SOFT SOFT SOFT SOFT EACH EACH EACH EACH EACH	1.00 52 00 44 00 7.00 17.00 14.00 13.00 33.00 11.00 12.00	\$ 2,225,200 \$ 17,983 \$ 12,983 \$ 5,7833 \$ 6116 \$ 171,697 \$ 171,697 \$ 171,697 \$ 171,697 \$ 171,697 \$ 348,760 \$ 348,760 \$ 348,760	\$103.787.56 \$103.787.56 \$110.510 #6 \$110.510 #6 \$12.843.70 \$233.66 \$523.11 \$400.85 \$1.77.58 \$1.77.58 \$2.77.58
2013 Windows Research Afford & An Press, causes a Chief Section of Endows Res 2 Group of Colors of Colors Related Lights 2013 Windows Replacement Afford & Itel Force, create a GWR Recessed Lightness R Solver Craining in Reports with Acoustical Ceiling, Related Lights 104 Min Section Representation Representation of Colors Related Ceiling Related Lights 104 Min Section Representation Representation Representation Representation Representation Related Ceiling Related Lights 104 Min Section Representation Representation Representation Representation Representation Related Representation	SOFT SOFT SOFT SOFT SOFT EACH EACH EACH EACH EACH EACH EACH	1.00 52.00 18.00 48.00 7.00 17.00 14.00 13.00 13.00 11.00 12.00 10.00 3.00 4.760 0.00 4.760 0.00	\$ 7,275,200 5 17,983 5 12,983 5 57,833 5 6616 5 171,697 5 171,697 5 171,697 5 171,697 5 348,760 5 348,760 5 348,760	\$114.787 90 \$103.787.56 \$110.510.46 \$1,284.70 \$233.66 \$423.11 \$400.85 \$17.270.58 \$1.151.11 \$2.00.85 \$2.20.75 \$1.151.15 \$2.00.75 \$3.155.11 \$3.918.86 \$3.86.80 \$3.
2013 Windows Removed At Test 8 of the center of the force of the center of the force of the forc	SOFT SOFT SOFT SOFT SOFT EACH EACH EACH EACH EACH EACH EACH EACH	1.00 52 00 44 00 7.00 17.00 14.00 13.00 33.00 11.00 12.00	\$ 7,275,200 \$ 11,983 \$ 12,983 \$ 57,833 \$ 6616 \$ 171,697 \$ 171,697 \$ 171,697 \$ 348,760 \$ 348,760 \$ 348,760 \$ 348,760	\$110.278 90 \$102.787.56 \$110.510 46 \$110.510 46 \$12.54 70 \$233.66 \$543.11 \$400.82 \$1.151.11 \$2.785.86 \$2.403.74 \$2.575.86 \$3.403.74 \$3.403.76 \$3.403.76 \$3.403.76 \$3.403.76 \$3.403.76 \$3.403.76 \$3.403.76 \$3.403.76 \$3.403.76

D D

	REMOVE LAY IN CENTING	SQFT	1,944 00	\$ 1,770	65 700 DC	\$2,321
	Comment: At 2nd & 3nd Piper, greate a GWS Recessed Systems II 2 4" share Calling & Assent with Accountrial Calling, Reliable Lights REMOVE LAY IN CELLING	SQFT	2,520 00	\$ 1,770	\$5,708.90	\$1074
-	REMOVE LAY IN CEILING	SQFT	2,160 00	\$ 1,220	\$2,312.51	52:634
SIONS: 06 WOOD & PLAS 2: C2.2 Windows, Replay	comment: Remove Managery Inflit, F2) Paired Windows with Glassel Transcer to match educant opings. F21 Interior Wood Trim to match	(SUPPL)	C. DITTON		\$2,312.51	
0.186 ISIONS: 08 DOORS IL WINI	4" DAK MOULDING STAINED @ NEW WINDOW: CMUINFILL REMOVED, 3 DENG IDOWS	UNIT	130.00	5 19 271	\$500,365-26	\$2302
D: CZ.1 Windows, Replac	HM DOORS 3:-6" X 8"-0"	LEAF	1.00	\$ 185,133	\$482,356.26	\$185
2.207	HM FRAMES IP DOORS, INSULATED: INSTITUTIONAL FIRE ESCAPE	LE AF	1.00	5 192.363		5192
	FINISH HARDWARE. INSTITUTIONAL HM DOOR, FRAME, HARDWARE, PANKS	LEAF	1 00			55,072
9 997	ALUMINUM WINDOWS. NEW SINGLE THER WALLY BROKEN, SIMULATE DOUBLE HUNG	++++	14 00		400	
	ALLIMINUM WINCLING. NEW SINGLE THERMALLY BROKEN. STAULATE DOUBLE HUNG. ALLIMINUM WINDOWS. NEW SINGLE THERMALLY BROKEN. STAULATE DOUBLE HUNG.	****	17 00	-		
9 997	AZUMINUM WINDOWS: NEW SINGLE THERMALE! BROKEN, SIMULATE DOUBLE HUNG	****	37 00			
	ALLIMINUM WINDOWS: FEI PAIRED WINDOWS, GLAZED TRANSOM ALLIMINUM WINDOWS: FEI PAIRED WINDOWS, GLAZED TRANSOM	1111	11.00			
997	ALUMINUM WINDOWS, F&I PAIRED WINDOWS, GLAZED TRANSOM	****	10 00			
	ALUMINIUM WINDOWS # EI PAIRED WINDOWS GLAZE TRANSOM ALUMINIUM WINDOWS	SQFT	3 00 4.606 00	\$ 103,500		5416.72
2: CLI Windows, Replac	content. Remove Managery India, F&I Paired Windows with Glazed Transom to match adjacent spaings. F&I in letter Wood Tries to match	****	3.00		\$18,009.00	100,0100
	ALUMINUM WINDOWS: F&I PAIRED WINDOWS, GLAZED TRANSOM, MATCH ADJACENT ALUMINUM WINDOWS: F&I PAIRED WINDOWS, GLAZED TRANSOM	SQFT	3.00 174 00	5 101.500		\$ 18,00
SIONS: 09 FINISHES					\$268,308.80 \$78,742.80	
999 (c) A Windows, Fepter	GYPSUM DRYWALL: RECESTED LIGHTWEIL: 3"5" ABOV! CELDING, 128 SQF?	SQFT	3,456 00	\$ 13 800	1979,742.80	\$47,69
	PATCH LAY-INCE LING ALCESS DUGHTWITE	SQFT	1,296 00 3,456 00		120	\$11.170 \$19.87
	PAINT DRYWALL, RCCLSSED LIGHTWELL RETURN At 2nd & 3nd Ricox, create a GWB Recessed Lightwell 2.4" where Calling & Rooms with Accountical Calling Retoute Lights	JALP 1	3.430 00		\$189,566.00	31767
9 999	G-PSUM DRYWALL RECESSED LIGHTWELL 2'-6" ABOVE CEILING	SOFT	4.480 (00 3,840 00			\$61.82 552.99
	GIPSUM DRYWALL RECESSED LIGHTWELL 2'-6" ABOVE CEILING PATCH: AY IN CEILING RECESSED LIGHTWELL	SOFT	1,680 00			\$14,49
0.100	PAT MEAY-W EILUNG ME ESSEDENGHTWEIL	SQFT	1.440 00		-	\$17.42 \$25.76
	PAINT DRYWALL RECESSED LIGHWELL PAINT DRYWALL RECESSED LIGHWELL	SCHI	3,840 00			\$23.76
ISIONS: 12 FURNISHINGS					559,325.00	
52: C2.8 Windows, Replac	MANUAL FOLLER SHADES ALL WINDOWS F.E.	UNIT	124 00	5 477 671	\$59,225.00	\$59.77
SIONS IS MECHANICAL					\$18,818.25	
(L2) C1.3 Windows, Renter	mal: Remove Abandoned Louvers & Ductwork HVAC: REMOVE ABANDONED LOUVERS & DUCTWORK, Included in HVAC CL2: Relocate	****	7.00		50.00	
S2: C1.2 Windows, Remov	oval: Relocate Louveen & Ductorin's to Locations per A401 through A404	UNIT	5:00	\$ 7,763.650	\$16,818.75	538.810
SHOWS THELECTRICAL	MVAC REMOVE & RELOCATE LOUVER'S & DUCT WORK PER AAGL THRU AAGA	UNIT	500	5 7,763 630	\$52,325.00	536.816
52 CZ.4 Windows, Replac	comment: At Jot Roor Windows, create a CWB Recessed Lightwell 3'-5" above Calling & Rooms with Acoustical Calling, Relocate Light Fistures	115417	26 00	\$ 805-000	\$20,910.00	\$24.93
	ELECTRICAL, RELOCATE ISONIS comment: At 2nd B 3nd Floor, create a GWB Recessed Lightweek 2"4" above Calling & Resent with Acoustical Calling, Relocate Lights	Cheller	76 00	3 805 000	531,395.00	324.33
9 999	ELECTRICAL. RELOCATE LIGHTS	UNIT	13 00	5 801 000		\$10.46
ORK PACKAGE: D HV	ELECTRICAL RELOCATE LIGHTS	UNIT	26 00	\$ 805,000	\$1,343,354.95	520.93
NSIONS: DI GENERAL RECI					\$254,873.76	
13:			1.00	-	5254,873.76	Market House
	© HVAC DI HVAC, MEATING PLANT		100			
4 200	DZ HVAC Buil-Up Air Handling Uhl, Replace VAVs, Drawing HV-1 to HV-5		100			
	03 MVAC. Co. I noom Indoor Av Handley, Unit, Replace 2nd Floor Courtroom Indoor AHU, Drawing + 3 GENERAL ONDIFIONS, HVAC	5555	1,128,657.00	5 0.092		\$103.13
	INTRACTOR'S BOND: Bond Each Work Breakdown	5555	1.00			59 08
	CONSTRUCTION CONTINGENCY 10% IT NO man Plant Work, Reporting for Future Work Druy		2,234.348 GO	3 0.11		\$141,95
H 110	DII HVAC HEATING PLANT, NO HEAT PLANT WORK	****	1 00			
32 D2.1 HVAC, BURLUE A 14 210	AMU: Before replacement perform a Total & Belance to Record Existing Total Larger Air, Return Air & Outdoor Air at the AMU & at Guilles/Reguler	****	1 80			
SZ: DZ.Z HVAC, Bulls-Up A	ANU: Inspect Fan, Motor & Drive to Determine Companiedity with Efficient VAV Systems. Assume NOT Companies and Rapiaca per Scope Decument		1.00	1	10	
	D2.7 HVAC, Bust-up AHU. Impect Fan, Motor & Drive to Determine Compatibility with Efficient VAV Systems. Assume NoT Compatible and Replace per Scope Docume LHU: Inspect & Clean AHU Not Water Host Coll. Inspect led atom, Balancing & Control Valve for proper operation. Assume Replacement is required.		1.00		C.	
14.230	DE 3 HVAC, But Up ANU Inspect & Clean ANU Hot Water Heat Coil Inspect Isolation, Balancing & Control Valve for proper operation. Assume Replacement is require	****	1.00			
52: 03.4 FYAC Bulb-Up A 31.240	AMU: Replace ALL VAY Boses and Veryor complete. Remove Proximatic Control Systems, Replace with TOC, match converted DOC Systems in building 4 = VAC, Built Up AHU. Replace ALL VAY Boses and Valves complete. Remove Proximatic Control Systems Replace with DOC, match converted DOC Systems in building	****	1 00	-		
\$2: D2.5 HVAC, Bulti-Up.4	AHU: Inspect and Clean ALL Ductionsh, Repair and Register in Required.			0	20	
	DU \$ INVAC, Bust Up AHU. Inspect and Clean ALL Ductwork, Repair and Replace is Required. HUT Before representation of Test & Balance to Record Existing Total Supply Air, Return Air & Conduct Air at the AHU & of Critical Registration.	-	1.00	0.000		
4 310	11.3 MVAC, Indoor AHII Bell in replacement perform a Test & Balance to Record Existing Total Sules y Air, Return All & Outdoor All at the AHU & at Gilles/Registers		1 00			
S2-D3.2 ****** Indoor Al- M 320	Hit): Regions AHU, exceeded the treat 2 Units. Separate Coursion Ductions from Office Ductions. New Education DDC Courses I impressed BAS 0.5.2 MAX. Indoor AHU. Regions AHU, exceeded life. Install 2 Units. Separate Courtroom Ductions from Office Ductions. New Laurement. New DDC Courtel's Integral.	++++	1.00		Samon and	
ISIONS: 04 MASONRY & D	DEMO / REMOVALS				\$24,009.09	
52: D2.4: HVAC, Bulls-Up A	ANU: Replace ALL VAV Bases and Valves complete. Reviews Pneumotic Control Systems in Replace with DDC, match converted DDC System in building.	SOFT	19 647 00	3 1,270	\$24,009.09	524.00
TSIONS OF FINISHES					\$335,839.60	57777
S2 D2.4 HYAC, Built Up A	AHU: Replace ALL VAV Boxes and Volves complete. Remove Presentatic Control Systems. Replace with DDC, match converted DDC System in building PATCH LAV IN CERTIFIC RECEIVED LIGHT WELL. ALL FLOORS	SQFE	19.684.00	5 6.900	\$135,819 60	\$135.81
SONS: IS MECHANICAL					\$957,156.50	
O:	WAC, BU TUP AND, REPLACE VAVS, VALVES, & CONTROLS PER SHEETS NV 1 THRU MY 5	10	1.00	665 119 75	9943,656,50	\$665.11
	D3 NVAC Countroom indoor Air Handley Unit. Replace 2nd Floor Countroom Indoor AHU, is a see § 1	13	1.00	5 280,536.750		\$280,5
9 999	ANU: Before regiscement perform 6 Test & Belance to Record Existing Total Supply Air, Return Air & Outdoor Air at the ANU & at Griller, Registers	0.5	100	\$ 5,750 000	\$1,750.00	\$5.75
9 999 9 999 52: D2.1 HWAC Built-up #					40.00	11 12570
9 999 52 102.1 HVMC Built Up 6 9 100 52 102.3 HVMC Built Up 6	HVAC. IEST & BALANCE of Burt III, ANU AMU: Impact Fan, Motor & Drive to Determine Comparising with Efficient Van Sysams. Assume MOT Comparishe and Replace per Scope Document	1				
9 999 52 02.1 HVAC Built in 6 9 100 52:02.2 HVAC Built in 6 9,100	HYAC. ISS' & BALANCE & Bush Up. ARU ANU: Innover fan. Motor & Drive to Determine Comparison y with Efficient Vair Sytume. Assume NOT Comparison and Register per Scope Document INVAC. INSPECT FAIRS, MICTOR & DIVIN, REPLACE	****	3.00			
9 999 9 100 9 100 52: 02.3 HVAC, Built - Ip 6 9 100 53: 02.3 HVAC, Built - Ip 6 9 100	NYAC. ISS' & BAJANCE & Body III, AND AND I Injust & NADOR & Drive to Determine Sequentially with Efficient Val Systems. Assume NOT compactive and Register per Scope Document INVAC. INSPECT 6 and, MOTOR & DRIVE, REPLACE AND I INJUST & CHEER AND I NOT WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CHEER AND I NOT WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CHEER AND I NOT WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL, ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER HART COIL ASSUME REPLACEMENT AND INJUST & CLEAR AND HOTO WATER H	****	1.00	10000		
9 999 10 991 10 9 100 \$2:02.3 HVAC Built by 1 19:100 13:103 HVAC Built by A 19:100	HYAC. ISS' & BALANCE OF Burth Up. APU AND: Inneed Fan. Motor & Drive to Determine Comparison with Efficient Visit Systems. Assume NOT Comparish and Register per Ecopa Document (HYAC. INSPECT AIRS, MOTOR & DRIVE, REPLACE AND Inneed & Clean APU Institute Survey (International Comparison Control Visit For proper operation. Assume Replacement is reprinted (HYAC. INSPECT & CLIAD ARD MOT WATER HEAT COLL ASSUME REPLACEMENT) AND: Replace ALV AVE Soose and Vivine comparison. Remove Preparation Control Systems, Replacement, Replacement in the Remove Property of Control Systems (International Control Systems Control Control Systems Control Control Control Systems (International Control Systems Control	1000	100			
79 979 79 10 10 10 10 10 10 10 10 10 10 10 10 10	INVAC. ILES & BALANCE & Bush III, ARU ANU: Innexed Fan. Motor & Drive to Determine Comparts by with Efficient Vair Systems. Assume 107f Comparable and Register per Songe Document INVAC. INSPECT FAIRS, MOTOR & DRIVE, REPLACE ANU: Innexed & Clean ARU Inch service Heal COL. Inspect he latent, Balancing & Control Vaive for proper operation. Assume Register of 15 February INVAC. INSPECT & CLEAN AREA HOW WATER HEAT COLL, ASSUME REPLACEMENT ANU: Register ALL VAIR Books and Vaives, REMOVE PREJAMANCS, INSPECT DOC INVAC. INSPECT ALL VAIR DOCS AND VAIVES, REMOVE PREJAMANCS, INSPECT DOC INVAC. INSPECT ALL VAIR DOCS AND VAIVES, REMOVE PREJAMANCS, INSPECT DOC INVAC. INSPECT ALL VAIR VAIR VAIR VAIR VAIR VAIR VAIR VAIR	****	1.00 16.00 18.00			
79 999 79 10 10 10 10 10 10 10 10 10 10 10 10 10	INVAC. ISST & BALANCE OF BOUT UP AND AND: Insense for Motor & Divis to Determine Compatibility with Efficient Val Systems. Assume NOT Compatible and Register per Scope Document [EVAC. INSPECT FAILS, MODOR & DAVIC, REPLACE AND: Insense for Motor & City of Control Value of Control Value for proper specific and Register per Scope Document [EVAC. INSPECT FAILS, MODOR & DAVIC, REPLACE AND: Insense for ADU in the Value Value of Control Value for proper specific and ADU insense for property of the Control Value for property and the Contr	****	1.00			
79 999 52: D2.1 HVAC Bulls up 8 99: 100 52: D2.3 HVAC Bulls up 8 99: 100 89: 100 89: 100 99: 1	NEXAC. INSTACT AND MODES AND VALVES, REMOVE PREVAILS, REVAILS, REV		1.00 16.00 18.00 15.00 22.00			****
19 999 15 20 10 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	NIVAC. ILEST & BALANCE & BUSY LIM AND AND I Insured To Motion & Drive to Determine Compatibility with Efficient Vial Systems. Assume NOT Compatibility and Register per Scope Document INVAC. INSPECT 6 AND, MOTOR & DRIVE, REPLACE AND I INSPECT 6 AND I MOTOR & DRIVE, REPLACE AND I INSPECT 6 AND I MOTOR & DRIVE, REPLACE AND I INSPECT 6 AND I MOTOR & DRIVE, REPLACE INVAC. INSPECT & ELEVAN ARD USES AND VALVE REPLACE AND INSPECT FROM THE PLACE FROM THE PLA		1.00 16.00 18.00 15.00		55,790.00	
19 999 52: D2.1 HV MC Built up 6 99: 100	NYACE, ISST & BALANCE OF BURLY MANU AND I Insured To, Motor & Divis to Determine Compatibility with Efficient Val Systems. Assume NOT Compatibility and Registers per Scope Document INVAC, INSPECT FAIRS, MOTOR & DRIVE, REPLACE AND INSPECT FAIRS, MOTOR & DRIVE, REPLACE INVAC, INSPECT & CALLAN AND AND AND AND AND AND AND AND AND A		1.00 16.00 18.00 15.00 22.00		51,750.00	55,75
19 999 152 DZ.1 HYM. Bulk up 29 100 152 DZ.2 HYM. Bulk up 39 100 152 DZ.3 HYM. Bulk up 39 100 153 DZ.3 HYM. Bulk up 39 100 153 DZ.5 HYM. Bulk up 39 100 153 DZ.5 HYM. Bulk up 39 100 155 DZ.5 HYM. Bulk up 39 100	NYAC. ILEST & BALANCE OF Burling AND ANU: Inspect Fee, Motor & Drive to Determine Companies by with Efficient Valvi Systems. Assume NOT Companies and Replace per Ecopa Document (RYAC. INSPECT Fails, MICTOR & Drive, ILEST AND		1.00 16.00 18.00 15.00 22.00	5 5.750000	51,710.00 50.00	55,75
79 999 52: D2.1 HV Mr. Bulli - 19 9 99: 100	NYACE, ISST & BALANCE OF BURLY MANU AND I Insured To, Motor & Divis to Determine Compatibility with Efficient Val Systems. Assume NOT Compatibility and Registers per Scope Document INVAC, INSPECT FAIRS, MOTOR & DRIVE, REPLACE AND INSPECT FAIRS, MOTOR & DRIVE, REPLACE INVAC, INSPECT & CALLAN AND AND AND AND AND AND AND AND AND A	++++ ++++ ++++ ***** *****	1.00 16.00 18.00 15.00 22.00	\$ \$750,000	\$6.00	55,75
19 399 19 391 52: D2.1 HVAC, Bulls up 19 100	NIVAC. ILEST & BALANCE OF BUTLEY LAND AND Frames For Motor & Divis or Determine Compatibility with Efficient Val Systems. Assume NOT Compatible and Register per Scope Document [EVAC. INSPECT FAILS, MODOR & DIVINE, REPLACE AND INSPECT FAILS AND ADD IN WIND TO WAITE REAL COIL. ASSUME REPLACEMENT AND INSPECT & CLEAN AND ADD WAITE REAL COIL. ASSUME REPLACEMENT AND INSPECT & CLEAN AND ADD WAITE REAL COIL. ASSUME REPLACEMENT AND INSPECT & CLEAN AND ADD WAITE REAL COIL. ASSUME REPLACEMENT AND INSPECT & CLEAN AND ADD WAITE REAL COIL. ASSUME REPLACEMENT REPLACE REPLACE ALL VAN DOES AND VALVES. REMOVE PRESENTATION REPLACE ALL VAN DOES AND VALVES, REMOVE PRESENTATION REPLACEMENT AND VALVES AND VALVES. REMOVE PRESENTATION REMOVE THE REMOVE THE REMOVE PRESENTATION REMOVE THE REMOVE THE REMOVE THE REMOVE PRESENTATION REMOVE THE	++++ ++++ ++++ ++++ ++++ ++++	1.00 16.00 18.00 15.00 22.00 1.00	\$ \$750,000		55,75

SUBDIVISION	A Alternates				\$1,748,487.09
WORK PACKAG	E. A Tower		-	Commission of	\$1,573,958.36
DIVISIONS: 01 GEN	ERAL REQUIREMENTS				5291,479.41
W852		Section 1	Contambas de		\$391,479.41
0109 100	GENERAL CONDITIONS, TOWER ALLERNATIS	5555	1,290,752.00	5 0.092	\$118,749 16
0191191	CONTRACTOR'S BOND. Bond ach Work & part Separt	1.5	1 00	\$ 10,393,700	\$10,393.70
0199-197	THE STRUCTION CONTINGENCY 10%	[5555]	1.411,622 00	5 0 115	\$162,336.53
WBSZ:					
0001.700	A7 Tower ALTERNATE, Exterior Architectural system Upgrade Option		1.00		

0001,800	AS Tower ALTERNATE Tower untress Protection System Option	0000	1.00			
west: AS.3 Tower, Exterio		1000	7	Z	-	- 10
0001.532	AS.3.b Tower Exterior, Dome Cladding: ALTERNATE Class Cladd Dome, wrap Glazing Armature in Copper to form Class of American States of American Copper to form Class of American States of American Copper to form Class of American Cop	****	1 60			
	r Tower Windows, Septem Derestors Windows with Copper Cled Manuscental Wood Core or Mater Core	4 1	The second section	S 5	1-	
0001.552	ASS b Tower, Esternal Tower Windows ALTERNATE, Remove & Install New Sprestory Windows, with TEMPERED CLASS, Inter or Custom Pettern UV Window Film		1.00			
W952: A7.1 Tower, Exterio	Lighting: ALTERNATE, Est Architectural Lighting Lingrado, Replace 9 Promonado Lovel Lights with LED, & Controls	10000	ACT 10195	gia a		Open State of the
0001.710	A73 Tower, Exterior Lamining: ALTERNATE, Est Architectural Lighting Upgrade, Replace 9 Promenade Level Lights with LED. & Controls	****	1.00			
WRSZ: All.1 Tower, Lighten	ing Protection: ALTERNATE, FAI Lightning Protection System for Tower	200	40400000000	(Table 1 1 1 1 1 1 1 1 1 1	0	0.000
0001.610	AE.1 Tower, Light or Projection. ALTERNATE, FELL of Incom. Protection System for Tower	****	1.00			
DIVISIONS: DS METALS			(1)	2-1	508,997.33	
WWS2: AS.S Tower, Exterio	Davie Cadding	1 - 2	9		\$98,997.33	
2579.998	ORNAMENTAL METALS -F&LORMAMENTAL RIPS, VERTICAL -P. CORNER, MIDSPAR, INSTORIC PHOTOS, GLASS CLAD, 3E EACH -R	DHET	304.00	5 325.649		\$48,997.3
DIVISIONS: 07 THERMAL &	AACHSTURE PROT	10000		2	999,144,62	
WBS2: AL.1 Tower, Exterio		9 0	0 00 00	Cl. C	500,146.67	
0762 072	COPPER CLADOMS: # ARMATURE FOR GLAZING, FORM GLAZING FRAMEWORK 38" X 8 PCS	SOIT	304 (0)	5 376,140		599.146.6
DIVISIONS: DE DOORS & W	NDOWS				\$646,875.00	
WBS2: AS.3 Tower, Exterio	er Dross Guidler	200	40	SHALL	\$646,875.00	a contract of the
0884 816	TOWER DOME GLASS PARELS 1" THICK LAMINATE GLASS	SQFT	2,500-00	5 258,750		\$646,875.0
WHEN ALL Tower, Extents	Tower Windows, Replace Constony Windows with Copper Cled Monomental Wood Core or Metal Core	11000	-		50.00	
0849.999	WOOD WINDOW # TOWER WITH TEMPERED GLASS INCIDED	****	1.00		1	
DIVISIONS: 16 ELECTRICAL			10	4	\$437,460.00	
WBEZ: AA. 3 Tower, Exterio	r Done Parking	1000		A CARLO DE	\$46,000.00	
1699.100	ELECTRICAL UPLIGHTING INSIDE DOME & LANTERN	UNIT	8.00	\$ 5,750 000	programme.	\$46,000 D
	= Ugirting: ALTT RNATE, Let Architectural Lighting Upgrade, Replace 9 Fromenode Lavel Lights with LED, & Controls	1000	A		5376,460.00	
1699 100	ELECTRICAL ALTERNATE, TOWER EXTERIOR REMOVE 9 PROMENADE (EVELUCIAL)	OMI	9 00	5 6,440,000	San Laborator con	\$57,960 D
1699 400	ELECTRICAL ALTERNATE TOWER EXTERIOR INSTALS 9 PROMENADE LEVEL LED LIGHTS WITH CONTROLS	utte 1	9 00			\$103,500 0
1699.999	A7.1 Tower, Exterior Lighting ALTERNATE, Est Aschitectural Lighting Linguage, Replace 9 Promenade Level Lights with LED. & Controls	15		\$ 115,000 pop	2000	\$115,000 0
	og Printetter: ALTERIATI, Fål Ligtening Printetten System for Tower	10000	-	y 223,000 000	\$115,000.00	V 1 1 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
1699 400	ELECTRICAL F& LIGHTNING PROTECTION @ TOWER	1.5	1.00	\$ \$15,000,000		\$115,000 0
	nterior Dome, Atrium Restoration	Street, or other Designation of the last o	8.00	3 113,000 000	\$174,528,73	3123,000 0
		1000	-			
DIVISIONS: OI GENERAL RE	QUIREMENTS	-			TIT TW D	
WRS2:	Charles Crimination (Althoughour Athense	4141	14717		\$32,820.57	411111
G189.100	GENERAL CONDITIONS: INTERIOR DOME, ATRIUM RESTO	5555	143,125 00		-	\$13,167.5
0193.193	CONTRACTOR'S BOND - Bond Each Work Breakdown	LS	1 00			11,152 3
0199 197	CONSTRUCTION CONTINGENCY 10%	\$555	156,528 00	\$ 0.115	-	\$18,000.7
	Mor: Lighting, LED Spotlighes to light Done	The same	0.00	0.00	150 00	
0002.352	83.5 b. Dome, Restoration, Lighting: ALTERNATE, Dome Drum Cornice Lighting Sheet A501, Remove 72 abandoned Bare Bulb Sockets between Modillions at base of A		1.00			
DIVISIONS: OF FINISHES		1	27		127,200.21	
	Hose: Lighting, LED Speekytes to hyth Done	1	F12		\$27,300.21	
0926 100	PATCH PLASTER CEILING: ELECTRICAL PENETRATIONS. 72 LOCATIONS	SQFT	288 00			573,233 8
(1994-806	PAINT CRUNGS - ELECTRICAL PENETRATIONS	SQFT	784.00	5 13.800		53,974.4
DIVISIONS: 16 ELECTRICAL		-	700		\$115,000.00	
	tilder: Lighting, LED Spotlighes to Sight Dome	1		-	\$115,000.00	
1699.100	ELECTRICAL, REMOVE 72 ABANDONED BARE BUILB SOCKET @ ATRIUM DOME DRUM CORNIL E	****	72 00	1		
1699 102	ELECTRICAL, FAIFIBEROPTIC REMOTE LED IN ATTIC: ALLOWANCE	165	1.00	\$ 115,000,000		5115,000.0
	22.000.0000	0455	HDCCT C .	1250114224		22 462 200
	GRAND TOTAL	DASE B	UDGELEA	LIERNATES	3	22,167,729

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