PUBLIC MEETING AGENDA

HISTORIC PRESERVATION COMMISSION
May 8th, 2019
Hatton Hall at the Governor Benjamin B. Moeur House Campus
34 E 7th Street, Tempe, AZ 85281
6:00 PM

Call to Order

Roll Call

1. Call to Audience: Persons wishing to address the Commission on any matter may do so at the discretion of the Chair. However, Arizona Open Meeting Law limits Commission discussion to matters listed on the posted agenda. Other topics may be placed on a future agenda for discussion.

2. Approval of March 13th, 2019 meeting minutes

3. Request for a certificate of appropriateness for proposed alterations to the TEMPE MUNICIPAL BUILDING (31 East 5th Street) for Council Chambers Remodel, Restroom Relocation, Landscape Redesign, And Tree Removal. The applicant is the City of Tempe.

4. Discussion of Historic Preservation Office / Historic Preservation Commission administrative support, policies, and best practices

5. Discussion of logistics related to meeting scheduling, coordination, and location(s)

6. Charles T. Hayden House Update

7. Chair / Staff Updates

8. Current Events / Announcements / Future Agenda Items
   • Member Announcements
   • Staff Announcements

Adjourn

For further information on the above agenda items, contact Community Development, (480) 350-8331. Agenda items may not be heard in the order listed. The City of Tempe endeavors to make all public meetings accessible to persons with disabilities. With 48 hours advance notice, special assistance is available at public meetings for sight and/or hearing-impaired persons. Please call 350-8331 (voice) or 350-8400 (TDD) to request an accommodation to participate in a public meeting.
Agenda Item 2
HISTORIC PRESERVATION COMMISSION
March 13th, 2019

Hatton Hall
34 E 7th Street
Tempe, AZ 85281

6:00 PM

Commission Present:
Chuck Buss, Chair
Matthew Bilsbarrow
Jim Garrison
Gregory Larson
Laurene Montero
Joe Nucci
Elizabeth Gilbert

Commission Absent:
Marty Ball, Vice-Chair
Chris Garraty

City Staff Present:
John Larsen Southard, Historic Preservation Officer
Robbie Aaron
Alex Smith
Brittainy Nelson
Steve Abrahamson

Chair Buss called the meeting to order at 6:00 p.m.

1. Call to Audience:

2. Approval of January 9th, 2019 meeting minutes

Commissioner Bilsbarrow moved the Commission approve the January 9th, 2019 minutes. The motion was seconded by Commissioner Garrison and passed with a vote of 7-0.

Ayes: Chuck Buss, Matthew Bilsbarrow, Jim Garrison, Gregory Larson, Laurene Montero, Joe Nucci, Elizabeth Gilbert
Nays: None
Abstain: None
Absent: Marty Ball, Chris Garraty

3. Approval of February 13th, 2019 meeting minutes

Commissioner Nucci moved the Commission approve the February 13th, 2019 minutes. The motion was seconded by Commissioner Larson and passed with a vote of 7-0.

Ayes: Chuck Buss, Matthew Bilsbarrow, Jim Garrison, Gregory Larson, Laurene Montero, Joe Nucci, Elizabeth Gilbert
Nays: None
Abstain: None
Absent: Marty Ball, Chris Garraty
4. Request for a Certificate of Appropriateness for removal of communications equipment and associated infrastructure from the peak of TEMPE (HAYDEN) BUTTE located at 2222 East 5th Street. The applicant is the City of Tempe.

Presentation by Staff, John Southard, Historic Preservation Officer

Mr. Southard informed the Commission that there was a grant to remove the communication tower to the Salt River and Pima Indian Community. The tower has been there for several decades which also holds a broadcast house. In which the Salt River Valley water usage association built on top after requiring a 1949 easement. Allowing them to do this in exchange for them providing power to the festive displays that remain on the Butte. In the past few years all the equipment on the Butte that belonging to the association, the district, along with all the other entities that held equipment on the Butte was removed. Founding for the remove of the tower has been secured and the tower is set for removal. The broadcast house was set as a contributing feature to the tower. It was believed to be a sturdier material like concert but has been determined that it is primally lath and plaster and will likely damaged in the removal of the tower. Plus, the pima Indian community did request of all the equipment and infrastructure to be removed.

Commission Discussion

Chair Chuck Buss asked is there any restoration that needs to be done.

Mr. Smith informed the Chair Buss that the tower does set on a thick set of concrete and the plan is to gently jackhammer the concrete and get down to the base of the material of the mountain as possible.

Chair Chuck Buss said that sounds good he just doesn’t want to see them go to deep and cause damage.

Mr. Smith stated that the staff is aware of the importance of the native material and will try as hard as possible not to disturb it too much.

Chair Buss acknowledged commissioner bilsbarrow.

Commissioner Bilsbarrow asked if the fence will be removed.

Mr. Smith stated yes it will be removed also the poles will be removed and/or trimmed down to a maintainable level in terms of two feet off the ground. The main upraise for the festive displays will be removed leaving the selves in place after the take down of the upraise. The only thing lift behind will be an equipment box.

Chair Buss called for a motion:

Commissioner Larson moved that the Commission approve the request for a Certificate of Appropriateness for removal of communications equipment and associated infrastructure from the peak of TEMPE (HAYDEN) BUTTE located at 2222 East 5th Street. The motion was seconded by Commissioner Gilbert and passed with a vote of 7-0.

Ayes: Chuck Buss, Matthew Bilsbarrow, Jim Garrison, Gregory Larson, Laurene Montero, Joe Nucci, Elizabeth Gilbert
Nays: None
Abstain: None
Absent: Marty Ball, Chris Garraty
5. Request for a Certificate of Appropriateness for an Amended Planned Area Development Overlay and a Development Plan Review for FARMER GOODWIN TOWNHOMES located at 830 South Farmer Avenue consisting of a new ten (10) unit 3-story townhome development. The applicant is Crew Development Corporation.

Presentation by Staff, John Southard, Historic Preservation Officer

This case was originally hard back in February of 2017 in which it was approved with a condition by the historic preservation commission. The condition that the commission was seeking was that the facade conservation easement for the Farmer Goodwin house that was a condition of approval for the 2005 planned area of development. Since the last hearing the this has been received and recorded with the County. However, it is stated that the HPC approvals are only valid for one year.

Presentation from Applicant: Crew Development Corporation

The project consists of two buildings with ten townhomes that are three stories. The intent is to minimize the impact of the farmer Goodwin house there was nothing done to block the view. The design provides diversity and use of articular elements. The design does provide shade to encourage pedestrian access. There is very little existing landscape. The plan is to keep what is currently there and add more to the project site. The central courtyard is a residential drive for the residence but with a use of materials and pedestrian scaling. The stamped concrete ill be in place to give a pedestrian scale there are doors to the North and the South perimeter with sidewalks leading to the street to encourage pedestrian access to the major roads. Along Farmer there is an arch element to give some character and to define the center of the building. It will also give it a pedestrian scale with the thought that a vehicle driving thought he arch will have a feeling that they are driving into a residential area and slow down. Along 9th avenue, which are the ends to the east and west of the property, those units will have a door directly on to the sidewalk. The east side of the homes will also connect the Farmer Ave side walk. The building being developed to the north of the Farmer Goodwin home is close to the historic zone. A few things that the last commission asked to have changed was the small windows that were removed. The over hang in the balcony to the east of the property facing Farmer had the dormers removed. The elevation is the same even without the dormers and windows.

Commission Discussion

Chair Buss wanted to know if the dormers where staying he liked the original look of them.

The applicant said that he would be willing to add them back in depending on what the commissioners wanted.

Chair Buss wanted to know if they could change the look of the archway so that it has a softer look.

The applicant said that they are using simple forms in layering as a way of incorporating some of the metal to tie the details together.

Chair Buss said that he would like to see something more like two columns to the left and the right and then a
Chair Buss acknowledged commissioner Nucci.

Commissioner Nucci stated that in the Staff report conditions of approval are recommending that in addition to the dormers they are also looking to recover the windows that were removed from the previous elevations and the Cam lighting has not been satisfactory selective.

Mr. Southard stated that is correct and the reason for that condition is to mirror what is conditionally approved in 2017 the windows the dormers and the cam lighting not having a tear sheath the staff wanted to make sure they had some involvement in that selection process.

Commissioner Nucci gave the conditions of approvals are dormers as depicted in 2017 submittal to be added to the east elevation two recesses LED cam lighting shall require a certificate of no affect prior to installation three window size and placement on the north end elevation of the north building to be as depicted in the 2017 submittal.

Commissioner Nucci stated that the city will be living up to the agreement if meet the three conditions

Chair Buss asked if Mr. Southard could read the first conditions of approval

Mr. Southard stated that the suggested condition of approval is dormers as depicted in 2017 submittal to be added to the east.

Chair Buss called for a motion:

Commissioner Nucci moved the Commission approve the request for a Certificate of Appropriateness for an Amended Planned Area Development Overlay and a Development Plan Review for FARMER GOODWIN TOWNHOMES located at 830 South Farmer Avenue consisting of a new ten (10) unit 3-story townhome development. The motion was seconded by Commissioner Gilbert and passed with a vote of 6-1.

Ayes: Matthew Bilsbarrow, Jim Garrison, Gregory Larson, Laurene Montero, Joe Nucci, Elizabeth Gilbert
Nays: Chuck Buss
Abstain: None
Absent: Marty Ball, Chris Garraty

---------------
6. Discussion of Tempe Municipal Building Council Chambers update Concepts

Presentation from John Dick

The northwest corner of the garden level will have a new set of restrooms that are ADA compliant. The space were the current bathrooms are in will become part of the new security station. The formal entry that comes down the center and lines up with the steps leading out to the street will be used for non-council events or events that do not require security and will remain as an exit. Those details are still being worked out with the Tempe Police Department and Security Staff. The front North end of the Council side will extend out to the north towards the stair way and leave plenty of room for circulation. The plan is to take the floor out and give it a ramped floor that is ADA compliant and not as step as the current flooring. There will be video screens on the back wall behind council members and in different locations throughout the chambers in the ceiling going back through the audience. There is going to be foo-wood place throughout the chambers. There will be some landscape modifications done to the court yard as well to comply with the new look of the chambers. There will be power to some of the seats so that one could plug in devices to charge. The walls on the side will be absorbent as you move towards the rear. The ceiling will be an acoustical USG product to help with sound.

Commission Discussion

Chair buss commented that he enjoys the fact that the time period of the space is taken into evaluation.

Commissioner Larson asked what the life span of the foo-wood is.

Mr. Dick stated that it is a good 40-year product however it has not been finalized yet that are going to use that material.

Commissioner Larson also asked what would happens once you end the life span of the foo-wood.

Mr. Dick stated that it is a material that can be taken down and be replaced or maybe at a time there is a whole new idea and the product goes away all together because there is a new idea of how they want the chambers to look.

-------------------

7. Charles T. Hayden House Update

Mr. Southard gave a brief update of what has been going on at the Hayden House. Mr. Southard stated that there is exposed historic adobe and to the west of the north end of the elevation there has been repairs done to the home. It is fortunate that as of right now the entry of the adobe is in fairly good shape. There is a mix in terms of age with the adobe you have some red brick and some sand tan. Due to this it will have a slightly different paint color to ensure that it is distinct. The bricks in the court yard will be removed to create an open courtyard feel. There is going to be an interview with the Arizona Republic on March 14, 2019 to discuss the updates as well. The video that was taken of the home has reached 350 thousand view between news channels and YouTube watchers.

-------------------
8. Chair/ Staff Updates

Chair Buss did send a letter of support for the Sandra Day O’ Connor House National Register Nomination.

305 S Roosevelt has a demolition request the City only had 30-day period to determine any other possible solutions besides demolition. There weren’t any other alternates beyond demolition and the permit has been issued.

919 S Maple also had demolition done as of last April.

599 W 5th street is classified as historic optional and may be demolition. There is the option to buy the property and restore it.

March 30 Jacob and his team will be unveiling the artwork at the Hayden Flour Mill Saturday at 9am Council Members have been invited.

-------------------

9. Current Events / Announcements / Future Agenda Items

In April the Council Chambers update may be coming back for approval.

Next meeting to be scheduled in April needs to be determined because some of the Commissioners are not going to be available on the original date.

-------------------

Meeting adjourned at 7:05pm

Prepared by: Brittainy Nelson
Agenda Item 3
ACTION: Request for a certificate of appropriateness for proposed alterations to the Tempe Municipal Building for COUNCIL CHAMBERS REMODEL, RESTROOM RELOCATION, LANDSCAPE REDESIGN, AND TREE REMOVAL, located at 31 East 5th Street. The applicant is the City of Tempe.

RECOMMENDATION: Staff – Approval, subject to conditions

BACKGROUND INFORMATION: Applicant wishes to enlarge and remodel the Council Chambers, relocate restroom facilities, remove some landscaped areas, institute a new plant palette / landscape design, and remove several large trees.

The request is as follows:

SPR19072 Approve a Certificate of Appropriateness for proposed alterations to the Tempe Municipal Building for COUNCIL CHAMBERS REMODEL, RESTROOM RELOCATION, LANDSCAPE REDESIGN, AND TREE REMOVAL.


STAFF CONTACT(S): John Larsen Southard, Historic Preservation Officer, (480) 350-8870

Department Director: Chad Weaver, Community Development Director
Legal review by: N/A
Prepared by: John Larsen Southard, Historic Preservation Officer
COMMENTS:

This project site is the north end of the Garden Level of the Tempe Municipal Building, located on the south side of East 5th Street between South Mill Avenue and South Forest Avenue.

This request includes the following:

1. Certificate of Appropriateness for proposed alterations to the Tempe Municipal Building for COUNCIL CHAMBERS REMODEL, RESTROOM RELOCATION, LANDSCAPE REDESIGN, AND TREE REMOVAL

The applicant is requesting the Historic Preservation Commission take action on the above item.

HISTORIC PRESERVATION COMMISSION JURISDICTION

The Tempe Municipal Building is listed in the Tempe Historic Property Register, thereby necessitating Historic Preservation Office or Historic Preservation Commission review and decisioning of this project. Notably, the Tempe Municipal Building is the only landmark property currently listed. As defined in Section 14A-4(3) of the Tempe Historic Preservation Ordinance ("Ordinance"), a landmark property is one that “demonstrates exceptional individual importance” prior to the fiftieth anniversary of its construction. As Section 14A-6(a) of the Ordinance requires requests for a “building permit or other City permit or approval… to alter, remodel, build or otherwise develop or landscape property designated as a landmark… shall be deferred until after approval has been obtained from the historic preservation commission, or in the cases of work obviously minor in nature or of no effect to the property…. the HPO,” and as the potential impact of this proposal on the designated resource cannot be reasonably classified as “obviously minor in nature,” the Ordinance requires Historic Preservation Commission review and decisioning of this application prior to the issuance of any other City permit(s) or approval(s).

PUBLIC INPUT

- Neighborhood meeting not required

HISTORIC OVERVIEW

The 1971 Tempe Municipal Building is significant because of its close association with the redevelopment of downtown Tempe in the late 1960s through the 1970s and beyond. The building helped renew investment in the central business district and encouraged local business owners to join in the redevelopment effort. This became a critical juncture in Tempe’s municipal land use planning and is now considered central to the initial revitalization and continued viability of the downtown commercial district. The Tempe Municipal Building is also considered to be the property most expressive of the collaborative work between Michael Kemper Goodwin (1939 - 2011) and his father, Kemper Goodwin (1906 – 1997), and is arguably among the most significant works in Michael Goodwin’s illustrious architectural career. The Tempe Municipal Building also holds significance as an early example of passive solar design and because of its relation to the mid-century modern architecture movement, an important period of experimentation with context-based modern design, architecture, and urban development that occurred at a period of unparalleled development and expansion in the greater Phoenix area.

As detailed in 3 Decades Tempe Downtown Redevelopment Guide,

[Goodwin] explains the design concept as addressing five critical requirements: 1) a "timeless architecture" that would retain its identity in a changing environment; 2) a complete respect for the Arizona sun; 3) an "open space vista" at the heart of a tight site; 4) open citizen access emphasized by a "walk-in" environment; and 5) "community integration" by having the overall plan "radiate" into the immediate surroundings.

The building has undergone several alterations over time. In 1987, the completion of of Garden Level West infill construction provided new office space for the Engineering Division of the Tempe Public Works Department. In 1998, the City opened
additional offices for the Development Services Department (now Community Development) by expanding the center section of Garden Level East. Alterations to the original site have also been made within the complex itself, where pathways and pedestrian bridges have either been changed or removed to accommodate and connect with other buildings and landscapes in and around the complex. In 2002, 6th Street east of Mill Avenue was re-designed as a 1.5-acre public park. The wide concrete walkway around the south and west sides of the Tempe Municipal Building offers various types of landscaping and park benches. In a second phase of park development completed in 2009, Sixth Street Park was expanded 1.5 acres to the east as part of the construction of a new 400-space parking structure just east of the Tempe Municipal Building. The remnant street level parking lot was transformed into the second phase of Sixth Street Park.

Now designated as a landmark because it has “achieved significance within the past 50 years, expresses distinctive character worthy of preservation, and because it exceeds the criteria for designation as an historic property,” the Tempe Municipal Building will automatically be reclassified as an historic property upon its fiftieth anniversary of completion in 2021, in accordance with Ordinance provisions.

The 2012 Tempe Historic Property Register staff summary report for this property identifies it as being significant within the following contexts:

**Community Planning & Development in Tempe, Arizona 1968-1970**

Planning and construction of a new Tempe Municipal Building, which began in earnest in 1968, concluded with opening the building in 1971. One component of a comprehensive campaign to renovate and modernize the city’s facilities infrastructure, construction was financed through the sale of municipal bonds. Construction of the new city hall occurred simultaneously with the development of a new cultural center campus on city land at Rural Road and Southern Avenue. Development of the cultural center introduced an alternative to locate a new city hall away from the downtown. This would become highly controversial, as would the modern design of the Tempe Municipal Building which distinguished it from contemporaneous facilities constructed by the city and became the subject of much consideration and criticism alongside ongoing debate surrounding where to locate traditional city hall services. Now the centerpiece of the Harry E. Mitchell Government Complex, the Tempe Municipal Building is a unique pyramid of solar-bronzed glass and steel inverted in a sunken garden courtyard. Since opening in 1971, the Tempe Municipal Building has continued to provide a focal point for downtown redevelopment and a landmark for community building while supplying space for the growing community's city government.

**Michael Goodwin (1939-2011), Architect**

Tempe City Hall is significant under National Register Criterion C as the Work of a Master, noted long-time Tempe architect Michael Goodwin. Goodwin, a Fellow of the American Institute of Architects, passed away May 9, 2011 at the age of 72. Along with his father, Kemper Goodwin, Michael Goodwin left an indelible mark upon the City of Tempe and its neighboring communities through his innovative architectural designs. Tempe’s iconic upside-down pyramid arguably serves as Goodwin’s greatest architectural accomplishment and provides a lasting vestige to the memory of a highly influential Tempe family.

**Mid-Century Modern Architecture in the Salt River Valley, 1945 – 1975**

Mid-century modern was one of the most prominent architectural styles of its time because of its impact on technological and stylistic advances. This architecture had a dramatic impact on the Salt River Valley. It has been noted as the only true attempt at creating a distinct Arizona architecture style. Mid-century modern style evolved from a coalescence of three types of modern design: Art deco, stripped classical, and streamlined modern. Although all have slight variations in modern techniques, they all aim to do one uniform thing: simplifying the building by removing ornamental details and incorporating crisp lines and curves. Mid-century modern was greatly influenced by the industrial design style that preceded it. It uses glass, concrete, and steel while also incorporating new technologies, materials, and methods to produce its own distinctive forms and geometries.

**PROJECT ANALYSIS**
Council Chambers Interior – Existing Footprint

While the Historic Preservation Office generally defers to property owners as relates to interior alterations, the unique nature of the Council Chambers interior, as relates to design intent, its status as City-owned property, and the Tempe Historic Property Register designation report identifying the Council Chambers as a character-defining feature of the property. Specifically,

Among the individual rooms or spaces that are important to this building because of their function, the Tempe City Council Chambers are the venue where council members and their constituents most frequently interact to carry out the detailed operations of municipal government. Representing City Hall to many community members, Council Chambers continue to provide citizens with opportunities to communicate face-to-face with the Tempe City Council as it is vital for a strong representative local government. Chambers provide an intimate yet productive setting for Tempe City Council to connect with the community.

Goodwin designed the Council Chambers, similar to his intent for other portions of the Tempe Municipal Building, to be a modern, adaptable space that offered “open citizen access emphasized by a ‘walk-in’ environment.” In Images & Insights: Reflections of an Architect, Goodwin recounts his task of satisfying Council “[concerns] about how design could address the issue of respect from and for citizens,” his desire to “achieve a modern, more space-age look,” and the innovative devices and design features utilized to accomplish these aims. As “projectors were in great use at the time,” he “designed a space where the largest part of the audience could see the projected image,” sloped the floor downward to lead citizens to the podium from which they could address the City Council. The Council sat on “a platform... [that] gave added authority of being ‘higher’.” While the April 19th, 2019 “Chambers Design Narrative” (“Narrative”) identifies the Council Chambers as a space that “should be a formal setting with the civic character found in a court room,” sheets 2 of 5 and 3 of 5, “Floor Plan” and “Building Elevations,” respectively, depict Goodwin-like civic space that includes a sloping floor, an open center aisle leading to a podium from which citizens can address the City Council, and a raised dais for the Council that “will be reconfigured to provide the council members with better engagement with the audience, additional room for city staff and to bring it into compliance with the requirements of the Americans with Disabilities Act.” The Narrative also describes the remodeled Council Chambers as a “public space with state-of-the-art technology, as well as a beautiful space where government employees and the public alike will be proud to meet,” consistent with Goodwin’s aims and in keeping with the idea of a modern, adaptable space that “[addresses] the issue of respect from and for citizens.” Although the proposal does not identify specific technological components planned for installation in the Chambers, the design intent and execution appears to comport with Goodwin’s vision for the space and is consistent with the modern, adaptable, and approachable venue cited in the 2012 Tempe Historic Property Register staff report referenced earlier. As such, staff recommended an unconditional approval of the proposed remodel of the existing interior of the Council Chambers, as depicted on sheets 2 of 5 and 3 of 5, “Floor Plan” and “Building Elevations,” respectively.

Council Chambers Expansion

Changes to the massing, footprint, or other exterior components of an historic building typically prove problematic from a preservation standpoint. However, when considered generally, the idea of expanding the Council Chambers footprint in response to evolving community needs and desires is not as concerning given that the 2012 staff report states several past additions to the complex “were completed with sensitivity and are now considered to contribute to the overall character of the landmark property” and that past alterations were “designed and constructed in keeping with the original concept of connecting the community to municipal government in a manner that is both accessible and accommodating.” Accordingly, the past additions and alterations do not “adversely affect the historic integrity of the landmark.”

The Narrative describes the Council Chambers expansion as “[remaining] within the geometry of the plaza and garden level structures to avoid creating any projections which would interfere with the character of the complex” and presents the design as one that “follows the minimalist design aesthetic of the original complex by foregoing the use of extra trim or secondary features.” The Council Chambers expansion would replace the pyramid skylight added at some point subsequent to completion of the building and, presumably, remove the nonfunctional laser installation now present at the north end of the
Landscapes Redesign, and Tree Removal

The lower level of the Tempe Municipal Building, formally known as the Garden Level, is a lush oasis intended to provide a comfortable and relaxing setting for the day-to-day business of scores of municipal employees and the citizens with whom...
they interact. A January 2010 report titled “Tempe Municipal Complex Renovation” speaks of the Garden Level being a “tranquil landscaped micro-environment,” while the 1981 Tempe Municipal Building Historic American Buildings Survey report describes the Garden Level as “a terraced subterranean garden surrounded by the perimeter offices.” Goodwin’s firm, in addition to offering traditional architectural services, self-identified as a landscape architecture practice. Goodwin crafted a lengthy list of ground cover, shrubbery, accent plant, and tree species appropriate for use at the Tempe Municipal Building and carefully mapped out the placement of each plant in order to achieve his aesthetic goals and ensure optimal growing conditions. Sheet LL2.02, the “Plant & Materials Palette,” and the “Landscape Schedule” section of Sheet LL1.01 feature a far more limited variety of species than Goodwin initially envisioned. Among the proposed plant palette being considered, there is a limited degree of overlap with Goodwin’s plant schedule. The “Inert Materials” section found on Sheet LL2.02 features ½” screened decomposed granite for use in areas Goodwin designated as lawn spaces, with portions of the areas previously called out as lawn spaces being removed to allow for efficient pedestrian flow and code-compliant access to the proposed Council Chambers expansion. Overall, however, the landscape redesign component of the project is consistent with Goodwin’s intent as it is innovative, environmentally friendly, and colorful. Concerns relating to “General Landscape Notes” section of Sheet LL2.02 warrant suggested conditions of approval relating to the Landscape Redesign. The suggested conditions of approval for this component of the project will be included in the staff recommendation at the end of this report.

Tree Removal

The submittal proposes removal of the eight large trees adjacent to the east and west sides of the Council Chambers. These trees are a species included in Goodwin’s landscape schedule and have been cited as iconic features of the Tempe Municipal Building. The 2010 “Tempe Municipal Complex Renovation” report identifies the Garden Level as “a tranquil landscaped micro-environment dominated by large, mature ficus trees.” The trees are key contributors to the Garden Level being an “oasis amidst the urban heat island and a sanctuary in the middle of the bustling city center,” which is identified as a character-defining feature in the Tempe Historic Property Register staff report prepared for the Tempe Municipal Building designation application.

The landscape narrative submitted in support of this proposal addresses the trees as follows:

By industry standards, the trees are planted too close to the structure and are currently impacting overhead beams and heaving concrete panels making for potential trip hazards. Independent structure engineers have assessed the points where trees are in contact with the overhead beams and have rated this condition as severe and of a life safety issue, recommended that this condition receive priority one attention. Logan Simpson has assessed the trees along the east and west exterior walls, and find the trees to be of a healthy condition, however the impacts to the structure (beams and potentially foundation) and to the adjacent walkways is cause for concern and recommend the trees for removal. The available planting space is much too narrow for tree replacement; Logan Simpson will rather propose the installation of shrubs, groundcovers and potentially vines for use in these narrow planting strips.

Caruso Scott Turley, the structural engineering firm referenced in the above passage, assessed the trees in 2009 and presented the following condition assessment and treatment options:
DESCRIPTION:
Some of the trees in the garden level have grown around the concrete trellis beams. In some locations, the trees have pushed the steel trellis beams out of the way. The trunks of some of these trees are growing into the surrounding walls and foundation systems.

RECOMMENDATIONS: * consultation with an arborist is recommended
Options:
1. **No Action**: Risks are associated with taking no action to trim or remove these large trees. Because they are so large and tall, the trunks and limbs rotate when the wind blows, putting additional stress onto the trellis beams that was not initially designed for. This stress will cause the trellis beams to crack and fail, especially if a large microburst travels through the trees. The tree trunks and roots are dangerously close to building walls and foundation systems. If the trees along the building walls are not removed they will begin pushing against the building walls and foundations, causing differential movement, cracks and widespread damage. This is a slow process but is inevitable because these trees are only getting larger. If needed, repairs to the foundation systems and walls are very pricey.

2. **Trim Key Limbs and Roots**: If certain tree limbs are removed from physically touching the trellis beams, the immediate risk of failure is removed along the trellis. This approach buys time until the limbs grow back near or onto the beams again, at which point the limbs will need continual trimming. This approach can possibly be taken at the root systems as well to remove the areas that are adjacent to the building walls. An arborist needs to be consulted to discuss partial removal options.

3. **Remove Trees Completely**: Because of the proximity to key structural beams, walls and foundations, it is our opinion that the trees be removed completely to avoid major future impact and damage, if it is not damaged already. Once the tree trunks and roots are removed and the stem walls and foundations are exposed, further evaluation needs to be performed to determine the extents of the damage.

It is unclear what method of removal is proposed (cutting trees down to a stump, removing trees and associated root balls, etc.). Regardless of proposed removal strategy, no building protection strategy to be implemented during the tree removal process and, if need be, in the years following is included in the submittal.

While removal of healthy, mature vegetation of a character-defining nature is not consistent with generally accepted preservation practices, should the applicant determine that the trees pose a life-safety risk or are a danger to the structural integrity of the Tempe Municipal Building, it is understood that the applicant may pursue removal. Should the applicant determine that the trees must be removed, the exercise requires thorough planning, extreme caution during execution, and comprehensive, ongoing measures to monitor, record, and repair potential structural integrity issues associated with the removal. Concerns relating to potential structural integrity issues resulting from removal or decay of the root systems warrant suggested conditions of approval relating to the Tree Removal, should doing so be determined to be a pressing life-safety or structural issue. The suggested conditions of approval for this component of the project will be included in the staff recommendation at the end of this report.
STAFF RECOMMENDATION

CONDITIONAL APPROVAL

SUGGESTED CONDITIONS OF APPROVAL:

Council Chambers Expansion

- Glass in storefront panels shown on Sheet 4 of 5 must allow observers outside the Council Chambers to clearly see interior proceedings, as intended by Goodwin. Glass and tinting or films to be applied to said glass to require a Certificate of No Effect.

- Should the vestibule concept shown on Sheet LL1.01 be built, the innermost doors, storefront, and glass in storefront panels are to be consistent with those used in the storefront rendering shown on Sheet 4 of 5. Inner vestibule doors, storefront, glass in storefront panels, and tinting or film applied to said glass to require a Certificate of No Effect.

- Exterior speakers to be used for providing meeting audio to those outside of the Council Chambers to be retained, if functional or repaired, or replaced.

- Relocation or replacement of 360 degree display shown in photos “VIEW FROM STREET LEVEL,” “VIEW FROM TOP OF STAIRS” (two images with same title), and “VIEW LOOKING WEST” on “Site Photos” sheet dated April 10th, 2019 to require a Certificate of No Effect.

- Relocation or replacement of Tempe Historic Property Register plaque shown in both “VIEW FROM TOP OF STAIRS” photos on “Site Photos” sheet dated April 10th, 2019 to require a Certificate of No Effect.

Restroom Relocation

- Material to be used as infill between existing exposed aggregate concrete columns to require a Certificate of No Effect.

- Hardscape planned for the four landscaped areas immediately south of the restroom wing must be slightly differentiated from existing hardscape. Proposed color and finish of concrete to be used in the four aforementioned areas to require a Certificate of No Effect.

- Posting board relocation or replacement to require a Certificate of No Effect.

Landscape Redesign

- Hardscape planned for the two landscaped areas east and west of the 5th Street staircase landing must be slightly differentiated from existing hardscape. Proposed color and finish of concrete to be used in the two aforementioned areas to require a Certificate of No Effect.

- Relocation or replacement of light posts located east of west of the 5th Street stairs, an example of which is shown in photo “VIEW TO THE EAST TOWARDS EXISTING BENCH” on “Site Photos” sheet dated April 10th, 2019, to require a Certificate of No Effect.

- 1970 groundbreaking commemoration plaque shown in photo “VIEW TO THE EAST TOWARDS EXISTING BENCH” on “Site Photos” sheet dated April 10th, 2019 to remain in place.
• Should landscape selections require substitutions, as addressed in condition 13 of the “General Landscape Notes” on Sheet LL2.02, the substitution shall require a Certificate of No Effect.

• Should tree and plant location adjustments be needed, as addressed in condition 14 of the “General Landscape Notes” on Sheet LL2.02, new locations shall require a Certificate of No Effect.

• Should tree, shrub, or plant location adjustments be needed, as addressed in condition 17 of the “General Landscape Notes” on Sheet LL2.02, new locations shall require a Certificate of No Effect.

Tree Removal

• Should the applicant determine that the eight trees immediately east and west of the Council Chambers require removal because the applicant believes them to pose a dire life-safety risk or be an imminent danger to the structural integrity of the Tempe Municipal Building, removal may not commence until a building protection plan has been reviewed and approved by the Historic Preservation Officer or, if the Historic Preservation Officer should deem appropriate, the Historic Preservation Commission. Said protection plan shall identify how the trees are to be removed (cutting trees down to grade, removing trees and associated root balls, etc.), how roots will removed without risking harm to the building (assuming the applicant opts for root removal), what steps will be taken during tree removal (regardless of removal strategy) to protect the building, a detailed description of how the applicant will prevent soil settlement at the time of root removal and assessment and mitigation measures to monitor and address future soil settlement associated with root removal (should root removal be chosen by the applicant), and a detailed description of how the applicant will prevent future soil settlement associated with root decay and subsequent soil voids and assessment and mitigation measures to monitor and address future soil settlement associated with root decay and subsequent soil voids (should the applicant choose to remove the trees by cutting them down to grade).
Attachment A
1. ALL CONSTRUCTION UNDER THE PUBLIC WORKS PERMIT SHALL CONFORM TO THE CITY OF TEMPE SPECIFICATIONS AND DEPARTMENTS OF PUBLIC WORKS STANDARDS FOR CONSTRUCTION, UNIFORM STANDARD SPECIFICATIONS AND DETAILS (USPS AND DETAILS), AND CITY OF TEMPE TRAFFIC ENGINEERING MANUAL.

2. A PLAN BINDING THE ENGINEERING DIVISION SHALL BE REQUIRED FOR ALL WORK IN THE CITY OF TEMPE. INSPECTION, AN INVESTIGATION FEE, IN THE AMOUNT OF $100.00 OR DOUBLE THE INVESTIGATION FEE, NOT TO EXCEED $200.00, WILL BE CHARGED FOR ANY WORK IN THE CITY OF TEMPE RIGHTS-OF-WAY IN WHICH A PERMIT HAS NOT BEEN ISSUED PRIOR TO COMMENCEMENT OF WORK.

3. THE CITY SHALL BE NOTIFIED PRIOR TO ANY CONSTRUCTION WORK. THE ENGINEERING DIVISION SHALL BE NOTIFIED AT LEAST ONE BUSINESS DAY BEFORE START OF CONSTRUCTION TO REQUEST INSPECTIONS. CONSTRUCTION WORK CONCEALED WITHOUT INSPECTION BY THE CITY SHALL BE CONSIDERED UNCONFORMING AND THE CONTRACTOR MAY BE PENALTY.

4. RIGHTS-OF-WAY IMPROVEMENTS SHALL NOT BE ACCEPTED UNTIL 3\% MINIMUM DOUBLE MATTE BLACK LINE MYLAR REPRODUCIBLE "AS-BUILT" PLANS HAVE BEEN SUBMITTED TO AND APPROVED BY THE ENGINEERING DIVISION.

5. LOCATIONS OF ALL WATER, GAS, ELECTRIC, MANHOLE, OR OTHER UTILITIES MUST BE REFERENCED AT ALL TIMES DURING CONSTRUCTION AND MADE AVAILABLE TO THE WATER AND WASTEWATER DIVISION.

6. NO JOB WILL BE CONSIDERED COMPLETE UNTIL ALL CURB, PAVEMENT, AND SIDEWALKS HAVE BEEN SWEEP CLEAN OF ANY DIRT AND DREDGED AND ALL SURVEY RECORDS ARE ANNOTATED ACCORDING TO THE PLANS.

7. THE CITY WILL NOT PARTICIPATE IN THE COST OF CONSTRUCTION, UTILTY LOCATION, CONSTRUCTION STAGING, OR "AS-BUILT" PLANS.

8. ALL ENDING STREET MONUMENTS MUST BE Fixture, TO PROPOSED, CONSTRUCTION MONUMENTS WILL BE, REFERENCED HORIZONTALLY AND VERTICALLY. HORIZONTAL CURVES IN THE MAINTAINANCE INTERVAL OF INTERSECTION CONCRETE WORK SHALL BE REQUIRED. ALL CEMENT CURB RETURN WILL BE STATED AT THE Curb, AND THE HORIZONTAL CURVES IN THE MAINTAINANCE INTERVAL OF INTERSECTION CONCRETE WORK SHALL BE REQUIRED. ALL CEMENT CURB RETURN WILL BE STATED AT THE Curb, AND THE HORIZONTAL CURVES IN THE MAINTAINANCE INTERVAL OF INTERSECTION CONCRETE WORK SHALL BE REQUIRED.

9. THE IDEAS, DETAILED AND PLOT ARE NOT REFERENCE ONLY AND ARE NOT APPROVED ON THESE DRAWINGS. FRAME SPRINTER PLANS MUST BE SUBMITTED FOR SEPARATE FRAME DEPARTMENT REVIEW AND APPROVAL.

10. ALL OVERHEAD UTILITY LINES OTHER THAN TRANSMISSION LINES 12KV OR GREATER ON OR ADJACENT TO THE SITE, INCLUDING STREET OR ALLEY CROSSINGS, SHALL BE PLACED UNDERGROUND PER CITY CODE SECTION 25-120 THROUGH SECTION 25-126.

11. ALL PRIVATE UTILITY LINES AND DETAILS SHOWN IN THESE PLANS ARE FOR REFERENCE ONLY AND ARE NOT APPROVED ON THESE DRAWINGS. FRAME SPRINTER PLANS MUST BE SUBMITTED FOR SEPARATE FRAME DEPARTMENT REVIEW AND APPROVAL.

12. THE SET OF PLANS HAS BEEN REVISED FOR COMPLIANCE WITH CITY REQUIREMENTS PRIOR TO SUBMISSION OF CONSTRUCTION PERMITS. HOWEVER, SUCH REVISES MAY NOT PREVENT THE CITY FROM REQUIRING CORRECTION OF ERRORS IN PLANS FOUND TO BE IN VIOLATION OF ANY LAW OR ORDINANCES. IT IS THE RESPONSIBILITY OF THE PROFESSIONAL ENGINEER SEALING AND SIGNING THESE PLANS TO BE CERTAIN THAT THEY ARE IN FULL COMPLIANCE WITH CITY OF TEMPE SPECIFICATIONS, DETAILS, CODES, OR ORDINANCES.

13. THE CITY DOES NOT WARRANT ANY QUANTITIES SHOWN ON THESE PLANS.

14. THE CITY APPROVAL, FOR GENERAL LAYOUT, THE HORIZONTAL CURVES, DRAINAGE, WATER AND SEWER, THE PLAN CHECK APPROVAL, IS VALID FOR A PERIOD OF ONE YEAR FROM APPLICATION DATE. CONSTRUCTION PERMITS SHALL BE CONTINUED DURING THIS PERIOD OR IF NOT REFUSED FOR NEW WORK APPROVAL, A MAXIMUM PERIOD OF 180 DAYS FROM THE DATE OF THE LAST CERTIFICATE FOR NEW WORK WILL BE ISSUED WITH 6 MONTHS AND THEY WILL BE VALID FOR ONE YEAR FROM ISSUE DATE. OTHERWISE, THE EXISTING PROJECTS AND PLANS ARE VOID.

15. AN APPROVED SET OF PLANS SHALL BE IN PLACE ON THE JOB SITE AT ALL TIMES.

16. CONSTRUCTION ITEMS SHALL BE APPROVED AT LEAST 3\% MINIMUM DOUBLE MATTE BLACK LINE MYLAR REPRODUCIBLE "AS-BUILT" PLANS WERE SUBMITTED TO AND APPROVED BY THE ENGINEERING DIVISION.

17. THE DEVELOPER IS RESPONSIBLE FOR THE REMOVE OF ALL OBSTRUCTIONS WITHIN THE RIGHT-OF-WAY PRIOR TO STARTING NEW CONSTRUCTION.

18. THE DEVELOPER IS RESPONSIBLE FOR ARRANGING THE LOCATION AND ASSOCIATED COSTS OF ALL UTILITIES, A UTILITIES LOCATION PLAN SUBMITTED TO THE ENGINEERING DIVISION SHALL BE CERTIFIED THAT THEY ARE IN FULL COMPLIANCE WITH CITY OF TEMPE SPECIFICATIONS, DETAILS, CODES, OR ORDINANCES.

19. THE DEVELOPER IS RESPONSIBLE FOR OBTAINING OR DEDICATING ALL RIGHTS-OF-WAY AND EASEMENTS TO THE CITY PRIOR TO APPROVAL OF IMPROVEMENT PLANS.

20. THE CONTRACTOR SHALL ACCESS CONTROL BUILDING AT 522-221-111-10 AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.

21. THE CONTRACTOR SHALL BE REQUIRED TO BRAKE CONSTRUCTION SETS AT TIMES FOR THE CITY OF TEMPE TRAFFIC ENGINEERING DEPARTMENT, WHEN REQUIRED BY THE CITY. A TRAFFIC CONTROL PLAN SHALL BE SUBMITTED FOR APPROVAL. ADVANCE NOTICE OF CONSTRUCTION.

22. THE CONTRACTOR MAY OBTAIN A FIRE-HYDRANT WATER FOR CONSTRUCTION WATER FROM CUSTOMER SERVICES. THE WATER SHOULD BE OBTAINED AT THE LOCATION SHOWN. ALL WATER REMOVAL FROM A FIRE-HYDRANT IS VIOLENT THE MUNICIPAL CODE, PUNISHABLE BY FINE AND/OR IMPRISONMENT.

23. ALL BROKEN OR REPLACED EXISTING CONCRETE CURB, GUTTER, OR SIDEWALKS SHALL BE REMOVED AND REPLACED AS DIRECTED BY THE CITY OF TEMPE ENGINEERING DEPARTMENT.

24. ALL CITY FACILITIES, UTILITIES AND ROADWAY SURFACES DAMAGED BY DEER OR OTHER CONTRACTOR DURING CONSTRUCTION SHALL BE REPAIRED TO THE SATISFACTION OF THE CITY OF TEMPE ENGINEERING DEPARTMENT INSPECTOR FOR THE RESPECTIVE CITY AND/OR MAJOR STANDARD DETAIL.
NOTES: ANY USE OF THIS INFORMATION WITHOUT THEIR WRITTEN CONSENT. WRITING IN ADVANCE TO LOGAN SIMPSON DESIGN INC., AND LOGAN SIMPSON DESIGN INC. SHALL HAVE NO LIABILITY TO AND FOR OTHER THAN THE CLIENT FOR WHOM IT WAS PREPARED IS FORBIDDEN UNLESS EXPRESSLY PERMITTED IN

LOGAN SIMPSON DESIGN INC. HAS ENDEavored TO PROVIDE ACCURATE UTILITY INFORMATION BASED ON THE MOST

1. TREE / PLANT PROTECTION FENCING

2. SHRUB / GRASS PLANTING

3. SHRUB PLANTING ON A SLOPE

4. GROUND COVER PLANTING AND SPACING DIAGRAM

5. CACTUS / SUCCULENT PLANTING

6. DECOMPOSED GRANITE

7. BOULDER

8. WATER BASIN

NOTES:

1. DECOMPOSED GRANITE PAGE PROTECTION FENCING, FENCING SHALL BE CONSTRUCTED OF HIGH-QUALITY EXTENSION POLYSTYRENE GRADE WITH MAXIMUM CONTINUOUS IN HIGH PRESSURE AND EITHER A MINIMUM OF .08 WITh A MINIMUM OF

2. TREES / PLANT PROTECTION FENCING (thereof) FENCING SHALL BE INSTALLED TO THE EXTENT OF THE LANDSCAPE PROTECTION ZONE. FREE STANDING PLANT PROTECTION ZONE. SEE SECTION 3. SEE GENERAL NOTES BELOW.

3. DECOMPOSED GRANITE PAGE STAKING AND PLACING PER SPECIFICATIONS.

4. SECURE PLANT PROTECTION ZONE INDEX. SEE SECTION 3. SEE GENERAL NOTES BELOW.

5. DECOMPOSED GRANITE PAGE TURN STAYS FINAL INTO NATIVE SOIL / UNDERGROUND. CHECK UNIFORM AND LEVEL AT LEAST 4. SEE GENERAL NOTES BELOW.

6. GENERAL LANDSCAPE NOTES.

7. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

8. ARROW LEFT TO ASSEMBLY OF LANDSCAPE, PER LANDSCAPE SCHEDULE.

9. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

10. FINISH GRADE AND DEPTH OF SURFACE MATERIAL PER LANDSCAPE SCHEDULE OR SPECIFICATIONS.

11. PREPARED BACKFILL MIX MOISTEN AND COMPACT AT WHICH THE PLANT WAS GROWN.

12. PLANTING DEPTH SHALL BE EQUIVALENT TO THE EXTENT OF THE LATERAL ROOTS.

13. WATER BASIN. REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

14. DECOMPOSED GRANITE MULCH TYPICAL CACTUS.

15. SUBGRADE ELEVATION TO WHICH THE PLANT WAS GROWN.

16. PLANTING DEPTH SHALL BE EQUIVALENT TO THE EXTENT OF THE LATERAL ROOTS.

17. WATER BASIN. REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

18. PREPARED BACKFILL MIX, MIX WILL CHANGE ORGANIC MATERIALS ALONGSIDE BALL. SCORE ROOTBALL WITH VERTICAL CUTS (1/2" DEEP). A MINIMUM OF 6 LOCATIONS AROUND ROOTBALL.

19. PLACE PLANT ACCORDING TO BEST ORIENTATION.

20. PREPARED BACKFILL MIX:

21. TENSILE STRENGTH OF 200 PSI.

22. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

23. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

24. DECOMPOSED GRANITE MULCH.

25. SPECIFICATIONS.

26. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

27. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

28. DECOMPOSED GRANITE MULCH.

29. SPECIFICATIONS.

30. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

31. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

32. DECOMPOSED GRANITE MULCH.

33. SPECIFICATIONS.

34. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

35. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

36. DECOMPOSED GRANITE MULCH.

37. SPECIFICATIONS.

38. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

39. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

40. DECOMPOSED GRANITE MULCH.

41. SPECIFICATIONS.

42. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

43. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

44. DECOMPOSED GRANITE MULCH.

45. SPECIFICATIONS.

46. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

47. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

48. DECOMPOSED GRANITE MULCH.

49. SPECIFICATIONS.

50. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

51. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

52. DECOMPOSED GRANITE MULCH.

53. SPECIFICATIONS.

54. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

55. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

56. DECOMPOSED GRANITE MULCH.

57. SPECIFICATIONS.

58. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

59. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

60. DECOMPOSED GRANITE MULCH.

61. SPECIFICATIONS.

62. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

63. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

64. DECOMPOSED GRANITE MULCH.

65. SPECIFICATIONS.

66. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

67. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

68. DECOMPOSED GRANITE MULCH.

69. SPECIFICATIONS.

70. HIGH-DENSITY EXTRUDED POLYETHYLENE FABRIC WITH 2" MAXIMUM OPENING IN MESH PATTERN AND WEIGHING A MINIMUM OF .4 LBS/FT WITH A MINIMUM

71. WATER BASIN REFER TO LANDSCAPE DETAIL AND GENERAL LANDSCAPE NOTES.

72. DECOMPOSED GRANITE MULCH.

73. SPECIFICATIONS.
GENERAL LANDSCAPE NOTES

1. All plant material shall have a one-year warranty from the owner's acceptance date of substantial completion.

2. Planting shall be performed by the contractor shall be on or before the date of substantial completion of the project. Failure to do so shall result in a penalty as described in the contract documents. The irrigation system shall be fully operational and functional prior to planting.

3. Contractor shall verify the location of underground utilities shown on the plans and have no liability for damage to utilities not shown on the plans. Verify treatment with the owner's representative prior to implementation.

4. All plant material shall be held free of construction debris and shall be incidental to construction work.

5. Planting of trees, shrubs, or plants shall be supervised by the owner's representative. New locations may be determined or instructions may be given to avoid construction debris.

6. Plants shall be staked or held in place as necessary to prevent movement.

7. Planting of trees, shrubs, or plants shall be supervised by the owner's representative. New locations may be determined or instructions may be given to avoid construction debris.

8. Plants shall be staked or held in place as necessary to prevent movement.

9. Plants shall be staked or held in place as necessary to prevent movement.

10. Finishing grade for planted areas shall be per the details with smooth, even lines at edges of structures.

11. Finishing grade and shall be adjusted to finish grade and shall be incidental to construction work.

12. Finishing grade shall be adjusted to finish grade and shall be incidental to construction work.

13. Owner's representative reserves the right to refuse plant material not matching the standard for size, health, and form.

14. Supplied to owner's representative, together with a proposal for substitution of equivalent material for acceptance.

15. Owner's representative reserves the right to refuse plant material not matching the standard for size, health, and form.

16. After 90 days the contractor shall notify the owner representative for a site inspection.

17. Upon acceptance of plants and maintenance, the owner assumes maintenance responsibilities. Project warranty remains in effect for 1 year from date of substantial completion acceptance.

18. Maintenance shall consist of maintaining all work installed under contract and monitoring the watering system. Plan establishment by the contractor shall be for 90 days, beginning on the date of substantial completion of the project. Failure to do so shall result in a penalty as described in the contract documents.

19. Tests and trials for plantings shall be conducted to determine the best method of planting and to ensure proper establishment.

20. When multiple quantities of tablets are required, they shall be equally spaced at the specified depth.
VIEW FROM STREET LEVEL

VIEW FROM TOP OF STAIRS

VIEW FROM TOP OF STAIRS

VIEW LOOKING WEST TOWARDS EXISTING RESTROOMS

VIEW LOOKING WEST

VIEW TO THE EAST TOWARDS EXISTING BENCH
At the request of the City of Tempe, DFDG was contracted to provide design to remodel the City Council Chambers on the garden level of the City Hall Complex located at 31 East Fifth Street.

The award-winning inverted pyramid was constructed in 1970 to serve as municipal offices for the City of Tempe. The pyramid serves as the seat of Government and houses the offices of the Mayor and Council members as well as various administrative functions.

The unique, iconic, complex is comprised of approximately 55,800 gross square-foot of commercial space including the west Garden Level addition completed in 1986 and the east Garden Level, which was completed in 1997. The Municipal Complex design was ahead of its time regarding sustainable design, as its inverted pyramid shape was designed to shade and cool itself in the heat of summer.

The remodeling plan for the council chambers takes its design cues from the inverted pyramid and merges them with the geometry of the garden level. The low slope roof proposed for the entry is emblematic of the sloped ceilings leading to the entry doors of the inverted pyramid. This roof also replaces the pyramid skylight installed during a previous renovation effort which, although it mimics the shape of the tower, does not fit within the passive solar design concept of the complex. The angles of the new storefront work with the angles of the plaza to direct users to the entry of the chamber.

The current property has walkways and bridges which radiate outward from the complex to encourage interaction and reinforce the “City Center” concept. The framework for the public centric space exists, however, updating the complex with clear, useful, signage and proper lighting will enhance the user experience. The addition of gathering places, where various types of people can congregate, whether it be through interior communal spaces to share ideas, or a welcoming plaza area, will make this complex a well-used, safe place to work and visit.

The Municipal Complex is very much a mid-century modern design. The design team would like to accentuate its beauty and original elements by playing off the original building language such the angularity of the building, warm, rich woods and the strength of the horizontal lines.

The new roof of the council chamber has a low slope to reduce its visual impact on the complex and is intended to fit within the geometry defined by the concrete guardrails of the plaza level. The
low slope is also in keeping with the design aesthetic of the mid-century modern era in which the complex was originally designed.

The Council Chambers is where the seat of government meets, this should be a formal setting with the civic character found in a court room. The perimeter of the Chambers will remain with an extension towards 5th Street to allow for a reception or standing area. The current restrooms will be removed, and the area will become the security area for public access into the space. The Chambers will be designed to provide a secure public space with state-of-the-art technology, as well as a beautiful space where government employees and the public alike will be proud to meet.

The new façade of the council chambers will be an aluminum storefront to emulate the construction of the tower. The color of the storefront will match the color of the tower but will not use identical profile shapes as those used in the tower to identify this as a separate installation from the original. New public restrooms will be added to the garden level as part of this project. The façade for the restrooms will infill between existing exposed aggregate concrete columns and will have an exterior insulated finish system to emulate the concrete while standing on its own as a separate material.

The renovation of the council chambers remains within the geometry of the plaza and garden level structures to avoid creating any projections which would interfere with the character of the complex. The new council chambers design follows the minimalist design aesthetic of the original complex by foregoing the use of extra trim or secondary features.

The new chamber entry utilizes the same aluminum and glass of the tower and the exposed aggregate of the garden level will remain unmodified. New finishes will emulate the existing without attempting to mimic them.

The original design was intended to showcase emerging construction technology rather than individual craftsmanship. As such, there are not components of the building typically thought of as craft details to contribute to the character of the building. The new design continues this design aesthetic with the use of current building technologies and materials.

Upon entering the Chambers, whether it be through the security entrance or vestibule there is a reception like area to house kiosks for sign in as well as an opportunity for a history timeline or the like. The public seating area will be adjusted to provide the code required accessible slopes as well as proper aisle widths for exiting.

The new council chambers design merges the angular qualities of the inverted pyramid with the low volume of the garden level spaces. The council chamber shape is defined by the angles of the plaza but stands apart from both the tower and garden level offices. The relationship of the chamber entry to the stairs leading down from 5th Street is maintained in the new design.
The dais will be reconfigured to provide the council members with better engagement with the audience, additional room for city staff and to bring it into compliance with the requirements of the Americans with Disabilities Act.

When considered together the designers at DFDG feel our concept fits well with the design aesthetic of the original structure, supports the historic designation of the complex and provides a blueprint for future improvements of the property.
February 21st, 2019

Greg Biallas
Architect
DFDG Architecture
4545 East McKinley Street
Phoenix, Arizona 85008

Re: City of Tempe Municipal Building - Landscape Approach Narrative

Greg,

We have prepared a landscape narrative for use in the upcoming City of Tempe Municipal Building submittal to the City of Tempe. Please review and let me know if you require any edits or feel that we need to adjust anything. Submitted for your review and consideration.

LANDSCAPE APPROACH NARRATIVE:
The landscape associated with the City of Tempe Municipal Building project will be designed in a manner that will complement the character of the architecture as well as the building program, welcome visitors, and provide a variety of contextual downtown color, texture, and form throughout the year. A key component of the project is to ensure the landscape is designed and managed in a manner that will not only enhance the overall aesthetics of the project, but also help create a safe environment both in and around the project. All plant material will be placed in a manner that will adhere to all required sight visibility triangles, and will limit the creation of areas that are difficult to monitor/police; any thorny trees or plants will be kept away from pedestrian pathways. The project will be complemented with a mix of canopy trees, shrubs, accents, grasses and groundcovers; these plantings will help create a sense of arrival and enhance the streetscape aesthetic. All plant material will be selected from the ADWR approved plant list and will be assessed to be sure it is contextually appropriate for use in an urban environment. Canopy trees will be placed in a manner to help shade the sidewalks and outdoor patio space during the warmer months. Carefully selected landscape amenities will be strategically placed throughout the site and may include container plantings, seating/benches, bicycle racks, trash receptacles, and bollards to help animate the pedestrian zones. The irrigation design will be developed in a manner that will consider micro-climates, and those areas will be valved separately; this sustainable approach to water use/reduction is instrumental in creating a successful and well managed landscape. The project is committed to proper water management techniques, including the use of a weather station, soil moisture sensors, and the ability to utilize stormwater runoff as a supplemental source for irrigation water through the use of small, micro-basins located in the landscape. All grading associated with landscape areas will ensure positive drainage away from any foundations and footings. Proper landscape management techniques will be required to ensure a long lasting and healthy landscape; suggested management practices will be provided as the design of both the landscape and irrigation progresses further. The existing landscape includes several Ficus Trees planted along both the east and west exterior walls. By industry standards, the trees are planted too close to the structure and are currently impacting overhead beams and heaving concrete panels making for potential trip hazards. Independent structure engineers have assessed the points where trees are in contact with the overhead beams and have rated this condition as severe and of a life safety issue, recommended that this condition receive priority one attention. Logan Simpson has assessed the trees along the east and west exterior walls, and find the trees to be of a healthy condition, however the impacts to the structure (beams and potentially foundation) and to the adjacent walkways is cause for concern and recommend the trees for removal. The available planting space is much too narrow for tree replacement; Logan Simpson will rather propose the installation of shrubs, groundcovers and potentially vines for use in these narrow planting strips.

Thank you,

Senior Landscape Architect
Logan Simpson
Development Plan Review Applications

COMMERCIAL ● INDUSTRIAL ● MULTI-FAMILY ● MIXED-USE

Site Plan
Landscape Plan
Lighting Plan
New Construction
Building Addition
Exterior Building Modification
Exterior Building Color Modification
For the following applications, a Preliminary Site Plan Review submittal is required first:

- Annexations
- General Plan Amendments
- Major Development Plan Reviews
- Planned Area Development (PAD) Overlays
- Subdivisions
- Zoning Map Amendments

For any commercial, industrial, multi-family or mixed-use project new or existing, where modifications are made to the exterior of the building or the site, a Development Plan Review is required. Application types may include:

- Site Plan
- Landscape Plan
- Lighting Plan
- New Building
- Building Addition
- Exterior Building Modification (including patios or the addition of televisions/speakers)
- Exterior Building Color Modification

Developments of 2 or more residential units, or greater than 3,000 s.f., must be sealed by an architect or other design professional registered in the State of Arizona (ARS 32-101,143-144 & R4-30-301-304)

PROCESS AFTER SUBMITTAL:

- Monday by 5pm submit plans. Submittal deadlines and hearing dates indicated in the Community Development Schedule are not a guarantee of entitlement process. This is used as a guide for estimating hearing processes in a timeline, and is subject to the applicant submittal and requisite details.

  Depending on the scope of work, and modifications made from the Preliminary Site Plan Review Process, the formal submittal may be re-routed for inter-departmental review, to verify that changes made meet requirements.

  Friday by 5pm the Planner has reviewed file for completeness and called customer if the application has been deemed incomplete.

  **Incomplete applications will be returned to the applicant.**

- Complete applications that are missing information or require changes **will not be scheduled for a hearing until documents are re-submitted with modifications.**

- Complete applications will be scheduled for the next available hearing dates in accordance with advertising requirements.

- Projects scheduled for a hearing must submit any changes at least 16 business days prior to the hearing date. **Changes made after advertisement of a hearing may result in additional fees and a continuance of the project to allow time to review the proposed modifications.**

- Applicants must attend the public meeting scheduled for the item.

- After the decision is made, a letter of the decision is electronically distributed.

- Appeals of decisions made, must be made within 14 days of the decision.
Refer to this chart for the type of application being made and all required documents for a complete submittal. Missing items will cause applications to be deemed incomplete.

### REQUIRED ITEMS

<table>
<thead>
<tr>
<th>Project Submittal Form</th>
<th>New Development</th>
<th>Building Addition</th>
<th>Exterior Modification or Patios</th>
<th>Landscape or Site Modification</th>
<th>Building Repaint</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Owner Authorization Form</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Letter of Explanation</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Site Plan (fully dimensioned)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>24&quot;x36&quot; (FOLDED to 9&quot; x 12&quot;)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11&quot;x17&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>8.5&quot;x11&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Building Elevations (blackline)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>24&quot;x36&quot; (FOLDED to 9&quot; x 12&quot;)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11&quot;x17&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>8.5&quot;x11&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Building Elevations (color)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>24&quot;x36&quot; (FOLDED to 9&quot; x 12&quot;)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11&quot;x17&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>8.5&quot;x11&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Building Sections (in 2 directions)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>24&quot;x36&quot; (FOLDED to 9&quot; x 12&quot;)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11&quot;x17&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>8.5&quot;x11&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Floor Plans</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>24&quot;x36&quot; (FOLDED to 9&quot; x 12&quot;)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11&quot;x17&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>8.5&quot;x11&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Landscape Plan (plant legend and sizes)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>24&quot;x36&quot; (FOLDED to 9&quot; x 12&quot;)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11&quot;x17&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>8.5&quot;x11&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Preliminary Grading &amp; Drainage</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>24&quot;x36&quot; (FOLDED to 9&quot; x 12&quot;)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>11&quot;x17&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>8.5&quot;x11&quot;</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Material Sample Board</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>8.5&quot;x14&quot;x1&quot; max size</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Photographs of site / surroundings</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>USB drive- electronic plans (PDF)</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Additional items required through the Preliminary Site Plan Review process</td>
<td>1 1 1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
</tbody>
</table>

* Items may be required depending on scope of work.

### PROJECT DATA

**Site plans must include the following in a data table:**

- Contact name, address, phone, email
- Project Title, Site Address, and Legal Description / Parcel ID#
- Location Map oriented the same direction as the plan (north up or to the right)
- General Plan Projected Land Use / Projected Density and Proposed Land Use / Density category
- Zoning (existing and proposed)
- Lot Size (net & gross, if any portion of property to be dedicated for right-of-way)
- Total building area: breakout existing and proposed building areas
- Square footage: total and for each building/ tenant space
- Proposed uses and % and square footage of each use
- Required / Provided Development Standards for the Zoning District:
  - Building Height (taken from at grade, top of curb at centerline of street front, NOT finished floor)
  - Lot Coverage (% and s.f.)
  - Landscape (% and s.f.) (separate number of landscape area in right of way)
  - Density (allowed, proposed)
  - Building Setbacks (required, proposed)
  - Vehicle Parking (required & provided: tabulate per use/area excluding thickness of exterior walls)
  - Bicycle Parking (required & provided: specify if in the bicycle commute area)
  - # and type of residential units, if applicable
  - Type of construction per Building Code
  - Occupancy Classification (if applicable)
  - Occupant Load per Occupancy (if applicable)
  - Separated Use OR Non-Separated Use
  - Sprinklers / Fire Alarms Provided or Not
### Project Submittal Application

**Project Name:** Council Chambers Remodel - City Hall Municipal Complex

**Project Address:** 31 E. 5th St, Tempe, Arizona 85281

**Proposed Use of Building/Suite:** City council chambers

**Legal Description:** □ Attached

**Parcel No.:** 132-27-351

**Description of Work/Request:** Expansion and remodel of council chambers with related landscape improvements

#### Valuation (for building plan review only):

$1,700,000

---

**Company or Firm Name:** DFDG Architecture

**Telephone 1:** (602) 761-5107 Ext: ______

**Applicant’s Name:** Greg Biallas

**Telephone 2:** (602) 954-9060 Ext: 234

**Applicant’s Street Address:** 4545 E McKinley St

**City:** Phoenix

**State:** AZ

**Zip:** 85008

**Email Address(es):** gbiallas@dfdg.com

**Applicant Signature:**

**Date:**

---

### For City Use Only

#### Planning

- □ Recordation
- □ SPR
- □ PL Dev Plan Review
- □ Sign Permit
- □ Use Permit
- □ Variance
- □ General Plan Amend
- □ Zoning Amend
- □ Zoning Verification Letter
- □ Subdivision/Condo
- □ PAD Overlay
- □ Legal Posting Signs
- □ Administrative Decision
- □ Abatement
- □ Shared Parking
- □ CCR Review
- □ Continuance
- □ Appeal
- □ Other ________

#### Building

- □ New Building
- □ Com Add/Alt
- □ TI
- □ MF
- □ Res Remodel/Add
- □ Pool
- □ Demo
- □ Grading Only
- □ Phased Constr
- □ Structural Frame
- □ MEP Only
- □ Mobile Home
- □ Factory Built Bldg
- □ Deferred submittal
- □ New Standard
- □ Permits based on Standard #

#### Engineering

- □ Engineering
- □ Revision

#### Submitted Materials:

- _______Building
- _______Fire
- _______Planning
- _______Signs
- _______Engineering

#### Tracking Nos.:

- DS
- BP
- RA
- FR
- RAF
- EN
- RAE
- PL
- SPR
- SGN
- GO
- GOB
- SE
- ZP

#### Fire

- □ Tanks
- □ AFES (O/H)
- □ Spray Paint Booth
- □ Special Extinguishing
- □ Fire Alarm
- □ Kitchen Hood System
- □ Rack Storage
- □ Hazmat
- □ Other

- □ Suiting
- □ Other:

#### Validation:

- □ Spec Book(s)
- □ Soils Report
- □ Structural Calcs
- □ Report
- □ Truss Calcs
- □ Materials
- □ Hydraulic Calcs
- □ Color Board
- □ Parking Analysis
- □ Haz Mat Form
- □ Lighting Cut Sheets
- □ Other:

#### Total Valuation:

- □ Total Submittal Fees:

- □ File With:

- □ Date Stamp:

- □ Received By:

---

**City of Tempe**

Community Development Department

31 E. 5th Street, Garden Level, Tempe, AZ 85281

(480) 350-3411 Fax: (480) 350-8677

Planning Fax: (480) 350-8872

www.tempe.gov
INSTRUCTIONS FOR PROJECT APPLICATION

Name: Project Name, Subdivision Name, Plan of Development, etc. (Ex: Orchid House, Smith Residence, Arts Center Addition).
Address: Site address, suite number, and assessor's parcel number. (Note: If a vacant lot or new building without a specific address assigned, please contact the City of Tempe Development Services Division at (480) 350-4311 in order to obtain a site address. Applications cannot be processed without a site specific address.)

Proposed Use: Specify if single-family residence, office, medical office, retail, school, restaurant, carport, office/warehouse, manufacturing, 68 unit apartment, 72 unit hotel, etc.

Existing Zoning: Zoning at the time of application.
Legal Description: Provide a complete legal description of the property on which permitted work will be done. If legal description is too long for space provided, attach a separate sheet with legal description.

Description of Work: A brief description of the work being done, with examples as follows:

Planning: Site Plan Review, Use Permit, Variance, Zoning/Amendment, PADs, General Plan Amendment, Development Plan Review, Signage, Subdivision/Condo, etc.

Building Safety: New Office/Warehouse Building, New SFR, Tenant Improvement, Interior Remodel, Addition to Existing Residence, Prefabricated Carport, Construction due to Fire Damage, Conversion of Garage or Carport to Living Space, etc.

Engineering: On-site storm water retention, curb cuts, water & sewer work in the right-of-way, etc.

Fire: Fire sprinklers, fire alarm, installation of fuel tanks, spray paint booths, hazardous material review, etc.

Applicant Information – Required on all submittals

The name, address, email, telephone and fax information of the individual to be contacted for questions, and notification of project status. All applications must be accompanied by the required number of plans, submittal materials, address, parcel number, and correct fee (dependent upon type of submittal).

Please see our website at www.tempe.gov for applications, submittal information, fees and checklists. If you do not have internet access, please contact us at (480) 350-4311.

Know Your Rights or ARS and You

For additional information on Municipal Regulations see ARS 9-831-9-840. For additional information on Municipal Regulations see AZ Revised Statutes- Article 4 http://www.azleg.gov/arizonarevisedstatutes.asp?Title=9

9-834. Prohibited acts by municipalities and employees; enforcement; notice
A municipality shall not base a licensing decision in whole or in part on a licensing requirement or condition that is not specifically authorized by statute, rule, ordinance or code. A general grant of authority does not constitute a basis for imposing a licensing requirement or condition unless the authority specifically authorizes the requirement or condition.
B. Unless specifically authorized, a municipality shall avoid duplication of other laws that do not enhance regulatory clarity and shall avoid dual permitting to the maximum extent practicable.
C. This section does not prohibit municipal flexibility to issue licenses or adopt ordinances or codes.
D. A municipality shall not request or initiate discussions with a person about waiving that person's rights.
E. This section may be enforced in a private civil action and relief may be awarded against a municipality. The court may award reasonable attorney fees, damages and all fees associated with the license application to a party that prevails in an action against a municipality for a violation of this section.
F. A municipal employee may not intentionally or knowingly violate this section. A violation of this section is cause for disciplinary action or dismissal pursuant to the municipality's adopted personnel policy.
G. This section does not abrogate the immunity provided by section 12-820.01 or 12-820.02.

9-836. License application process
A municipality that issues licenses shall provide the following information to an applicant at the time the applicant obtains an application for a license:
1. A list of all of the steps the applicant is required to take in order to obtain the license.
2. The applicable licensing time frames.
3. The name and telephone number of a municipal contact person who can answer questions or provide assistance throughout the application process.
4. The website address and any other information, if applicable, to allow the regulated person to use electronic communication with the municipality.
5. Notice that an applicant may receive a clarification from the municipality of its interpretation or application of a statute, ordinance, code or authorized substantive policy statement as provided in section 9-839.

Time Limitation of Application

An application for a permit for any proposed work shall be valid for a period of one year from the date of filing. The building official is not authorized to grant an extension of time.

2012 International Fire Code: See exceptions at: https://www.tempe.gov/home/showdocument?id=33162
An application for a permit for any proposed work or operation shall be deemed to have been abandoned one year after the date of filing. The fire code official is not authorized to grant any extension of time.
**PROPERTY OWNER INFORMATION**

<table>
<thead>
<tr>
<th>BUSINESS NAME:</th>
<th>City of Tempe</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTACT NAME:</td>
<td>Barrett Jurgemeyer</td>
</tr>
<tr>
<td>ADDRESS:</td>
<td>31 E. 5th St</td>
</tr>
<tr>
<td>CITY:</td>
<td>Tempe</td>
</tr>
<tr>
<td>PHONE:</td>
<td>(480) 350-8852</td>
</tr>
<tr>
<td>EMAIL:</td>
<td><a href="mailto:barrett_jurgemeyer@tempe.gov">barrett_jurgemeyer@tempe.gov</a></td>
</tr>
</tbody>
</table>

If Property Owner identified above is not representing this case or is not the applicant identified on the Project Submittal Form, the Property Owner(s) is **required** to sign the authorization statement below or submit a written statement authorizing the applicant to file the request(s).

**PROPERTY OWNER AUTHORIZATION**

I hereby authorize ___________________________________________________ (applicant business name/contact name) to process this application with the City of Tempe

Property Owner’s Signature

---

**BUSINESS OWNER INFORMATION**

<table>
<thead>
<tr>
<th>BUSINESS NAME:</th>
<th>DFDG Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTACT NAME:</td>
<td>Greg Biallas</td>
</tr>
<tr>
<td>ADDRESS:</td>
<td>4545 E McKinley St</td>
</tr>
<tr>
<td>CITY:</td>
<td>Phoenix</td>
</tr>
<tr>
<td>PHONE:</td>
<td>(602) 761-5107</td>
</tr>
<tr>
<td>EMAIL:</td>
<td><a href="mailto:gbiaallas@dfdg.com">gbiaallas@dfdg.com</a></td>
</tr>
</tbody>
</table>

---

**APPLICANT INFORMATION**

<table>
<thead>
<tr>
<th>BUSINESS NAME:</th>
<th>DFDG Architecture</th>
</tr>
</thead>
<tbody>
<tr>
<td>CONTACT NAME:</td>
<td>Greg Biallas</td>
</tr>
<tr>
<td>ADDRESS:</td>
<td>4545 E McKinley St</td>
</tr>
<tr>
<td>CITY:</td>
<td>Phoenix</td>
</tr>
<tr>
<td>PHONE:</td>
<td>(602) 761-5107</td>
</tr>
<tr>
<td>EMAIL:</td>
<td><a href="mailto:gbiaallas@dfdg.com">gbiaallas@dfdg.com</a></td>
</tr>
</tbody>
</table>

---

**REQUIRED SIGNATURE**

I, ______________________________, agree that all items required for formal submittal as noted on page 1 have been submitted and is complete. If the submittal is incomplete in any respect, I understand there will be a delay in processing.

Applicant Signature: ________________________ Date: ________________
Below is a list of what is required on the submitted plans, depending on the request:

**SITE PLAN**
- Date the plan was created with subsequent revision dates
- Scale and north arrow oriented in the same direction as the plan, either up (preferred) or to the right on the sheet
- Property boundaries identified with dimensioned property lines
- Identify adjacent land use types and zoning districts
- Identify all structures, driveways, fire hydrants, and streets within a 125' radius of project site
- Show existing and proposed adjacent street and alley right-of-way widths
- Identify existing and proposed public and private easement locations and widths
- Show existing and proposed street and sidewalk improvements, dimensioned to centerline of the street
- Dimension accessible routes from public way to building entrance(s)
- Show all existing (to remain) and proposed buildings/structures, fully dimensioned
- Note distances between all buildings/structures and property lines
- Driveway locations, dimensions, and note city detail number
- Vehicle (standard & accessible) and bicycle parking areas, typical space dimensions on each row of parking, dimension of vehicle overhangs, drive aisle widths, and turn radii
- Location of on-site light fixtures and fire hydrants
- Location of electric service entrance section (S.E.S.), gas meter, transformer, and back flow prevention devices
- Location of refuse (trash and recycle) enclosures, fully dimensioned

**FLOOR PLAN**
- Complete floor layout
- Use of each room
- Dimensions of buildings and rooms
- Locations of windows and doors
- Location of all electrical equipment including SES, panels, transformers etc.
- Location and dimensions of the accessible restroom facilities
- Location, dimensions and details for accessible bar/dining seating, sales/service counters, etc.
- Furnishing layout, including patio furniture (umbrellas, fire pits, heaters, etc.)

**BUILDING ELEVATIONS**
- Building elevations, all four sides
- Symbol schedule of all symbols and abbreviations used
- All materials and colors specified in key and noted on drawings
- All patio materials and appliances (heaters, misters, fans, televisions, speakers, lights)
- Wall-mounted light fixtures and cut sheets
- Dimensions of building height taken from grade (not finished floor)
- Show location of all rooftop mechanical equipment and proposed screening methods. Top of rooftop units shall be lower than the building parapet wall. All rooftop drains should be internally piped.

**BUILDING CROSS SECTIONS**
- Cross-sections in two directions, fully dimensioned
- Symbol schedule of all symbols and abbreviations used
- HVAC or other mechanical equipment listings, dimensioned and shown fully screened.

**LANDSCAPE PLANS**
- Unique symbols for all trees, shrubs, ground covers, organic and hardscape features
- Symbol schedule of all symbols and abbreviations used
- Size specification of all plants at time of planting (tree caliper, shrub gallon) and at maturity (tree canopy, shrub height)
- Dimensions of hardscape and pedestrian areas (verify plant distances from sidewalks to comply with CPTED)
- On-site lighting fixtures (coordinated with photometric plan for tree/light placement)
- Location of fire hydrants, water meters, backflow preventer and cage assemblies

**MATERIALS SAMPLE BOARD**
- Maximum 8 ½" x 14" x 1” board size
- Actual paint and material samples – chips, pieces of masonry block, metal, wood trim, tinted glass, awnings, and stucco texture. Common materials may be identified with photos on material board.
- Specified manufacturers information for all materials and colors
LETTER OF EXPLANATION

DEVELOPMENT PLAN REVIEW

The letter, on 8.5” x 11” paper, must be signed by the applicant and provide a brief statement, identifying the project goals and objectives, primary design criteria, and design concepts.

The letter shall explain how the development plan will conform to the following standards of Zoning and Development Code Criteria Section 6-306D, as applicable:

1. Placement, form, and articulation of buildings and structures provide variety in the streetscape;
2. Building design and orientation, together with landscape, combine to mitigate heat gain/retention while providing shade for energy conservation and human comfort;
3. Materials are of a superior quality, providing detail appropriate with their location and function while complementing the surroundings;
4. Buildings, structures, and landscape elements are appropriately scaled, relative to the site and surroundings;
5. Large building masses are sufficiently articulated so as to relieve monotony and create a sense of movement, resulting in a well-defined base and top, featuring an enhanced pedestrian experience at and near street level;
6. Building facades provide architectural detail and interest overall with visibility at street level (in particular, special treatment of windows, entries and walkways with particular attention to proportionality, scale, materials, rhythm, etc.) while responding to varying climatic and contextual conditions;
7. Plans take into account pleasant and convenient access to multi-modal transportation options and support the potential for transit patronage;
8. Vehicular circulation is designed to minimize conflicts with pedestrian access and circulation, and with surrounding residential uses;
9. Plans appropriately integrate Crime Prevention Through Environmental Design principles such as territoriality, natural surveillance, access control, activity support, and maintenance;
10. Landscape accents and provides delineation from parking, buildings, driveways and pathways;
11. Signs have design, scale, proportion, location and color compatible with the design, colors, orientation and materials of the building or site on which they are located; and
12. Lighting is compatible with the proposed building(s) and adjoining buildings and uses, and does not create negative effects.

For Major Development Plan Review applications, the letter should also address how the proposal supports any applicable area policy plans, including:
   a. Character Area Plans
   b. Downtown / Mill Avenue District Community Design Principles
   c. Mill + Lake District Streetscape Principles and Guidelines
   d. Historic Preservation Plan
   e. Apache Boulevard Redevelopment Plan
   f. Town Lake Design documents

The above criteria are used to determine an approval of a requested design application.
Property owner MUST fill out all information and sign to authorize applications for entitlements.

<table>
<thead>
<tr>
<th>REQUIRED*</th>
<th>PROPERTY OWNER INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSINESS NAME</td>
<td>City of Tempe</td>
</tr>
<tr>
<td>CONTACT NAME</td>
<td>Barrett Jurgemeyer</td>
</tr>
<tr>
<td>ADDRESS</td>
<td>31 E. 5th St</td>
</tr>
<tr>
<td>CITY</td>
<td>Tempe</td>
</tr>
<tr>
<td>PHONE</td>
<td>(480) 350-8652</td>
</tr>
<tr>
<td>FAX</td>
<td></td>
</tr>
<tr>
<td>EMAIL</td>
<td><a href="mailto:barrett_jurgemeyer@tempe.gov">barrett_jurgemeyer@tempe.gov</a></td>
</tr>
</tbody>
</table>

If Property Owner identified above is not representing this case or is not the applicant identified on the Project Submittal Form, the Property Owner(s) is **required** to sign the authorization statement below or submit a written statement authorizing the applicant to file the request(s).

**PROPERTY OWNER AUTHORIZATION**

I hereby authorize **DFDG Architecture** (applicant business name/contact name) to process this application with the City of Tempe

[Signature]

Property Owner's Signature

---

<table>
<thead>
<tr>
<th>Required if Property Owner is different than Business Owner</th>
<th>BUSINESS OWNER INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSINESS NAME</td>
<td></td>
</tr>
<tr>
<td>CONTACT NAME</td>
<td></td>
</tr>
<tr>
<td>ADDRESS</td>
<td></td>
</tr>
<tr>
<td>CITY</td>
<td></td>
</tr>
<tr>
<td>PHONE</td>
<td></td>
</tr>
<tr>
<td>FAX</td>
<td></td>
</tr>
<tr>
<td>EMAIL</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required if Business Owner is different than Applicant</th>
<th>APPLICANT INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSINESS NAME</td>
<td>DFDG Architecture</td>
</tr>
<tr>
<td>CONTACT NAME</td>
<td>Greg Biallas</td>
</tr>
<tr>
<td>ADDRESS</td>
<td>4545 E McKinley St</td>
</tr>
<tr>
<td>CITY</td>
<td>Phoenix</td>
</tr>
<tr>
<td>PHONE</td>
<td>(602) 761-5107</td>
</tr>
<tr>
<td>FAX</td>
<td></td>
</tr>
<tr>
<td>EMAIL</td>
<td><a href="mailto:gbiallas@dfdg.com">gbiallas@dfdg.com</a></td>
</tr>
</tbody>
</table>

**REQUIRED SIGNATURE**

I, **Greg Biallas**, agree that all items required for formal submittal as noted on page 1 have been submitted and is complete. If the submittal is incomplete in any respect, I understand there will be a delay in processing.

[Signature]

Applicant Signature Date
### Project Submittal Application

**City of Tempe**  
Community Development Department  
31 E. 5th Street, Garden Level, Tempe, AZ 85281  
(480) 350-4311 Fax: (480) 350-8677  
Planning Fax: (480) 350-8872  
www.tempe.gov

#### Project Information - Required

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Council Chambers Remodel - City Hall Municipal Complex</th>
</tr>
</thead>
<tbody>
<tr>
<td>Project Address:</td>
<td>31 E. 5th St, Tempe, Arizona 85281</td>
</tr>
<tr>
<td>Proposed Use of Building/Suite:</td>
<td>City council chambers</td>
</tr>
<tr>
<td>Legal Description:</td>
<td>Attached</td>
</tr>
<tr>
<td>Existing Zoning:</td>
<td>CC</td>
</tr>
<tr>
<td>Parcel No.:</td>
<td>132-27-351</td>
</tr>
<tr>
<td>Description of Work/Request:</td>
<td>Expansion and remodel of council chambers with related landscape improvements</td>
</tr>
<tr>
<td>Valuation (for building plan review only):</td>
<td>$1,700,000</td>
</tr>
</tbody>
</table>

#### Applicant Information - Required

| Company or Firm Name: | DFDG Architecture |
| Applicant's Name: | Greg Biallas |
| Applicant's Street Address: | 4545 E McKinley St |
| City: | Phoenix |
| State: | AZ |
| Zip: | 85008 |
| Email Address(es): | gbiall@dfdg.com |

**For City Use Only**

<table>
<thead>
<tr>
<th>Planning</th>
<th>Fees</th>
<th>Building</th>
<th>Engineering</th>
<th>Submitted Materials:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recordation</td>
<td></td>
<td>New Building</td>
<td></td>
<td>Building</td>
</tr>
<tr>
<td>SPR</td>
<td></td>
<td>Com Add/Alt</td>
<td></td>
<td>Fire</td>
</tr>
<tr>
<td>PL Dev Plan Review</td>
<td></td>
<td>TI</td>
<td></td>
<td>Planning</td>
</tr>
<tr>
<td>Sign Permit</td>
<td></td>
<td>MF</td>
<td></td>
<td>Signs</td>
</tr>
<tr>
<td>Use Permit</td>
<td></td>
<td>NRes</td>
<td></td>
<td>Engineering</td>
</tr>
<tr>
<td>Variance</td>
<td></td>
<td>Res Remodel/Add</td>
<td></td>
<td></td>
</tr>
<tr>
<td>General Plan Amend</td>
<td></td>
<td>Pool</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoning Amend</td>
<td></td>
<td>Demo</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zoning Verification Letter</td>
<td></td>
<td>Grading Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subdivision/Condo</td>
<td></td>
<td>Phased Constr</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PAD Overlay</td>
<td></td>
<td>Phased Constr w/UG MEP</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legal Posting Signs</td>
<td></td>
<td>Structural Frame</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Administrative Decision</td>
<td></td>
<td>MEP Only</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Abatement</td>
<td></td>
<td>Mobile Home</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CCR Review</td>
<td></td>
<td>Factory Built Bldg</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Continuance</td>
<td></td>
<td>Deferred submittal</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Appeal</td>
<td></td>
<td>Revision</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td></td>
<td>New Standard</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Permits based on Standard #</td>
<td></td>
<td>Sutting</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>Other</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

| Fire | | | | |
| Tanks | | | | |
| AFES (O/H) | | | | |
| Spray Paint Booth | | | | |
| Special Extinguishing | | | | |
| Fire Alarm | | | | |
| Kitchen Hood System | | | | |
| Rack Storage | | | | |
| Hazmat | | | | |
| Other | | | | |

<table>
<thead>
<tr>
<th>Tracking Nos.:</th>
<th>DS190413</th>
</tr>
</thead>
<tbody>
<tr>
<td>RA</td>
<td></td>
</tr>
<tr>
<td>FR</td>
<td></td>
</tr>
<tr>
<td>EN</td>
<td></td>
</tr>
<tr>
<td>RAE</td>
<td></td>
</tr>
<tr>
<td>PL190074</td>
<td></td>
</tr>
<tr>
<td>SPR</td>
<td></td>
</tr>
<tr>
<td>SGN</td>
<td></td>
</tr>
<tr>
<td>GO</td>
<td></td>
</tr>
<tr>
<td>GOB</td>
<td></td>
</tr>
<tr>
<td>SE</td>
<td></td>
</tr>
<tr>
<td>ZP</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>MCA Code:</th>
<th>File With:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date Stamp:</th>
<th>RECEIVED</th>
</tr>
</thead>
<tbody>
<tr>
<td>APR 12 2013</td>
<td></td>
</tr>
</tbody>
</table>

**Total Valuation:**  
**Total Submittal Fees:**  
**Validation:**  
**Received By:**

---

Planning Submittals are Subject to Dissemination to the Public  
Please See Reverse for Instructions, Submittal Information and Time Limit of Application  
(Revised 7/21/16)
INSTRUCTIONS FOR PROJECT APPLICATION

Project Information – Required on all submittals.

**Name:** Project Name, Subdivision Name, Plan of Development, etc. (Ex: Orchid House, Smith Residence, Arts Center Addition).

**Address:** Site address, suite number, and assessor's parcel number. (Note: If a vacant lot or new building without a specific address assigned, please contact the City of Tempe Development Services Division at (480) 350-4311 in order to obtain a site address. Applications cannot be processed without a site specific address.)

**Proposed Use:** Specify if single-family residence, office, medical office, retail, school, restaurant, carport, office/warehouse, manufacturing, 68 unit apartment, 72 unit hotel, etc.

**Existing Zoning:** Zoning at the time of application.

**Legal Description:** Provide a complete legal description of the property on which permitted work will be done. If legal description is too long for space provided, attach a separate sheet with legal description.

**Description of Work:** A brief description of the work being done, with examples as follows:
- **Planning:** Site Plan Review, Use Permit, Variance, Zoning/Amendment, PADs, General Plan Amendment, Development Plan Review, Signage, Subdivision/Condo, etc.
- **Building Safety:** New Office/Warehouse Building, New SFR, Tenant Improvement, Interior Remodel, Addition to Existing Residence, Prefabricated Carport, Construction due to Fire Damage, Conversion of Garage or Carport to Living Space, etc.
- **Engineering:** On-site storm water retention, curb cuts, water & sewer work in the right-of-way, etc.
- **Fire:** Fire sprinklers, fire alarm, installation of fuel tanks, spray paint booths, hazardous material review, etc.

Applicant Information – Required on all submittals

The name, address, email, telephone and fax information of the individual to be contacted for questions, and notification of project status. All applications must be accompanied by the required number of plans, submittal materials, address, parcel number, and correct fee (dependent upon type of submittal). Please see our website at [www.tempe.gov](http://www.tempe.gov) for applications, submittal information, fees and checklists. If you do not have internet access, please contact us at (480) 350-4311.

Know Your Rights or ARS and You

For additional information on Municipal Regulations see AZ Revised Statutes- Article 4 [http://www.azleg.gov/arizonarevisedstatutes.asp?Title=9](http://www.azleg.gov/arizonarevisedstatutes.asp?Title=9)

9-834. Prohibited acts by municipalities and employees; enforcement; notice

A municipality shall not base a licensing decision in whole or in part on a licensing requirement or condition that is not specifically authorized by statute, rule, ordinance or code. A general grant of authority does not constitute a basis for imposing a licensing requirement or condition unless the authority specifically authorizes the requirement or condition.

B. Unless specifically authorized, a municipality shall avoid duplication of other laws that do not enhance regulatory clarity and shall avoid dual permitting to the maximum extent practicable.

C. This section does not prohibit municipal flexibility to issue licenses or adopt ordinances or codes.

D. A municipality shall not request or initiate discussions with a person about waiving that person’s rights.

E. This section may be enforced in a private civil action and relief may be awarded against a municipality. The court may award reasonable attorney fees, damages and all fees associated with the license application to a party that prevails in an action against a municipality for a violation of this section.

F. A municipal employee may not intentionally or knowingly violate this section. A violation of this section is cause for disciplinary action or dismissal pursuant to the municipality's adopted personnel policy.

G. This section does not abrogate the immunity provided by section 12-820.01 or 12-820.02.

For additional information see ARS 9-831-9-840.

9-836. License application process

A municipality that issues licenses shall provide the following information to an applicant at the time the applicant obtains an application for a license:

1. A list of all of the steps the applicant is required to take in order to obtain the license.
2. The applicable licensing time frames.
3. The name and telephone number of a municipal contact person who can answer questions or provide assistance throughout the application process.
4. The website address and any other information, if applicable, to allow the regulated person to use electronic communication with the municipality.
5. Notice that an applicant may receive a clarification from the municipality of its interpretation or application of a statute, ordinance, code or authorized substantive policy statement as provided in section 9-839.

Time Limitation of Application


An application for a permit for any proposed work shall be valid for a period of one year from the date of filing. The building official is not authorized to grant any extension of time.

**Building Submittals:** See exceptions at: [http://www.tempe.gov/home/showdocument?id=8698](http://www.tempe.gov/home/showdocument?id=8698)


An application for a permit for any proposed work or operation shall be deemed to have been abandoned one year after the date of filing. The fire code official is not authorized to grant any extension of time.

Planning Submittals are Subject to Dissemination to the Public

Please see reverse to complete Application
Property owner MUST fill out all information and sign to authorize applications for entitlements.

<table>
<thead>
<tr>
<th>REQUIRED*</th>
<th>PROPERTY OWNER INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSINESS NAME:</td>
<td>City of Tempe</td>
</tr>
<tr>
<td>CONTACT NAME:</td>
<td>Barrett Jurgemeyer</td>
</tr>
<tr>
<td>ADDRESS:</td>
<td>31 E. 5th St</td>
</tr>
<tr>
<td>CITY:</td>
<td>Tempe</td>
</tr>
<tr>
<td>PHONE:</td>
<td>(480) 350-8852</td>
</tr>
<tr>
<td>EMAIL:</td>
<td><a href="mailto:barrett_jurgemeyer@tempe.gov">barrett_jurgemeyer@tempe.gov</a></td>
</tr>
</tbody>
</table>

If Property Owner identified above is not representing this case or is not the applicant identified on the Project Submittal Form, the Property Owner(s) is required to sign the authorization statement below or submit a written statement authorizing the applicant to file the request(s).

PROPERTY OWNER AUTHORIZATION

I hereby authorize [DFDG Architecture] (applicant business name/contact name) to process this application with the City of Tempe

[Signature]

Property Owner's Signature

<table>
<thead>
<tr>
<th>Required if Property Owner is different than Business Owner</th>
<th>BUSINESS OWNER INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSINESS NAME:</td>
<td></td>
</tr>
<tr>
<td>CONTACT NAME:</td>
<td></td>
</tr>
<tr>
<td>ADDRESS:</td>
<td></td>
</tr>
<tr>
<td>CITY:</td>
<td></td>
</tr>
<tr>
<td>PHONE:</td>
<td></td>
</tr>
<tr>
<td>FAX:</td>
<td></td>
</tr>
<tr>
<td>EMAIL:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Required if Business Owner is different than Applicant</th>
<th>APPLICANT INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>BUSINESS NAME:</td>
<td>DFDG Architecture</td>
</tr>
<tr>
<td>CONTACT NAME:</td>
<td>Greg Biallas</td>
</tr>
<tr>
<td>ADDRESS:</td>
<td>4545 E McKinley St</td>
</tr>
<tr>
<td>CITY:</td>
<td>Phoenix</td>
</tr>
<tr>
<td>PHONE:</td>
<td>(602) 761-5107</td>
</tr>
<tr>
<td>FAX:</td>
<td></td>
</tr>
<tr>
<td>EMAIL:</td>
<td><a href="mailto:gbiallas@dfdg.com">gbiallas@dfdg.com</a></td>
</tr>
</tbody>
</table>

REQUIRED SIGNATURE

I, [Greg Biallas], agree that all items required for formal submittal as noted on page 1 have been submitted and is complete. If the submittal is incomplete in any respect, I understand there will be a delay in processing.

[Signature]

Applicant Signature

[Date] 4/11/19
Attachment B
SUBJECT: Hold a public hearing for Historic Designation of TEMPE MUNICIPAL BUILDING

DOCUMENT NAME: SSR-HPC-Public Hearing Tempe Municipal.doc

COMMENTS: Request for TEMPE MUNICIPAL BUILDING, located at 31 E. 5th St.

RECOMMENDATION: HPO Staff - Approval

PROCESS: On September 30, 2011, Mayor Hugh Hallman directed HPO to nominate the city-owned Tempe Municipal Building for historic designation and listing on the Tempe Historic Property register, recognizing the historical, cultural, and community significance of the property. HPO initiated the nomination process and reached a preliminary determination of eligibility. The following actions have been scheduled.

- Neighborhood Meeting @ Tempe HPC 12/08/2011 (unanimous support)
- Public Hearing @ Tempe HPC 01/12/2012
- Public Hearing @ Development Review Commission 01/24/2012
- Intro + 1st Public Hearing @ City Council 02/16/2012
- 2nd Public Hearing + Action @ City Council 03/08/2012

PUBLIC INPUT: On December 08, 2011, Tempe Historic Preservation Commission held a neighborhood meeting to notify residents, owners of property situated within 300 feet, and other stakeholders of the process for historic designation and listing in the Tempe Historic Property Register. At the December 08 meeting, the Tempe Historic Preservation Commission reached consensus to hold a public hearing, take additional input from interested persons, and make a recommendation regarding the proposed designation and listing.

BACKGROUND: Designed as a “lantern to the city,” the landmark 1970 Tempe Municipal Building is a metaphor for openness and accessibility in municipal government and emblematic of a progressive community. The building is also significant for its pivotal role in downtown redevelopment, as the most recognizable work of local Tempe Architect Michael Goodwin, as an early example of passive solar design, and as a unique example of Mid-Century Modern style commercial architecture.
SIGNIFICANCE –
The landmark 1970 Tempe Municipal Building is significant because of its close association with the redevelopment of downtown Tempe in the 1970’s. The building helped renew investment in the central business district and promoted local business’s to join in the redevelopment effort. This became a critical juncture in Tempe’s municipal land use planning and is now considered central to the initial revitalization and continued viability of the downtown commercial district. Tempe Municipal Building is also considered to be the property most expressive of the collaborative work between Michael Kemper Goodwin (1939 - 2011) and his father, Kemper Goodwin (1906 – 1997), arguably the most significant phase in the development of Michael’s architectural career. Tempe Municipal Building also holds significance as an early example of passive solar design and because of its relation to the mid-century modern architecture movement, an important period of experimentation with context-based modern design, architecture, and urban development that occurred at a period of unparalleled development and expansion in the Metro-Valley area, which as a consequence, came close to producing a truly recognizable regional design style for commercial architecture.¹

AGE –
The landmark 1970 Tempe Municipal Building opened its doors to the public in 1970. According to the City of Tempe Historic Preservation ordinance (Tempe City Code Chapter 14 A-4 a) 3) the building can qualify for historic property designation and listing in the Tempe Historic Property Register as an historical landmark because it has “achieved significance within the past 50 years, expresses distinctive character worthy of preservation, and because it exceeds the criteria for designation as an historic property.” Once so designated, in 2021, when the landmark becomes fifty (50) years old, it will automatically be reclassified as an historic property in accordance with ordinance provisions.

CONDITION –
The Tempe Municipal Building is a prime example of the Mid-Century Modern style of commercial architecture in Tempe. Mature landscaping around the property is all well maintained and cared for to such degree that guessing its age might prove difficult.

CHANGES OVER TIME –
The landmark 1970 Tempe Municipal Building has undergone several alterations over time. In 1987, completion infill construction of Garden Level West provided new office space for the Engineering Division of the Tempe Public Works Department. In 1998, the City opened additional offices for the Development Services Department by expanding the center section of Garden Level East. Both of these additions were completed with sensitivity and are now considered to contribute to the overall character of the landmark property. Alterations to the original site have also been made within the complex itself, where pathways and pedestrian bridges have either been changed or removed to accommodate and connect with other buildings and landscapes in and around the complex. In 2002, 6th Street east of Mill Avenue was re-designed as a 1.5-acre public park. The wide concrete walkway around the south and west sides of City Hall offers various types of landscaping and park benches. In a second phase of development completed in 2009, Sixth Street Park was expanded 1.5 acres to the east as part of the construction of a new 400-space parking structure just east of City Hall. The remnant street level parking lot was transformed into the second part of Sixth Street Park. As with the building additions, these alterations were designed and constructed in keeping with the original concept of connecting the community to municipal government in a manner that is both accessible and accommodating. Accordingly, changes made to the property over time are not considered to adversely affect the historic integrity of the landmark 1970 Tempe Municipal Building.

INTEGRITY –
Integrity is the ability of a property to convey its significance. To be listed in the Tempe Historic Property Register, a property must be significant under ordinance criteria and it must also possess sufficient integrity to communicate its significance to persons familiar with the property or to the community at large. A property is evaluated according to aspects of integrity which must be present in different combinations depending on the criteria from which historic significance is based. Because the Tempe Municipal Building derives significance through association with broad patterns of community development, the property must maintain integrity of location, materials, feeling and association in order to convey this significance. In addition, because the Tempe Municipal Building embodies the distinctive characteristics of a type of construction, represents the work of a master, possesses high artistic value, and represents a significant and distinguishable entity; to continue to convey significance under this criterion, the property must possess integrity of design, materials, workmanship, feeling. The Tempe Municipal Building strongly conveys multiple levels of significance by maintaining necessary aspects of integrity, namely those of location, design, materials, workmanship, feeling, and association in excess of minimum requirements and as necessary to qualify for designation and listing.
Location – The Tempe Municipal Building is located at 31 East Fifth Street between Mill and College Avenues and forms the heart of the Harry E. Mitchell Government Complex in the historic core of downtown Tempe. This historic site retains its identity as the nexus of community and democracy while the iconic building continues to be recognized as the center of a proud and progressive municipal government.

Design – The intent of Michael Goodwin was for this property to be the “center-of-the-city.” Original site plans incorporated pathways that radiated out into the city from the building. These have since been modified to some extent to make room for adjacent new construction, but enough of the original design still exist so, coupled with the iconic form and fabric of the building, the landmark character persists.

Materials – The Tempe Municipal Building functions a passive solar building because of the inverted pyramidal form and solar bronze glazing which was state of the art in 1970. With the walls slanted at forty-five degrees the roof becomes a shading structure for the entire building. In winter the building is engineered allow direct sunlight to contact the glass and to trap heat in order to warm interior spaces.

Workmanship – The excellent workmanship and attention to detail allowed use of steel and glass construction in ways that gave Goodwin the ability to orient the building as an inverted pyramidal form thereby minimizing solar impact on the exterior surfaces. These features would not have achieved such resounding initial success and continued timelessness without the high standards of workmanship that translated new materials and technologies into a landmark.

Feeling – This property expresses the aesthetic sense of its Mid-Century Modern era of significance. The variety and volume of Modern style architecture produced during the middle of the 21st Century throughout the Valley is indicative of the economic boom occurring in Central Arizona at that time. Goodwin intended this building to have a “center-of-the-city” feel. Its unique form invites curiosity in passersby, but it also has a welcoming and inviting quality that radiates outward to the rest of the city.

Association – Association is the direct link between an important historic event or person and an historic property. The Tempe Municipal Building retains association as the cornerstone of decades of downtown redevelopment. The property is sufficiently intact to continue to convey that significance to an observer.

CHARACTER-DEFINING FEATURES –
Character-defining features are those qualities of a property conveyed by its materials, features, spaces and finishes. They are the means by which the historic character of a property is expressed. To define the character is to identify the continued presence of critical architectural attributes only. This does not address those intangible qualities that give a property or building or its contents its historic significance. Instead the identification and evaluation of character-defining features is based on the assumption that historic significance is embodied in those tangible aspects that include the building’s setting, its form and fabric.2

Form - The iconic form of the Tempe Municipal Building has given “City Hall” a nickname popular throughout the community –“the Upside-down Pyramid”-- is famous in local lore as having many of the legendary or mythical capabilities of the right-side-up form, only sometimes capriciously acting in reverse. That these urban legends exist at all is testimony to the broad based popularity of the landmark 1970 Tempe Municipal Building at the grassroots level. The form or shape of the building helps give the Tempe Municipal Building its landmark identity. Rising from a unique open space within the dense urban setting, the inverted pyramidal form of the glass enclosed structure beckons all to come forth and talk of many things. The shape is so simple that adding a feature could not help convey its historic function as a lantern of democracy, a beacon of progress, and a bastion of civic pride and community confidence.

Fenestration - Upon this simple form there is a rhythm or pattern brought by the arrangement of windows and markings of stories that, much like the rhythm of windows in a factory building, helps to resolve the building’s structural complexity in a comprehensible, almost playful manner. Not so the space between the angled window planes and the increasing office floors. Here is where the distinctive structure expresses the true complexity of its character.

Materials – Architect Michael Goodwin chose materials that exemplify technologies characteristic of the Mid-Century Modern style. Use of a steel structural frame, a new type of structural glazing system engineered to withstand weather changes and multiple structural forces encountered because of the forty-five degree walls, and the lustrous exterior glass that reflects light evenly without glitter or sparkle are representative of the state of the art of construction technology in 1970.

Setting – A practical definition of setting in the context of the Tempe Municipal Building is simply that it exists at the heart of the community; in the middle of the downtown commercial district it helped preserve and perpetuate.
Individual Spaces – Among the individual rooms or spaces that are important to this building because of their function, the Tempe City Council Chambers are the venue where council members and their constituents most frequently interact to carry out the detailed operations of municipal government. Representing City Hall to many community members, Council Chambers continue to provide citizens with opportunities to communicate face-to-face with the Tempe City Council as is vital for a strong representative local government. Chambers provide an intimate yet productive setting for Tempe City Council to connect with the community.

Related Spaces – Among the rooms or sequences of spaces that are important to this building because of their configuration, the lovely Garden Level half a flight down from the street, provides an oasis amidst the urban heat island and a sanctuary in the middle of the bustling city center. Offering a variety of natural and manmade shading features, the quiet perimeter offices of the garden level provide a range of sunlight modification from full sun to dense shade, and with some wonderfully nuanced mottled-lighting in between. This mezzo environment affords the public opportunity to cool down or decompress before embarking on another municipal adventure while simultaneously allowing city staff the chance to seek inspiration in the perpetuation of that great democracy that arises naturally in one form or another in any well-bonded group.

SPECIFIC HISTORIC CONTEXTS CONSIDERED –

To evaluate the historic significance of cultural resources and their eligibility for inclusion in historic property registers, a site or property must be understood within its interpretive contexts. Research for historic property designation uses historic contexts to synthesize information about the period, the place, and the events that created, influenced, or formed the backdrop of the historic resources. Research is designed to help explain the cultural and historical development of the property, document its historic significance, and substantiate a recommendation for designation.

Tempe HPO research prepared for the HPC Neighborhood Meeting on December 08, 2011, used several historic contexts to arrive at a preliminary determination of eligibility under multiple criteria for historic designation and listing Tempe Municipal Building in the Tempe Historic Property Register.3

Community Planning & Development in Tempe, Arizona 1968-1970
Planning and construction of a new Tempe Municipal Building, which began in earnest in 1968, concluded with opening the building in 1971. One component of a comprehensive campaign to renovate and modernize the city’s facilities infrastructure, construction was financed through the sale of municipal bonds. Construction of the new city hall occurred simultaneously with the development of a new cultural center campus on city land at Rural Road and Southern Avenue. Development of the cultural center introduced an alternative to locate a new city hall away from the downtown. This would become highly controversial, as would the modern design of the Tempe Municipal Building which distinguished it from contemporaneous facilities constructed by the city and became the subject of much consideration and criticism alongside ongoing debate surrounding where to locate traditional city hall services. Now the centerpiece of the Harry E. Mitchell Government Complex, the Tempe Municipal Building is a unique pyramid of solar-bronzed glass and steel inverted in a sunken garden courtyard. Since opening in 1971, the Tempe Municipal Building has continued to provide a focal point for downtown redevelopment and a landmark for community building while supplying space for the growing community’s city government.

Michael Goodwin, Architect 1939-2011
Tempe City Hall is significant under NPS Criterion as the Work of a Master, noted long-time Tempe architect Michael Goodwin, who passed away May 9, 2011 at the age of 72. Along with his father Kemper, Michael Goodwin left an indelible mark upon the City of Tempe and the surrounding communities through his innovative architectural designs. Tempe’s iconic upside-down pyramid arguably serves as Goodwin’s greatest architectural accomplishment and provides a lasting vestige to the memory of a highly influential Tempe family.

Mid-Century Modern Architecture in the Salt River Valley, 1945 – 1975
Mid-century modern was one of the most prominent architectural styles of its time because of its impact on technological and stylistic advances. This architecture had a dramatic impact on the Salt River Valley. It has been noted as the only true attempt at creating a distinct Arizona architecture style. Mid-century modern style evolved from a coalescence of three types of modern design: Art deco, stripped classical, and streamlined modern. Although all have slight variations in modern techniques, they all aim to do one uniform thing: simplifying the building by removing ornamental details and incorporating crisp lines and curves. Mid-century modern was greatly influenced by the industrial design style that preceded it. It uses glass, concrete, and steel while also incorporating new technologies, materials, and methods to produce its own distinctive forms and geometries.
CONCLUSION –
Over the past 140 years, Tempe holds national, state, and local significance for its important role in the development of the Salt River Valley as a center of commerce and education, as a critical link in the transportation networks during the settlement of the territory, and for its associations with important political figures. Tempe’s unique heritage is exemplified in its significant cultural architecture and infrastructure. These qualities exist today in the Tempe Municipal Building as well as the rest of the downtown area. The Tempe Municipal Building, located at 31 East Fifth Street, between Mill and College Avenues, forms the heart of the Harry E. Mitchell Government Complex in the historic core of downtown Tempe. This historic site retains its identity as the nexus of community and democracy while the iconic building continues to be recognized as the center of a proud and progressive municipal government.

Tempe Municipal Building is significant because of its influence on downtown revitalization in Tempe during the 1970’s. Using many techniques associated with mid-century modern architecture, this building has become an iconic landmark of the downtown area.

REASONS FOR APPROVAL –
Tempe Municipal Building is eligible for historic designation and listing in the Tempe Historic Property register under Tempe City Code Section 14A-4. Designation of landmarks, historic properties and historic districts –
(a) The following criteria are established for designation of an individual property, building, structure or archeological site:
   (1) It meets the criteria for listing on the Arizona or national register of historic places;
   (2) It is found to be of exceptional significance and expresses a distinctive character, resulting from:
      a. A significant portion of it is at least fifty (50) years old; is reflective of the city's cultural, social, political or economic past; and is associated with a person or event significant in local, state or national history; or
      b. It represents an established and familiar visual feature of an area of the city, due to a prominent location or singular physical feature; or
   (3) If it has achieved significance within the past fifty (50) years, it shall be considered eligible for designation as a landmark if it is an integral and critical part of an historic district or demonstrates exceptional individual importance by otherwise meeting or exceeding the criteria specified in paragraphs (1) or (2) of this subsection above. At such time as a landmark becomes fifty (50) years old, it will automatically be reclassified as an historic property.

RECOMMENDATION –
The Historic Preservation Office recommends that the Historic Preservation Commission –

- MOVE THAT THE TEMPE HISTORIC PRESERVATION COMMISSION APPROVE THE NOMINATION AND RECOMMEND TO THE DEVELOPMENT REVIEW COMMISSION THAT THE TEMPE MUNICIPAL BUILDING BE DESIGNATED HISTORIC AND LISTED IN THE TEMPE HISTORIC PROPERTY REGISTER.

CONDITIONS OF APPROVAL –
None

CODE REFERENCE –
City Code Chapter 14A, Historic Preservation
Zoning and Development Code, Section 6-304, Zoning Amendment
HISTORY & FACTS:

July 1964
Civic Center Site Selection Committee appointed by Council to investigate need and feasibility of a Civic Center for Tempe recommends site from Mill to College from 3rd to 6th Streets (17 acres at base of butte with 75 structures mostly dilapidated).

Jan 01, 1966
Tempe Planning Department prepares site and traffic studies for new city hall construction. Projected employee and space needs 1965 to 1985, design factors, site plan analysis, description of buildings, general cost estimates, and recommended development schedules were evaluated under this program for property acquisition.

July 1966
Tempe Planning & Van Cleve report on Community Facilities as part of Comprehensive Planning Program with grant from Urban Renewal Administration of the HHFA under the Urban Assistance Program. 1999.2035.109

Sept 27, 1966
Tempe voters reject 2-1 borrowing $1.6M to buy downtown civic center site and to form a nonprofit corporation to finance construction of buildings. 2001.0000.0154

c. 1967
Tempe Municipal Buildings Corporation sold $2.5M bonds for City Hall and Cultural Complex at Rural & Southern. Tempe Municipal Buildings Corporation sold $1.65M bonds for Library Community Center. 2000.0000.1003

May 25, 1967
Tempe’s first comprehensive land use plan, General Plan 1967, recommended keeping the Civic Center (City Hall) and the Cultural Center (Library) together at one downtown location.

June 19, 1968
Tempe contracts Frank Kelly MAI to review and update appraisals for condemnation of properties within the proposed Tempe Civic Center Complex site on 5th Street. 2000.0000.685

March 19, 1969,
All City offices, including the library, were moved to temporary quarters in Danelle Plaza, 3300 S. Mill Avenue. The deserted buildings were razed and construction began on a new City Hall at the same site, 31 E. Fifth Street, and on a cultural complex at Rural Road and Southern Avenue. http://www.tempe.gov/library/about/libhist.htm

November 21, 1969
After years of planning, Council give go-ahead to new city hall building by a 4-2 vote with Vice Mayor William J. LoPiano abstaining.

Jan 01, 1970
United States Congress enacts the National Environmental Policy Act of 1969 in which the "cultural environment" is considered through provisions to preserve important historic, cultural, and natural aspects of our national heritage

April 1970
City decides downtown conditions will require major effort to restore area to position of prominence in community - hire Candeub, Fleissig & Associates for preparation of survey and planning application for urban renewal funding 1999.2043.359

Dec 1970
In December 1970 citizens authorized the first comprehensive long-range bond program - $15.5M supplement for capital improvements over 6 - 10 years 2000.0000.709

Jan 14, 1971
Tempe adopts “Workable Program” with application for funding the overall redevelopment program under the Federal Neighborhood Development Program (predecessor to CDBG program). 1999.2043.186
<table>
<thead>
<tr>
<th>Date</th>
<th>Event Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 20, 1971</td>
<td>The Tempe Centennial in 1971 and the American Bicentennial in 1976 inspired renewed pride in the community’s history and landmarks.</td>
</tr>
<tr>
<td>August 1971</td>
<td>City Hall construction at 31 East Fifth Street completed. Planning began in 1968 financed through sale of bonds through a non-profit corporation and repaid with tax revenues. Redevelopment replaced the original City Hall building ca. 1914.</td>
</tr>
<tr>
<td>October 1, 1971</td>
<td>Dedication ceremony for new City Hall building at 31 E 5th Street on the site of the old city hall.</td>
</tr>
<tr>
<td>September 2011</td>
<td>Mayor Hugh Hallman drafts letter of support for historic designation of Double Butte Cemetery.</td>
</tr>
<tr>
<td>November 16, 2011</td>
<td>HPO staff presents Determination of Eligibility to Tempe Double Butte Cemetery Advisory Committee and receives unanimous support for listing on Tempe Historic Property Register.</td>
</tr>
<tr>
<td>December 08, 2011</td>
<td>Tempe HPC approves determination of eligibility for Double Butte Cemetery.</td>
</tr>
</tbody>
</table>
ENDNOTES

1 azcentral.com accessed online December 19, 2011 http://www.legacy.com/obituaries/azcentral/obituary.aspx?n=michael-kemper-goodwin&pid=150853683  “Goodwin was an important architect in the Phoenix, Arizona area, and the only architect to have served in the Arizona House of Representatives. He was also the first winner of the Arizona Chapter of the AIA’s Arizona Architects’ Medal and was named a Fellow of AIA in 1978. One of the Valley’s most esteemed architects, Goodwin, whose parents were Mary and Kemper Goodwin, was the grandson of Tempe pioneers Garfield and Jenny Goodwin. His. He worked with his father in the architectural firm of Michael & Kemper Goodwin Ltd. Michael joined his father’s firm in 1967, and they designed many K-12 schools, including Marcos de Niza and Corona del Sol high schools together.”


3 Ibid
ORDINANCE NO. 2011.54

AN ORDINANCE OF THE CITY COUNCIL OF THE CITY OF TEMPE, ARIZONA, AMENDING THE CITY OF TEMPE ZONING MAP, PURSUANT TO THE PROVISIONS OF ZONING AND DEVELOPMENT CODE PART 2, CHAPTER 1, SECTION 2-106 AND 2-107, RELATING TO THE LOCATION AND BOUNDARIES OF DISTRICTS.

*******************************************************************************

BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF TEMPE, ARIZONA, as follows:

Section 1. That the City of Tempe Zoning Map is hereby amended, pursuant to the provisions of Zoning and Development Code, Part 2, Chapter 1, Section 2-106 and 2-107, by adding an Historic Overlay to the existing City Center zoning district with an Historic Overlay on 2.77 acres at the landmark Tempe Municipal Building.

LEGAL DESCRIPTION - LOT NUMBER TWO (2) OF "CITY HALL COMPLEX", BOOK 991 OF MAPS, PAGE 31, ACCORDING TO THE PLAT OF RECORD IN THE OFFICE OF THE COUNTY RECORDER OF MARICOPA COUNTY, ARIZONA.

TOTAL AREA IS 2.77 ACRES

Section 2. Further, those conditions of approval, if any, imposed by the Tempe City Council as part of Case # PL110343 are hereby incorporated into and adopted as part of this ordinance by this reference.

Section 3. Pursuant to City Charter, Section 2.12, ordinances are effective thirty (30) days after adoption.

PASSED AND ADOPTED BY THE CITY COUNCIL OF THE CITY OF TEMPE, ARIZONA, this EIGHTH day of MARCH, 2012

Mayor

ATTEST:

City Clerk

APPROVED AS TO FORM:

City Attorney
On December 8, 2011, Tempe Historic Preservation Commission held a neighborhood meeting to designate historic and list in the Tempe Historic Property Register the Tempe Municipal Building at 31 E. 5th Street. This meeting was held pursuant to the requirements of Section 6-402 of the Tempe Zoning & Development Code to take input and comments from stakeholders and from the commission. The commission found the nomination complete and reached consensus to hold a public hearing for historic property designation and listing of the Tempe Municipal Building at their monthly meeting on January 12, 2012. The following is a summary of the neighborhood meeting.

Chair Bilsbarrow called the neighborhood meeting to order and directed staff to summarize the application and proposed action. Staff stated an application for historic designation was submitted by the property owner, City of Tempe. Staff noted a preliminary determination of eligibility has been prepared by HPO detailing the history and facts of the property and is available for review online or at HPO. Staff noted historical research is ongoing and requested additional information and comments from stakeholders and from the commission at this time.

Chair Bilsbarrow called for discussion by the commission. Commissioner Gregory stated that the criterion of significance are not clearly stated in the report and emphasized that Criteria ‘C’ should be stressed over other criterion. Also, she stated that the report should emphasize downtown Tempe redevelopment and commercial architecture as important themes. Staff indicated that the DOE would be revised to conform to commissioner suggestions to the greatest degree possible.

Chair Bilsbarrow called for public comment and asked for a show of hands from the public present to indicate support for the nomination. Unanimous support was indicated from persons identified in the record of meeting attendance.

Chair Bilsbarrow asked if there was a consensus from commission members.

**Consensus:** that the Tempe Historic Preservation Commission hold a public hearing to consider nomination of the Tempe Municipal Building for historic designation and listing in the Tempe Historic Property Register at their meeting on 12 January 2012.
Project Submittal Application

Project Name: Tempe Municipal Building Historic Designation

Project Address: 31 E Smith St, Tempe AZ 85281

Proposed Use of Building/Suite:

Existing Zoning: City Center

Legal Description: Attached

Description of Work/Request: Historic (Landmark) Designation

Valuation (for building plan review only):

Applicant Information - Required

Company or Firm Name: Tempe Historic Preservation Office

Applicant's Name: Joe Nucci

Applicant's Street Address: 31 E Smith St

City: Tempe

State: AZ

Zip: 85281

Email Address(es): jnnucci@tempe.gov

Applicant Signature: [Signature]

Date: 09/30/2011

Planning

☐ SPR

☐ Dev Plan Review

☐ Sign Permit

☐ Use Permit

☐ Variance

☐ General Plan Amend

☐ Zoning Amend

☐ Zoning Verification Letter

☐ Subdivision/Condo

☐ PAD Overlay

☐ Legal Posting Signs

☐ Administrative Decision

☐ Abatement

☐ Shared Parking

☐ CCR Review

☐ Continuance

☐ Appeal

☐ Other

Fire

☐ Tanks

☐ Spray Paint Booth

☐ Special Extinguishing

☐ Fire Alarm

☐ Kitchen Hood System

☐ Rack Storage

☐ Hazmat

☐ Other

Building

☐ New Building

☐ Complete

☐ Preamble

☐ Add/Alt

☐ Ti

☐ AFES (O/H)

☐ MF

☐ NRos

☐ Res Remodel/Add

☐ Pool

☐ Demo

☐ Grading Only

☐ Phased Consr

☐ Phased Constr

☐ w/UG MEP

☐ Structural Frame

☐ MEP Only

☐ Mobile Home

☐ Factory Built/Mod

☐ Deferred Submittal

Engineering

☐ Engineering

☐ Revision

☐ Tracking Nos.

☐ Building

☐ Fire

☐ Planning

☐ Signs

☐ Engineering

☐ Spec Book(s)

☐ Soils Report

☐ Structural Calc

☐ Report

☐ Trust Calc

☐ Materials

☐ Hydraulic Calc

☐ Color Board

☐ Parking Analysis

☐ Haz Mat Form

☐ Lighting Cut Sheets

☐ Other

Submitted Materials:

Total Valuation:

Total Submittal Fees:

Validation:

Date Stamp:

Received By:

File With:

MCA Code:

Please See Reverse for Instructions, Submittal Information and Time Limit of Application

Rev. 2/19/2009
Sept. 30, 2011

Dear Tempe Historic Preservation Commission members,

In the late 1960s, my City Council predecessors decided to keep City Hall downtown – and in doing so ended years of disinvestment and decay in the district. Perhaps more than any other single action, construction of the new Tempe Municipal Building demonstrated the City’s commitment to bring new life to downtown through redevelopment of the historic core.

Tempe architects Michael and Kemper Goodwin designed the building, in the Modern Commercial style, in 1968 and it opened two years later. Since then, many honors and awards have been bestowed upon the Municipal Building, as its timeless and transparent architecture express a city government accessible to all. In another metaphor, the structural axes radiate outward from the building and across the site to embrace and integrate with the community.

More important to you, the Tempe Municipal Building has achieved significance within the past 50 years while meeting criteria for designation as a landmark specified by ordinance. Once so listed, in year 2020 when the building becomes 50 years old, it will automatically be reclassified as an historic property.

In recognition of the significance of the building, it is with pride that I introduce this application for Historic Property Designation and encourage your favorable consideration of listing the Tempe Municipal Building in the Tempe Historic Property Register.

Cordially,

Hugh Hallman
Mayor of Tempe

HH/mb
Attachment C
TEMPE MUNICIPAL BUILDING

Name: Tempe Municipal Building
Location: 31 East 5th Street
Tempe
Maricopa County
Arizona

Present Owner, Present Occupant, Present Use:

The City of Tempe presently owns and uses the facility. The occupants are:

Third Floor: City Manager, City Attorney,
City Clerk, Personnel Director,
Public Works Director,
Management Services Director
Second Floor: Finance Director, Accounting,
Licenses, Purchasing
First Floor: Reception, Customer Service
Basement: Council Chambers
Lower Level: Engineering, Data Processing
Equipment, Duplicating, Building Safety, Planning, Personnel.

Significance:

The Tempe Municipal Building, erected in 1971, was designed to be a unique and innovative focal point, the purpose of which was to supply adequate space for the growing community's city government. Aesthetics, accessibility, energy conservation, and expandability were the major components of its architectural concepts. In addition, the building was to provide maximum space without overpowering the available site -- near Tempe's Central business district. This particular location was selected by the City Council to show confidence in the downtown area; consequently, it was felt that the building should exemplify progress in government yet have a timeless beauty that would be compatible with future redevelopment.
Part I. Historical Information

A. Physical History

1. The structure, which was built during 1969-1971, was dedicated on October 2, 1971.

2. The architects selected for the project were Michael and Kemper Goodwin, residents of Tempe, whose previous work included the Language and Literature Building on the Arizona State University campus. The designing architects were Rolf O. Osland and Michael Goodwin.

3. Included among the builders, contractors, and suppliers were:

   Structural Engineers: Hanlyn, Mann, and Anderson
   Mechanical Engineers: Lowry and Sorensen
   General Contractors: M.M.-Sundt Construction Company
                       Phoenix, Arizona
   Glass: CE Glass, Pennsauken, N.J.
   Aluminum Entrances: Republic Aluminum Company, Richardson Texas
   Windowwall Fabrication and Glazing: Volkmer Mfg., Dallas
   Porcelain Panels: Wolverine Porcelain Enameling Company, Detroit
   Structural Gaskets: Standard Products Company, Port Clinton, Ohio

Part II. Architectural Information

A. Description of Exterior

The central tower of the Tempe Municipal complex (which houses the city's administrative body) is a three-story structure shaped like an inverted pyramid. This tower rises from a basement level (2,025 square feet) in which are located the City Council Chambers (5,000 square feet). The forty-five foot square first floor contains 2,025 square feet; the second is a seventy-five foot square comprising 5,625 square feet; the third is a one-hundred foot square encompassing 10,000 square feet. The tower's roof measures as a one-hundred-and-twenty-six-foot square containing 15,876 square feet. The total tower area comprises 20,000 square feet.

It should be noted that a unique stair tower is attached to the inverted tower via bridges at each floor level. This tower, made of poured-in-place concrete, serves as a fire exit since it is not accessible as an entrance.
In the mid 1960's it became obvious that existing municipal office buildings were inadequate. The City Manager and his staff shared a former fire station with the Personnel Officer, the Parks Department operated out of an old house, Engineering services were housed in an old adobe home, and the City Council chambers could hold only a handful of people. Every office was crowded and disjointed.

To show confidence in the downtown area the City Council chose to preserve the historic municipal building site and to construct its futuristic governmental center at the old address. The new complex is exciting in many respects.

In addition to enhancing the effectiveness of the municipal government, the City Council felt that the building should seem accessible and inviting to Tempe's citizens. It was felt that the building should exemplify progress in government yet have a timeless beauty that would be compatible with future redevelopment.

In order to build a structure containing in excess of 50,000 square feet without overpowering the site, the complex was designed to include a central tower with perimeter offices that are partially subterranean. The perimeter offices surround the central tower on three sides with a fourth side reserved for future expansion.

The architects sought to maximize the window area in the central tower but recognized the constraint imposed by Arizona's summer sun.

In most glass-walled structures, reflective glass or sun screens are employed to reduce heat transmitted to the interior. On this building, however, reflective glass would throw excessive heat across the open plaza and into the perimeter buildings. Sun screens would destroy the appearance of the glass cage design. To overcome these obstacles, the building was turned so that the smallest possible area is exposed directly to the mid-afternoon sun. The glass walls are set at forty-five degree angles upward. The building rises from a forty-five foot square first floor to a one hundred and twenty-six foot square roof. The use of sun-bronze tinted glass, together with the shade provided by the tiled walls, allows only eighteen percent of the sun's heat to pass through the windows on the hottest summer day.

Floor space is equally divided between the central pyramid and the perimeter buildings. The Mayor, City Manager and several key management services are located in the central pyramid. The departments with extensive, direct, day-to-day contact with the public, Planning, Building Inspection, Engineering and Parks and Recreation are located in the perimeter.
Because of the initial space requirement (50,000 square feet), the complex was designed to include partially subterranean buildings (20,000 square feet) forming a square with the tower at its center; presently, however, only three sides are being utilized. The roofs of these buildings double as walkways surrounding the tower; bridges over sunken gardens link the perimeter offices with the central structure.

The exterior walls of the inverted pyramid are mostly glass. Since reflective glass would have heated the perimeter area excessively and since sunscreens would have destroyed the aesthetics of the glass cage design, the selected glass was \( \frac{1}{4} \)" tempered bronze-tinted polished plate glass. The non-glass portion of the exterior walls is composed of either window mullions or building structure. The exterior surfaces of these are porcelain. The spandrel panels between floors are composed of a laminated porcelain enamel panel, an air space, gypsum board, insulation, plywood (continuous between columns), and carpet.

The perimeter office walls facing the center tower are \( \frac{1}{4} \)" tempered clear polished plate glass and insulated porcelain enamel panels; these are framed by an 8" rough-textured concrete structure.

B. Description of Interior

The general layout of the exterior consists of perimeter executive offices partitioned with glass panels. Remaining work areas reflect a flexible open-office system utilizing modular desk and shelving arrangements.

The sense of openness is enhanced by the white rough-textured ceiling panels and smooth perimeter walls (the windows of which are draped in open-weave off-white fabric). Gold tweed carpeting covers all floor area. Additional color is provided by yellow filing cabinets, orange and yellow chairs, and orange or yellow shelving. At the center of each level are the elevator and stairwell.

C. The building faces have been oriented NE, NS, SE, and SW so as to improve the shading effect of the sloped walls. Although the building is accessible on all four sides, the NW entrance is considered to be the primary one.

1. This material has been excerpted from Building Description Report on the Tempe Municipal Building by William C. Weinaug, the Pennsylvania State University, October 13, 1980.
Landscaping surrounding the central tower utilizes a terraced subterranean garden surrounded by the perimeter offices. Plantings include manicured hedges, a variety of trees from pines to palms, and flowering bushes.

Prepared by Maryanne C. Corder
Management Intern
August 28, 1981
Tempe, Arizona's maximum
Solar energy condition at
4:00 pm - West wall - August

35% reflected
40% absorbed
20%

1%
6%
3%
solar bronze tempered glass

45°

18% Total heat into
occupied space

10%
solar drapes
transmission
equal to 8%

return air

variable vent air system
following the sun's load
Tempe Municipal Building
31 East 5th Street
Tempe
Maricopa County
Arizona

J. Paul Ahern, AIA, photographer, winter 1983

AZ-142-1 Lower plaza level showing entrance, direction unknown
AZ-142-2 Lower plaza level showing plantings, direction unknown
AZ-142-3 Lobby level, looking east
AZ-142-4 Lobby level, looking northeast
AZ-142-5 Lobby level, looking northwest

4 x 5 prints from 35mm negatives
Attachment D
EXECUTIVE SUMMARY

This Renovation Plan & Cost Estimate was commissioned by the City of Tempe to further examine the 2008 *City of Tempe Municipal Building Assessment* prepared by the DLR Group and to offer solutions and remedies for key areas identified as being deficient. Our assignment was to perform forensic DUE DILIGENCE, PRELIMINARY DESIGN, and COST ESTIMATING.

FIVE PRIORITIES:
The City Staff internally reviewed the earlier DLR Assessment Report and identified five main priorities for improvement; **Building Envelope, Structural, Waterproofing, ADA Accessibility, and Exterior Lighting**. Life Safety, Risk Management, Public Safety & Security, ADA compliant Public Access, long-term Maintenance, Energy Conservation, and Preservation of the Historical Character of this notable Landmark were all defining factors in our approach to the work.

The primary aim of this study is to estimate preliminary costs in a gradient from critical high priority renovation needs to lesser priority but potentially longer term optional solutions that will protect and enhance the facility for many years to come.

Phasing of improvements and procurement of work in smaller Job Order Contracting bid packages is recommended thereby promoting specialized quality oriented treatments in each area of specialty. Highest priority needs should be addressed first, especially those determined to be Life Safety Issues.
INTRODUCTION / METHODOLOGY

Our Initial Due Diligence efforts included detailed research and close examination of the existing conditions of the site, building, and other features. Team Specialists applied their respective areas of expertise to rank the issues from prime to lesser concern. We teamed with a core group of Tempe City Staff led by Project Manager Chris Kabala to coordinate and affirm our efforts.

The team was led by Tempe Architect Michael Wilson Kelly, together with Structural Engineers Richard Turley & Jennifer Sheppard of Caruso Turley Scott, Inc., Mechanical Engineer Thomas Valentino and Electrical Engineer Jim Morris of Energy Systems Design, Inc., Civil Engineer Chris Jones of Brady-Aulerich, Building Envelope Specialist Mike Bourassa of Heitmann & Associates, and Cost Estimator Vince Notaro of Construction Consultants. We visited the site, collectively and individually, many times between September and November of 2009. Pre-existing drawings of the site and buildings were available from the City and digital photography was used to verify and document individual features and conditions.

NEEDS ASSESSMENT INTERVIEW METHODOLOGY:
All key Stakeholders were interviewed to seek both general and specific opinions about existing conditions and new recommendations. All Stakeholders were asked to give input about deficiencies, new ideas, and the future needs of the Complex. While we sought to remedy the current conditions efficiently and cost effectively, we remained cognizant of emerging technologies and methods of treatment that significantly reduce the cost of long-term operations and maintenance, reduce energy consumption, and meet future needs while enhancing the aesthetic effect of the Complex.

DECISION MATRIX:
To facilitate consensus decision-making and to highlight all the factors entering into the equation, we put together a matrix based on the FIVE PRIORITIES. The primary factors were: Trade Specialty or Type of Improvement, Location, Treatment Options, Initial Assessment Cost Estimate Ranges presented in the DLR Report (to be verified and updated by our team), Disruption Factors (degree of disruption of sensitive operations and/or inconvenience), Optimum Schedule (best time of year, etc.), Procurement Method Options, Iconic Landmark Factors, and Risk Management Remarks (public safety, security, etc.).

RENOVATION WORK TASK PLAN
Derivative of the Decision Matrix, this Plan organizes the FIVE PRIORITIES as Work Groups factoring Tasks/Construction Trades, projected Duration of Improvements, Special Considerations, Temporary Measures & Controls, Long Lead Items, and Logistics.
COST ESTIMATE:
Preliminary Cost Estimates take into account the specialized nature of remediating each building feature including all construction material, labor, and overhead costs attributable to the job. We provided costs for a short range of options in some cases.

Report findings and recommendations are hereby documented. Work items are logically grouped and prioritized in order to aid future design, bidding and construction. Specialized Technical Reports were prepared by each of the specialty sub-consulting firms and are included in each of the Five Priority Sections.
PROPERTY DESCRIPTION

The Tempe Municipal Building is a nearing 40 years old. Originally designed by noted Tempe Architect Michael Goodwin in 1969, it recently received special recognition, the 25-Year Award from the American Institute of Architects (AIA) for its enduring iconic landmark status. It may soon be nominated as an historic structure.

The centerpiece of the greater Harry Mitchell Tempe Municipal Complex is the raised Plaza level forming a plinth for the 3-story inverted glazed pyramidal Tower which is rotated 45 degrees to the surrounding street grid. The four sides of inverted pyramid slope 45 degrees inward toward its base. Pedestrian bridges span openings to the Garden Level below. The Tower is home to the Mayor’s Office, City Council, City Manager, and primary City Administrative and support staff.

The Garden Level evolved over time. Originally a U-shaped configuration with the west end open, a master planned Engineering/Public Works addition enclosed the quadrangle in 1985. In 1997, the east Development Services wing was expanded to match the wider west wing. Primary public stair access points are located at the north and south ends. Long ADA access ramps were later added at the northwest and south sides.

The Garden Level houses City offices offering public interface including Development Services and Engineering/Public Works. They look inward to a tranquil landscaped micro-environment dominated by large, mature ficus trees. The Tempe City Council Chambers are located on the north end.

Surrounding the the Tempe Municipal Building at grade level is a landscaped Park/Plaza managed and maintained by the Parks & Recreation Department.
<table>
<thead>
<tr>
<th>Assessment Priority</th>
<th>Trade/Type</th>
<th>Location</th>
<th>Treatment Options</th>
<th>DLR Estimated Cost To Be Verified</th>
<th>(1-10) Disruption Factor</th>
<th>Optimum Schedule</th>
<th>Procurement Method Options</th>
<th>Iconic Landmark Factors</th>
<th>Risk Management Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building Envelope</td>
<td>Glazing (Curtain Wall)</td>
<td>Tower</td>
<td>Partial (7 panels) (Laminate film)</td>
<td>$65 K - $77 K</td>
<td>8</td>
<td>Off-Hours</td>
<td>JOC</td>
<td>Match Original</td>
<td>High Priority</td>
</tr>
<tr>
<td></td>
<td>Glazing (Storefront)</td>
<td>Garden</td>
<td>Full Single Pane (Laminated)</td>
<td>$1,150 K - $1,280 K</td>
<td>10</td>
<td>Check with Third Floor</td>
<td>D/B/B or CMAR</td>
<td>Match Original</td>
<td>Highly Disruptive, Temporary Offices may be required</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Full Replacement (Insulated Low E)</td>
<td>$393 K - $424 K</td>
<td>8</td>
<td>Spring/Fall (best weather)</td>
<td>D/B/B or CMAR</td>
<td>Match Profile &amp; Spacing</td>
<td>Upgrade Security</td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td>$1,61 M - $1,76 M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Structural</td>
<td>Concrete</td>
<td>Plaza</td>
<td>Plaza Level Paving</td>
<td>$1.0 K - $1.5 K</td>
<td>3</td>
<td>Avoid</td>
<td>JOC</td>
<td>Match Exposed Aggregate Concrete</td>
<td>All Publicly Accessible Areas will require Temporary Pedestrian Controls</td>
</tr>
<tr>
<td>Steel</td>
<td>Garden Canopy (cracked beams)</td>
<td></td>
<td></td>
<td>$5.0 K - $8.0 K</td>
<td>4</td>
<td>Summer</td>
<td>JOC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Landscaping (Ficus Trees)</td>
<td>Garden Site &amp; Stairs</td>
<td></td>
<td></td>
<td>$4.0 K - $7.0 K</td>
<td>4</td>
<td>Concrete Placement (shrinkage)</td>
<td>JOC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Light HVAC Walls</td>
<td></td>
<td></td>
<td>$9.0 K - $15.0 K</td>
<td>4</td>
<td>(shrinkage)</td>
<td>JOC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td>$19.0 M - $31.5 K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Waterproofing</td>
<td>Concrete</td>
<td>Plaza</td>
<td>Replace Bridge</td>
<td>$15 K - $35 K</td>
<td>5</td>
<td>Coordinate with Structural Concrete</td>
<td>JOC</td>
<td>Match Exposed Aggregate Concrete</td>
<td>Building Inspector's Office high priority</td>
</tr>
<tr>
<td>Waterproofing</td>
<td>Waterproofing</td>
<td></td>
<td>Waterproofing &amp; conc. topping</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caulking &amp; Sealants</td>
<td>Plaza</td>
<td>Recaulk Main Level Seal Brick pavers</td>
<td>$66 K - $93 K</td>
<td>2</td>
<td></td>
<td>JOC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td>$81 K - $128 K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ADA Accessibility</td>
<td>Priority 1 Group</td>
<td>Site Work</td>
<td>General Compliance</td>
<td>$77 K - $242 K</td>
<td>7</td>
<td>Coordinate with Structural Concrete</td>
<td>D/B/B or CMAR</td>
<td>Key Historical Consideration-</td>
<td>FOCUS: Improve All Publicly Accessible Areas, Provide Temporary Pedestrian Controls</td>
</tr>
<tr>
<td></td>
<td>Priority 2 Sub-Group</td>
<td>Horizontal</td>
<td>Interior</td>
<td>$58 K - $104 K</td>
<td>3</td>
<td>Coordinate with Structural Concrete</td>
<td>JOC</td>
<td>Key Historical Consideration-</td>
<td>FOCUS: Improve All Publicly Accessible Areas, Provide Temporary Pedestrian Controls</td>
</tr>
<tr>
<td></td>
<td>Priority 2 Sub-Group</td>
<td>Vertical</td>
<td>All Levels</td>
<td>$43 K - $77 K</td>
<td>10</td>
<td>Concrete</td>
<td>JOC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Priority 3 Group</td>
<td>Toilets</td>
<td>All Levels</td>
<td>$41 K - $74 K</td>
<td>6</td>
<td>Concrete</td>
<td>JOC</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Priority 4 Group</td>
<td>Misc.</td>
<td>All Levels</td>
<td>$0.4 K - $0.72 K</td>
<td>2</td>
<td>Concrete</td>
<td>JOC</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td>$219.4 K - $497.72 K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lighting</td>
<td>Electrical</td>
<td>Plaza/Garden</td>
<td>Uniformity, Simplify Update (LED) Improve Controls (EMS)</td>
<td>$280 K - $420 K</td>
<td>3</td>
<td>TBD</td>
<td>D/B/B or CMAR</td>
<td>Augment or Replace Original Plaza Fixtures</td>
<td>FOCUS: Security CPTED, Dark Sky &amp; ADA Compliant</td>
</tr>
<tr>
<td>Conventional Scheme vs. Progressive Scheme</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Subtotal</td>
<td></td>
<td></td>
<td></td>
<td>$280 K - $420 K</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TOTAL</td>
<td></td>
<td></td>
<td></td>
<td>$2.21 M - $2.84 M</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**NOTE:** Range of Costs from DLR 2008 City of Tempe Municipal Building Assessment Report to be verified. See Cost Estimate.
## City of Tempe Municipal Complex Renovation
### RENOVATION WORK TASK PLAN

#### November 30, 2009

<table>
<thead>
<tr>
<th>Work Group</th>
<th>Tasks/Trades</th>
<th>Duration</th>
<th>Special Considerations</th>
<th>Temporary Measures &amp; Controls</th>
<th>Long Lead Items</th>
<th>Logistics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Building Envelope</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tower</td>
<td>Selective Demolition</td>
<td>7 Days Prep Time</td>
<td>Temporary Enclosure Awaiting New Glazing</td>
<td>Remove perimeter Handrails, Public Safety Controls</td>
<td>Laminated Glazing Samples for Perfect Match</td>
<td>Analyze &amp; Test Proposed Methods of Removal &amp; Replacement</td>
</tr>
<tr>
<td></td>
<td>Glazing (Safety Film Option)</td>
<td>7 Days</td>
<td>Film &amp; Glazing installed from Interior Side, Clean Glass</td>
<td>Partial Metal Soffit Removal Required</td>
<td>Customized Trim required on Interior Side if Laminated Glass</td>
<td>Coordinate Optimal Install Schedule Install during Off Hours</td>
</tr>
<tr>
<td></td>
<td>Partial (7 panels)</td>
<td>7 Days</td>
<td>Match Existing Glass</td>
<td>Shoring</td>
<td>Have back-up pane ready</td>
<td>Internal COT Coordination required</td>
</tr>
<tr>
<td></td>
<td>Full Single Pane (Laminated)</td>
<td>45-60 Days</td>
<td>Match Existing Glass Structural Analysis of Added Weight of</td>
<td>Shoring of Bridges for Lift or Crane, Metal Soffit Removal &amp; Replacement Required</td>
<td>Perfect Paint Sample Match Have back-up panel(s) ready</td>
<td>Paint Steel &amp; Seal Metal Cladding prior to Re-Glazing</td>
</tr>
<tr>
<td></td>
<td>(Aluminum Storefront)</td>
<td></td>
<td></td>
<td></td>
<td>Customized Alum.Trim required on Interior Side if Laminated Glass</td>
<td>Re-glaze &amp; Seal All Panes</td>
</tr>
<tr>
<td></td>
<td>(Full Replacement)</td>
<td>30 Days</td>
<td>Upgrading Glazing to Insulated Low E</td>
<td>Move or Shield Interior Furnishings away from Windows</td>
<td>Low E Insulated Glazing, Aluminum Storefront System</td>
<td>Execute One City Department at a time in Sequence</td>
</tr>
<tr>
<td><strong>Structural</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plaza</td>
<td>Concrete, Steel</td>
<td>7 Days</td>
<td>Continued City Business Access</td>
<td>Divert &amp; Protect Pedestrians</td>
<td></td>
<td>Selective Demo required</td>
</tr>
<tr>
<td>Garden</td>
<td>Concrete Steel Landscaping (Ficus Trees)</td>
<td>14 Days</td>
<td>Continued City Business Access</td>
<td>Divert &amp; Protect Pedestrians</td>
<td>Concrete Samples aid Color Match when cured</td>
<td>Selective Demo required Thin Trees Prior Pre-Quality Concrete Repair Specialist</td>
</tr>
<tr>
<td><strong>Waterproofing</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plaza/Garden</td>
<td>Concrete Flashing Waterproofing Caulking &amp; Sealants</td>
<td>28 Days</td>
<td>Match Existing Exposed Aggregate Finishes Protect Brick &amp; Concrete during Pyramid Re-Glazing</td>
<td>Vacate Building Inspector’s Office During Work</td>
<td>Concrete Samples aid Color Match when cured</td>
<td>Coordinate with Other Concrete Flat Work for Best Match Seal Brick at base of Building following Pyramid Re-Glazing</td>
</tr>
<tr>
<td>Garden</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>ADA Accessibility</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plaza/Garden</td>
<td>Site Work Horizontal Vertical</td>
<td>TBD</td>
<td>FOCUS: Public Access Improve per Employee Needs No changes to Stairs &amp; Elevator</td>
<td>Divert &amp; Protect Pedestrians</td>
<td>Process- Historic Preservation Discussions if modifying Iconic Features</td>
<td>Coordinate with other Structural Concrete Work</td>
</tr>
<tr>
<td>Interior All Levels</td>
<td>All Levels Toilets Misc</td>
<td>TBD</td>
<td>ADA Toilet Remodeling</td>
<td>Maintain Adequate ADA Facilities during Construction</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All Levels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Lighting</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Progressive Scheme Electrical</td>
<td>30 Days</td>
<td>Conceal Conduit</td>
<td>Temporary Pedestrian Controls at Garden Level</td>
<td>Design Review, Photometrics</td>
<td>Demolition, Patch &amp; Repair Install New Fixtures</td>
</tr>
</tbody>
</table>
**PRIORITY 1: BUILDING ENVELOPE**

Please see the following TECHNICAL REPORT by HEITMANN & ASSOCIATES.

**Overview:**

**TOWER:**

The inverted pyramidal Tower is a steel-framed structure clad in bronze porcelain enamel finish metal panels and single pane bronze tinted tempered glass in medium bronze anodized aluminum frames. The 2008 DLR Assessment Report identified 7 glass panels and several metals panels as damaged and potentially hazardous if not properly secured.

**STEEL FRAME:** The exposed steel frame is painted to match the metal cladding. However, after 40 years, it is fading and chalking. It needs to be repainted the original color.

**METAL CLADDING:** Our task was to perform a closer inspection by removing several metal panels to identify any potential fastening and sealant failures. We found that the panels harbored only minor ill effects. With the removal of 40-year old sealants and replacement with newer silicone based products, that they should stand the test of time for another 40-50 years.

**CURTAIN WALL GLAZING:** Technically, this Tower is considered a giant "skylight" in terms of its Building Code classification. Therefore, the existing 1/4 inch thick tempered glass, should it shatter and fall, represents a potential life safety hazard. The 2006 International Building Code (IBC) requires laminated glass which adds a thin layer of plastic between two panes of fused glass to prevent shattering. The biggest drawbacks with the full replacement option are the degree of disruption it would cause to critical internal operations, the logistics involved, and the high cost. The replacement of the 7 identified damaged panes with laminated glass would trigger full replacement by Code. Each pane would require a full day to replace because they are installed from the interior side requiring temporary railing and soffit removal.

**LAMINATED GLAZING FULL REPLACEMENT OPTION:** Alternatively, we have studied and priced full replacement of all Tower glazing with a single layer of 9/16 bronze tinted laminated safety glazing. This unit is double the thickness of existing 1/4 inch bronze tempered, causing the interior side of the window frame to be customized and replaced.
The excessive cost, the logistics, and high degree of disruption are deterrents to pursuing this option.

**DUAL PANE INSULATED GLAZING OPTION:** Another option that we have studied and priced for comparison sake was full replacement of all Tower glazing with a one inch dual pane insulated units presumably to maximize energy conservation. This unit is comprised of a 9/16 inch layer of bronze tinted laminated safety glass on the exterior face and a 1/4 inch layer of clear glass on the interior side with airspace between, quadrupling the thickness of existing 1/4 inch tempered glass causing the interior side of the window frame to be customized and replaced. Energy Modeling of the Building using this system resulted in only marginal gains in energy efficiency primarily because the inverted façades are all shaded. The excessive cost, the logistics, and high degree of disruption are deterrents to pursuing this option.

**SAFETY FILM OPTION:** Similar in nature to laminated glass, we investigated the option of retrofitting a safety film on the interior side of the glass. Attached to the frame, it prohibits the glass from falling out in the event of breakage. The degree of disruption during application is very minimal and the cost is relatively inexpensive.

**GASKETS & SEALANTS:** Ultimately, all of the original gaskets and sealants are failing and need to be replaced with new gaskets and newer silicon based sealants.

**GARDEN LEVEL:**

**STOREFRONT GLAZING:** The perimeter Garden Level has two types of bronze/black storefront frames with single pane glass. The age and style of the frames vary with era installed and have differing performance characteristics. The west side black neoprene zipper gasket storefront frames are failing. Several newer infill storefront doors are poorly matched clear aluminum or have been poorly painted to match adjacent frames and are flaking. The doors have narrow style frames and the aluminum base panels of the doors do not meet current ADA criteria. Ideally, all of the storefront windows and doors would be systematically replaced to match the original and the glass upgraded to dual pane insulated. At minimum, all perimeter sealants should be inspected and replaced where failing.
REPORT

Date: December 16, 2009

Re: Tempe City Hall Municipal Complex
    Inverted Pyramid Tower & Garden Level Offices

Building Envelope Evaluation – Preliminary Design Services

This report will concentrate on 5 key point objectives of the building façade; Glass & Glazing, Metal Panels, Caulking, Steel Tube Framing, & Roof Coping, with a goal to maintain the preservation of the iconic nature of the original building design for future pursuit of Historical Landmark status. The building has received the special recognition “25-year award”, from the American Institute of Architects (AIA) as one the most recognizable buildings in the Valley.

The Tempe Municipal Building was originally designed in 1969, and will celebrate its 40th year anniversary in 2010. Many original components including the glass and metal panels exist in the condition initially installed. Minimal failures and reasonable wear-n-tear could be identified. Sealants have lasted beyond normal life and useful application allowing excessive air and the potential for water infiltration to breach the building facade. Today’s building codes and building design criteria have more stringent requirements, so careful consideration must be made to assure life safety concerns are considered. This building would benefit from an on-going maintenance plan to achieve the desired aesthetic appeal and performance for years to come.
1. Glass & Glazing – Pyramid Tower Overhead Glass

- **Life Safety** – all glass; including 7 previously identified glass panels from the City’s DLR Group Assessment Report, have been identified as potentially weakened and expose a hazard of broken/falling glass to the pedestrian area below.

  - **As Is** – ¼” Tinted Tempered Float Glass will fall out of frame when broken, creating liability/risk to the City if nothing is done.

- **Security Film Application** – 3M Anchored Film System approach

  - If glass breaks, it remains adhered to the film and the window glass connected/anchored to the frame, increasing personal safety from falling overhead glass.

- **Complete Replacement** – Replace existing glass and aluminum frame system with New 9/16” Laminated Safety Glass Monolithic Glass or Insulated Unit

  - Replace with new Laminated Safety Glass and new Aluminum Framing components to accommodate glass thickness and comply with updated building code requirements. Benefits include completely updated system for air & water tight application. High performance glazing to comply with Energy Code requirements, and improve Energy Conservation and building reduce cooling and heating costs.

*Attachment(s):*

1) 3M - Security Film Manufacturer Product Data Sheets, Pentagon ELITE Z-LOK Anchor Tape Data Sheets, 3M Security Film Compliance Letter of Application, Glass & Anchor Tape Samples
2) Glazing details for new glass & frame replacement option (Single) & (Insulated)
December 3, 2009

Michael Bourassa
Heitmann and Associates, Inc
5210 East Hampton Ave.
Mesa, AZ 85206

RE: Tempe Municipal Building

Dear Michael,

I have reviewed the pictures of the “inverted pyramid” building and conclude that the application of 3M SCLARL400 with Impact Protection Profile attachment will stabilize and hold the glass panel in place in the event of breakage.

This conclusion is based on the following:
> 5 pounds per inch of width peel adhesion of the film to glass
> 100 pounds per inch of width break strength and adhesive shear of the applied film
> 10 pounds peel adhesion, per inch of width of the IPP to film and anodized aluminum frame material
> 20 pounds per square inch shear strength of the IPP to film and anodized Aluminum substrate

If you have further questions please feel free to contact me.

Sincerely,

Ken B. Smith

Technical Service Specialist
Renewable Energy Division
3M center, Bldg. 207-IW-08
St. Paul MN 55144-1000
3M™ Impact Protection Adhesive Attachment System
Installation Instructions

3M™ Impact Protection Adhesive improves the overall performance of 3M™ Safety and Security Window Films. This unique window protection system combines the toughness of 3M’s patented micro-layer safety film with 3M’s world-class expertise in adhesives to help shield against impact energy from severe weather, earthquakes, bomb blasts or forced entry events. The 3M Impact Protection System also helps protect against personal injury from flying glass.

3M Impact Protection Adhesive:
- Commercial and Residential Applications
- Bomb Blast and Windstorm Testing results available upon request.

The following procedure describes the materials and steps that are necessary to install the 3M™ Impact Protection Adhesive attachment system.

Recommended Products:
- 3M™ Citrus Base Cleaner
- 3M™ Adhesive Remover, Citrus Base
- 3M™ Foaming Glass Cleaner
- 3M™ Super Fine Synthetic Steel Wool Pad
- 3M™ Scotch™ Safe Release™ Masking Tape
- 3M™ Scotch™ Long Mask™ Masking Tape
- 3M™ Impact Protection Adhesive

Window Preparation
Glass panel shall be uniform in appearance. No fractures, holes or what is considered contaminated glass, or damaged glass, to be present.
Window frame to be uniform in appearance and free from dents, holes and cracks within two inches of the glass.
A thorough cleaning of the glazing and frame systems before applying film and attachment is required to remove all foreign matter and contaminants such as adhesives, grease, oil, dust, water, surface dirt, old sealant or glazing compounds by using 3M Citrus Base Cleaner, alcohol or commercial cleaning solution.

Detergent or soap and water treatments are not recommended for this step.

1. IPA does not require the glazing stop to be trimmed. Note: If the glazing stop overlaps frame, trimming the glazing stop is optional. (Reference Detail 1 on back.)

2. Spray the glazing bead, glass and frame surface with an appropriate cleaning product and remove with a lint free cloth. Repeat if necessary to remove all foreign materials from the glass and inside window frame surfaces. If the area is particularly dirty, a light scrub with a 3M 0000 Super Fine Synthetic Steel Wool Pad is recommended to loosen contaminates. Finish with a final cleaning if needed.

3. Spray the glass with 3M Foaming Glass Cleaner or a soap and water solution. Flush the glazing bead to glass area starting at the top and working down to drain or remove any remaining contaminant from the area. Scrape the glass with a razor to remove all foreign matter. Thoroughly clean the glass a final time with soapy water and a window cleaning squeegee. Wipe around the glazing bead and frame area one final time to remove all of the soap and water solution.

Film Installation
1. Apply the 3M™ Ultra Safety & Security Window Film to the glass, making sure that the film is installed as far into the glazing channel as possible. Cut film as you normally would around the remaining glazing bead.

   Remember to leave enough spacing between film and glazing bead to facilitate the removal of the slip solution.

2. Squeegee the film to the glass by pressing firmly to remove as much of the slip solution as possible, especially at the edges of the film. Two “edge-drying” methods can be used before applying the Impact Protection attachment system.

   A. The panels can be left for a few weeks to ensure proper drying of the film before the IPA system is applied.

   - OR -

   B. Using a hair dryer, gently heat and bump the edges of the film to hasten the removal and drying of the water from the edges. Make sure that all of the soap and water solution has been removed from the film/glass/glazing channel before applying the IPA attachment system.
Impact Protection Adhesive Installation

1. Apply a 1" (25mm) strip of 3M™ Scotch™ Safe Release™ White Masking Tape to the ultra film surface 3/8" (9mm) in from the edge of the film to all four sides. Note: This dimension will depend on application — 1/2" or 3/8".

2. Apply a 1" (25mm) strip of 3M Safe Release Blue Masking Tape to the window frame 3/8" (9mm) from the edge of the trimmed gasket. This will form a parallel sealant channel that will allow a uniform sealant bead to be applied to the glass/frame interface. Note: Use a clean drop cloth before proceeding to Step 3.

3. Apply a triangular bead of IPA Impact Protection Adhesive, and tool as needed to form an acceptable finish. Refer to Figure 1. Read and follow all product information and installation instructions provided by 3M Company. We recommend you start in a corner and apply the sealant bead out approximately 6". Then turn the gun and push the sealant bead to the next corner where the same method is repeated. Pushing the sealant bead will insure proper penetration and minimize the chances of air gaps in the bead. Pulling the gun can also be done if confident no air gaps are formed.

4. Smooth the sealant bead with an appropriate tool, if necessary, to give a finished look.

Table 1

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method Used</th>
<th>Units</th>
<th>3M IPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Curing Time (25°C (77°F), 50% RH)</td>
<td>ASTM D5895</td>
<td>minutes</td>
<td>21</td>
</tr>
<tr>
<td>Full Adhesion</td>
<td></td>
<td>days</td>
<td>3-7</td>
</tr>
<tr>
<td>Tack-Free Time (25°C (77°F), 50% RH)</td>
<td></td>
<td>minutes</td>
<td>10-20</td>
</tr>
<tr>
<td>Flow, Sag or Slump</td>
<td></td>
<td>inches</td>
<td>0</td>
</tr>
<tr>
<td>Working Time (25°C (77°F), 50% RH)</td>
<td></td>
<td>minutes</td>
<td>10-20</td>
</tr>
<tr>
<td>Specific Gravity</td>
<td></td>
<td>n/a</td>
<td>1.403</td>
</tr>
<tr>
<td>VOC content</td>
<td></td>
<td>g/L</td>
<td>16</td>
</tr>
</tbody>
</table>

As Cured — After 21 Days at 25°C (77°F), 50% RH

<table>
<thead>
<tr>
<th>Property</th>
<th>Test Method Used</th>
<th>Units</th>
<th>3M IPA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ultimate Tensile Strength</td>
<td>ASTM D412</td>
<td>psi (Mpa)</td>
<td>380 (2.62)</td>
</tr>
<tr>
<td>Ultimate Elongation</td>
<td>ASTM D412</td>
<td>%</td>
<td>640</td>
</tr>
<tr>
<td>Durometer Hardness, Shore A</td>
<td>ASTM D2240</td>
<td>points</td>
<td>38-59</td>
</tr>
<tr>
<td>Tear Strength, Die B</td>
<td>ASTM D0624</td>
<td>ppi</td>
<td>72</td>
</tr>
</tbody>
</table>

Note: Should you get some of the adhesive on the surrounding surfaces, an application and gentle wipe with a 3M Citrus Based Cleaner is recommended.

Curing time for the IPA will vary depending on temperature and relative humidity. It is not recommended to clean the film/IPA system for at least 36 hours following the installation. Full curing/adhesion can take up to 7 days, depending on conditions.

IMPORTANT NOTICE: 3M MAKES NO PERFORMANCE PROMISES OR OTHER REPRESENTATIONS ABOUT THE EFFECTIVENESS OF THE IPA ATTACHMENT SYSTEM FOR USE WITH 3M WINDOW FILM IN A PARTICULAR APPLICATION. All statements, technical information and recommendations contained in these IPA Attachment System installation instructions are based on tests believed to be reliable. However, many factors beyond the control of 3M can affect the use and performance of the 3M products in particular applications. Because these factors are uniquely within the user's knowledge and control, it is essential that the user evaluates and determines whether the 3M Ultra Safety & Security Window Film and/or 3M Impact Protection Adhesive Attachment System are appropriate for the particular application.

3M
Building and Commercial Services Division
3M Center, Building 222-5N-21
St. Paul, MN 55144-1000
www.3M.com/windowfilm

For more information, please call 1-800-480-1704
or visit us at www.3M.com/windowfilm
GLASS
THE WEAKEST LINK

In today’s world glass is taken for granted. It is an integral part of almost all buildings such as schools, airports, hospitals, hotels and restaurants. It is used to supply natural light and to provide visibility in at a retailer’s merchandise or outward to the surrounding views. Unfortunately, having these large areas of glass can cause some unwanted problems.

The glass windows and doors have become the primary point of entry during “smash & grab” invasions. Statistics show that more than 70% of burglaries involve forced entry through the weakest link… the glass. Since events such as the Oklahoma City bombing, 9-11 and the recent hurricane seasons, we have become keenly aware of the vulnerability of glass.

One commonly used solution to the problem is the addition of a polyester safety film. Thick safety films do a good job of holding the glass fragments together in the event of breakage. This is why they are referred to as “safety films” or “fragment retention films”. Holding the shards of glass together creates a safer work place… but not necessarily a more secure one. If the filmed glass is broken with enough force, it could be blown out or knocked out of its frame.

The performance of safety film can be greatly enhanced through the use of an attachment or anchoring system. This system helps to prevent the entire pane of glass from being blown out of the window frame. The most critical step in creating a safer and more secure glass system is to anchor or attach the safety film to the window or door frames.

(877) 734-7240 info@pentagonusa.com www.pentagonusa.com
We offer full installation and maintenance service and can provide risk assessment surveys nationwide.

**Pentagon Elite and Pentagon Select FrameGARD™**

Pentagon Elite and Pentagon Select / FrameGARD™ “anchoring” systems are designed to secure the applied film to the window frame. This creates a far more substantial protective solution than film alone. In extreme situations such as bomb-blast, burglary or hurricanes, the glass could be blown or knocked out of its frame.

The Pentagon Elite “anchoring” system is designed to secure the applied film to the window frame. This creates a far more substantial protective solution than film alone. In extreme situations such as bomb-blast, burglary or hurricanes, the glass could be blown or knocked out of its frame.

One commonly used solution to the problem is the addition of a polyester safety film. Thick safety films do a good job of holding the glass fragments together in the event of breakage. This is why they are referred to as “safety films” or “fragment retention films”. Holding the shards of glass together creates a safer work place... but not necessarily a more secure one. If the filmed glass is broken with enough force, it could be blown out or knocked out of its frame. The performance of safety film can be greatly enhanced through the use of an attachment or anchoring system. The attachment or anchoring system helps to prevent the entire pane of glass from being blown out of the window frame.

The most critical step in creating a safer and more secure glass system is to anchor or attach the safety film to the window or door frames.

In the aftermath of a disaster, if the broken glass is retained in the frame, the risk of looting is lessened & the chances for business continuity are greatly increased.

**Pentagon Elite®**

http://www.pentagonusa.com/products/anchoring-systems.php
Anchoring Profile

Figures 3a & 3b show the Anchoring Profile when an explosion occurs. Section (S1) is kept at the optimum performance angle, regardless of whether the load is positive Figure 3a or negative Figure 3b.

Anchoring System Brochures

**The Weakest Link Brochure**
This brochure explains why a complete anchoring or attachment system is necessary....
Download »

**Protecting those that Protect and Serve**
Law Enforcement and Fragment Retention Systems...
Download »
Overhead Glazing

Glass which slopes more than 15° from the vertical is considered sloped glazing by the major model building codes. Laminated glass is the preferred product for sloped and overhead glazing, because the glass is retained in the opening, even when broken, reducing the possibility of injury from falling glass. Costly and unsightly screens are therefore not required. Laminated products are widely used in malls and in atriums in hotels and offices.
SentryGlas®

SentryGlas® by DuPont provides a very rigid, high clarity interlayer allowing greater spans and/or lower deflections in minimally supported glazing systems. Offers excellent resistance to moisture and sealants and can be used “dry glazed” in large missile hurricane applications.

Product Configuration

<table>
<thead>
<tr>
<th>Construction</th>
<th>Glass</th>
<th>SGP</th>
<th>Glass</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inches</td>
<td>1/4&quot;</td>
<td>0.035&quot;</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>mm</td>
<td>14</td>
<td>0.065</td>
<td>14</td>
</tr>
<tr>
<td>Thickness</td>
<td>1/4&quot;</td>
<td>0.090</td>
<td>1/4&quot;</td>
</tr>
<tr>
<td>mm</td>
<td>14</td>
<td>0.065</td>
<td>14</td>
</tr>
<tr>
<td>mm</td>
<td>19/32&quot;</td>
<td>0.492</td>
<td>19/32&quot;</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Weight</th>
<th>lbs/ft²</th>
<th>KG/m²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glass</td>
<td>6.3</td>
<td>3.0</td>
</tr>
<tr>
<td>SGP</td>
<td>6.4</td>
<td>3.1</td>
</tr>
<tr>
<td>Glass</td>
<td>6.6</td>
<td>3.2</td>
</tr>
<tr>
<td>SGP</td>
<td>6.6</td>
<td>3.2</td>
</tr>
<tr>
<td>Glass</td>
<td>30</td>
<td>13.7</td>
</tr>
<tr>
<td>SGP</td>
<td>31</td>
<td>14.5</td>
</tr>
<tr>
<td>Glass</td>
<td>32</td>
<td>15.1</td>
</tr>
<tr>
<td>SGP</td>
<td>32</td>
<td>15.1</td>
</tr>
</tbody>
</table>

Overhead

Glass which slopes more than 15° from the vertical is considered sloped glazing by building codes. Laminated glass is the preferred product for sloped and overhead glazing.

Typical Products

<table>
<thead>
<tr>
<th>Nominal Thickness</th>
<th>9/16&quot;</th>
<th>1-3/16&quot;</th>
<th>1-5/16&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Construction</td>
<td>Mono</td>
<td>IG</td>
<td>IG</td>
</tr>
<tr>
<td>Outboard Lite</td>
<td>1/4&quot; FS</td>
<td>1/2&quot; FS</td>
<td></td>
</tr>
<tr>
<td>Air Space</td>
<td>1/2&quot;</td>
<td>1/2&quot;</td>
<td></td>
</tr>
<tr>
<td>Inboard Lite</td>
<td>Glass</td>
<td>PVB</td>
<td>Glass</td>
</tr>
<tr>
<td></td>
<td>1/4&quot; FS</td>
<td>0.060&quot;</td>
<td>1/4&quot; FS</td>
</tr>
<tr>
<td></td>
<td>3/16&quot; HS</td>
<td>0.060&quot;</td>
<td>3/16&quot; HS</td>
</tr>
<tr>
<td></td>
<td>1/4&quot; HS</td>
<td>0.060&quot;</td>
<td>1/4&quot; HS</td>
</tr>
<tr>
<td>Max. Size Sq.ft.²</td>
<td>40</td>
<td>40</td>
<td>40</td>
</tr>
<tr>
<td>Weight lbs/ft²</td>
<td>6.4</td>
<td>8.4</td>
<td>9.5</td>
</tr>
</tbody>
</table>

* Maximum sizes are from AMMA guidelines. Local conditions such as snow loads and wind loads may change these values.
** HS = Heat strengthened, FT = Fully Tempered

For more information on these architectural glass models visit: www.oldcastieglass.com
Installation Guidelines

Guidelines

These guidelines are to be used in addition to, and in conjunction with, the guidelines in the latest edition of the Glazing Manual published by the Glass Association of North America and Oldcastle Glass* Glazing Instructions, section 17, pages 1-6. These should be included as part of the glazing specifications. Failure to follow these guidelines may result in voiding of the warranty.

Setting Blocks

All laminated glass should be installed on setting blocks positioned on the lower edge at the quarter points. The setting block should have a Shore A durometer of 85 ± 5, support the entire thickness of the glass and be 0.1" long, per square foot of glazing, but not less than 4" in length. Ensure that the setting blocks are manufactured from Santoprene, Silicone, EPDM or any other material compatible with silicone and the rest of the glazing components. Pay particular attention to compatibility when the laminated glass contains a polycarbonate.

Clearances

Adequate clearances must be maintained to prevent glass damage or breakage as a result of glass-to-metal contact. A minimum of a 1/8" face clearance should be maintained using a cushioning material. Edge clearance should be a minimum of 1/4"; however, due to the expansion of polycarbonate, any laminate containing this material should have a 1/16" edge clearance per foot of glass length. To reduce in-service breakage, avoid excessive clamping pressures, especially on thin annealed glass, such as the low-spall glass on bullet-resistant materials.

Edge Engagement

All forced-entry glass must have a minimum of a 1" edge engagement. Clearances and setting block allowances are in addition to this engagement. Any reduction in this edge engagement can cause the performance of the product to be reduced and the test certificate may no longer be applicable.

Weep System

The edges of laminated glass must not be exposed to standing water. All framing systems must be designed to accommodate a reliable weep system, as no cap seal is 100% reliable. In addition, it is extremely important that any cleaning solutions used on either face of the glass be allowed to drain out of the frame. It is the responsibility of the designer and the installer to ensure that the weep system works correctly. Do not glaze any laminated glass in a system without adequate drainage.

Sealants and Caulking

An appropriate sealant should be used to seal the glazing to the frame. Sealant and caulking manufacturers regularly change their products’ raw materials. Therefore, it is essential that the installer checks with the appropriate manufacturer for compatibility of any product, before use. This is particularly important for security glazing containing polycarbonate, as some solvents used in sealants can cause crazing and ultimate failure of the product. This warning also applies to any varnishes, primers or paints used on the framing system. These finishes should be allowed to fully dry before glazing commences.

Threat Surface

Most bullet-resistant glazing products and some forced-entry products are not symmetrical and have a threat side, attack face or impact face. All glass of this type supplied by Oldcastle Glass* is shipped with a removable label specifying the impact face. This side MUST be installed toward the threat side. Failure to do this can seriously affect the ability of the product to resist the specified threat. This label should be left on until final inspection and/or sign-off occurs.

(continued on back)
Installation Guidelines

Guidelines

Storage
Shipments should be scheduled so that glass is stored on the site for a maximum of 30 days. If the glass is to be stored for longer than this, it should be removed from the construction site to a controlled environment. When on the site, store crates indoors and keep them dry. Ensure that the stored glass remains above the dew point at all times; otherwise, condensation and staining can occur. Protect the crates from exposure and possible damage from the practices of other construction trades.

Handling
Only remove the glass from the crates when it is ready to be installed. Remove glass from the front of the crate—never by sliding to the side. On security glass with exposed polycarbonate, pay particular attention to this side. Never allow glass to rest on unsealed surfaces. When exposed polycarbonate is supplied with a protective removable sheet, this must be removed immediately after the installation. Never allow the sun to bake this protective film on to the glazing. Never allow anything to rest against the glass. DO NOT install any glass that has been damaged, however slightly. Even small cracks at the edges can ultimately “run” due to thermal expansion while in service. Oldcastle Glass® does not warrant glass breakage.

Cleaning
Do not expose the edges of any laminated glass to organic solvents, acids or any cleaner containing ammonia, which can react with the plastic components. Once the glazing is installed, the glazing contractor should ensure that the glazing is protected from possible damage caused by the construction practices of other trades.

Take particular care during the initial cleaning, especially if the surfaces are severely soiled. Never attempt to remove dry deposits. NEVER use a sharp blade or scraper to remove deposits or clean the glass.

First flush with water to soften and remove as many contaminants as possible. Then use a clean squeegee to remove excess water, ensuring that abrasive deposits do not get trapped between the squeegee and the glass surface. Then use a mild nonabrasive, nonalkaline cleaner and a soft, grit-free cloth to clean the glass. Rinse immediately with water, removing excess water with a squeegee.

For routine cleaning, a mild soap or detergent, with lukewarm water, can be used with a clean, grit-free cloth. Dry the surface immediately and never allow metallic or hard objects, such as razor blades or scrapers, to come into contact with the glass.

Cleaning Exposed Polycarbonate
All exposed polycarbonate has a mar-resistant coating; however, extra care must be taken to avoid scratching or other damage. Do not use any abrasive cleaners or solvents. Wash with a mild detergent, such as Formula 409®, and lukewarm water, using a clean, grit-free cloth. Rinse immediately with clean water and dry with a chamois or moist cellulose sponge to avoid water spots.

Fresh paint, grease and smeared glazing compounds can be removed using isopropyl alcohol. Afterward, wash with warm water and a mild detergent, as noted above.
1A. Glass & Glazing – Garden Level Storefront

Two separate single glazed, glazing systems were identified around the perimeter of the Garden Level. Severe issues exist with both of these systems, and mismatched aluminum entrance doors.

- **As Is** – An antiquated storefront glazing system with “I-Line” style doors was previously installed on the West, and partial North & South Garden Level Elevations. This system can be described as a neoprene gasket zipper wall design.

  Opposite the gasket wall system, is an offset aluminum glazing system on the East, and partial North & South Elevations. This is a more traditional stacking storefront system with badly worn “Narrow Stile” aluminum entrance doors and single 3/8” glass.

- **Gasket Wall Storefront Glazing System** – The predominately West Elevation glazing system is beyond its maintainable life and cannot be restored to achieve standard performance levels. The system, if tested, would fail AAMA field quality control hose testing, identifying excessive air and water infiltration based on open gasket joints, and failed perimeter caulking and lack of system flashing.

  This system has exceeded its useful life and cannot be maintained. Evidence of gasket degradation, shrinkage, brittle/hardening, non-weathering of the gaskets prevents these components from securing the glass and providing an air and water tight system. The “I-Line” aluminum doors are integrated into the zipper wall framing system and will need to be replaced with a new complete aluminum storefront & entrance door system.

  Replace immediately with new aluminum framing system, entrance doors, and 1” thermo-pane insulated glass units. Flash the sill, and provide new perimeter sealant with silicone sealant and backer rod.
1A. Glass & Glazing – Garden Level Storefront (continued)

- **Offset Aluminum Glazing System** – The predominately east elevation glazing system needs immediate maintenance on the existing aluminum system.

  ✓ This offset flush glazed storefront system has exterior exposed aluminum framing members. The anodized finish on these frames has signs of finish degradation and seal failure, typical of an older system, but this doesn’t affect the air & water performance of the system, however, the finish can not be restored and complete replacement is the only option.

  ✓ A few gaskets have been identified to be loose, and the perimeter caulk joint seals need to be removed and replaced with new silicone and backer rod.

  ✓ Remedial effort to replace missing gaskets and perimeter caulk joints are essential to improving the overall system performance. This system is in need of annual cleaning and system check.

  ✓ The existing framing is glazed with ¼” tempered glass, and the occupied office space would benefit from new 1” insulated glass to improve the energy efficiency of the system.

Attachment(s):
1) Photo documentation of existing failures & other issues identified above
2) Glazing detail and specifications for new storefront glass & frame system option
Re: Tempe City Hall – Garden Level Storefront - Photo Attachment Sheet
Observations of existing conditions and recommended improvements

(East & Partial North/South Elevations)

Existing offset aluminum stacking storefront framing system is dark bronze anodized with has ¼" tempered glass in a non-thermal frame. Performance below reasonable expected standards.

Displaced Gaskets

This system shows evidence of extreme finish and gasket degradation. These conditions can not be restored and the only option to improve is to remove and replace. Signs of perimeter sealant caulk joint failures, and missing sealant and exposed backer rod require new sealants replace existing for air & water tight.
Miss-matched clear anodized doors in bronze anodized frames have been added in time. This old stile door hardware is no longer available or suitable to meet ADA operating functions. New insulated glass and doors & frames will improve the esthetics and performance. Continued repairs are not advisable.

Exposed curbs do not align with doors & door jambs
West Elevation & Partial South/North Elevations – Original Zipper Wall gasket framing system with I-Line aluminum swing doors. Gaskets have shrunk exposing glass edges and can not weather the application. This system is extremely antiquated and can not be replaced. It's recommended that new aluminum offset glazing system with integral narrow stile entrance doors replace existing.
TC470 SERIES, 2-1/4" X 4-1/2" CAPTURED OFFSET GLAZED SYSTEM THERMALLY BROKEN FOR 1" GLASS (NON-TERMAL OPTION)

(SCREW SPLINE/SHEAR BLOCK SYSTEM)

B. Acceptable Products:
1. Arcadia, Inc., TC470 Series, 2-1/4" x 4-1/2" captured offset glazed system thermally broken for 1" glass (screw spline/shear block system).

2.02 Framing Materials and Accessories
A. Framing members, transition members, Mullions, adaptors, and mounting: Extruded 6063-T5 aluminum alloy (ASTM B221 -- Alloy G.S. 10a T5).

B. Screws, fastening devices, and internal components:
1. Aluminum, stainless steel, or zinc-plated steel in accordance with ASTM A-164. Perimeter anchors shall be aluminum or steel, providing the steel is properly isolated from aluminum.

C. Glazing Gasket
1. Compression-type design, replaceable, molded or extruded santoprene, polyvinyl chloride (PVC), or ethylene propylene diene monomer (EPDM)

2. Shall be of type that locks securely into the glazing register to prevent glazing gaskets from disengaging.

2.03 Finish
A. Finish all exposed areas of aluminum and components as indicated.


a. Anodized finish color shall be Colormodic

b. (A81 Light Champagne, A82 Champagne, A83 Light Bronze, A84 Medium Bronze, A85 Standard Medium Bronze, A86 Dark Bronze, A87 Standard Dark Bronze, A86 Black, A87 Gold)


a. Anodize finish color shall be Colormodic

(11 Clear)

3. Fluorocarbon Coating: AA605.2.

a. Resin: 70% PVDF Kynar 500/500

b. Substrate: cleaned and Pretreated with chromium phosphate.

c. Primer: Manufacturer's standard resin base compatible coating, dry film thickness.

(Extrusion: Minimum 0.20 mil)

d. Color Coat: 70% PVDF, dry film thickness.

(Extrusion: 1.0 mil)

e. Color: As selected by Architect

f. Acceptable Coatings Manufacturers:

(a) PPG Industries, Inc.

(b) Valspar Corporation

(c) BASF

2.04 System Fabrication
A. Diverters shall be provided to collect water infiltration and divert from the interior of the system.

B. Framing members shall be internally reinforced and secured at head and sill as necessary for structural performance requirements, for hardware attachment, and as indicated.

C. Fasteners shall be so located as to ensure containment from view in the final assembly.

Part 3 - Execution
3.01 Examinations
A. Examine conditions and verify substrate conditions are acceptable for product installation.

3.02 Installation
A. Install in accordance with approved shop drawings and manufacturers installation instructions.

3.03 Field Quality Control
A. Test the storefront for water leaks in accordance with AAMA 501.2-94. Conduct test in the presence of the Architect. Correct deficiencies observed as a result of this test.

END OF SECTION
TC470 SERIES, 2-1/4 X 4-1/21 CAPTURED OFFSET GLAZED SYSTEM THERMALLY BROKEN FOR 1" GLASS (NON-THERMAL)
ARCADIA, INC.

TC470 SERIES, 2-1/4" X 4-1/2" CAPTURED OFFSET GLAZED SYSTEM THERMALLY BROKEN FOR 11 GLASS (NON-THERMAL)
2. Metal Panel Cladding System

- The porcelain enamel finish has held up very well and no signs of finish degradation. Conditioning and longevity of panel attachment to the building structure was closely examined by removing designated horizontal and vertical panel assemblies and analyzing the building conditions and anchoring method internally.

- Secure loose panels

  ✓ Some panels have become disconnected and required mechanical attachment due to the type of anchor method used. “Z” clips have been designed to overlap return edges of formed sheet metal panels. A few panels may have moved off their attachment clips due to panel movement. These panels will likely require exposed screws to reattach them to the structure securely.

- Caulk panels water-tight

  ✓ Remove & replace all existing urethane sealant for water tight application. Existing sealant has retained the panels in position, but has now begun to show signs of total failure. A few joints identify wooden shims to prevent panels from shifting; these should be replaced with modern plastic shims.

  ✓ Replacing all existing urethane sealants with new weatherproofing one-part, medium-modules Dow Corning 795 Silicone sealant to improve the weather tightness of the panel joints and help secure the panels. Non-dirt collecting silicone sealant and color matching options should be carefully considered when selecting the sealant.

- Clean/restore panels

  ✓ Recommended cleaning of these panels should be a standard maintenance program. These panels can be cleaned with simple non-abrasive cleanser/soap and clean water with a soft cloth. Reference Arcadia Maintenance Manual.

*Attachment(s): Photo’s & Arcadia Guide Specification for Cleaning Procedures*
December 18th, 2009

Re:  Tempe City Hall – Metal Panel Cladding System - Photo Attachment Sheet
Observations of existing conditions and recommended improvements

(Pyramid Tower Southwest Elevation Building Corner)

Existing 20 Gauge Sheet Metal formed Porcelain Enamel finished panels applied to structural steel with internal “Z” attachment clips and sealed tightly. Some bowing of horizontal panels are evident and existing urethane sealants have failed to maintain water and air tight joinery.
Panel displaced from attachment clips and separated from adjoining vertical corner panels and structural steel. Sealant failure has created open joints allowing excessive air & water infiltration. Secure immediately with exposed screws if panels can not be reattached to original internal clips.

Exposed alignment clip and failed sealant

Evidence of wooden shims in joint space, should be replaced with plastic spacers to prevent degradation of materials and prevent panel slipping and caulked with silicone.
Residue on surface of metal panel at caulk joints was identified as a potential reaction to moisture getting inside the panel and leaving deposits on finish after coming in contact with fireproofing insulation.

Photo inside of vertical metal panel at building corner identifies fireproofing insulation on structural steel members, and inside of metal panel composite reinforcement panel.

Panels finish cleaned with light application of soap and water restored the finish to near original conditions.
ENTRANCES
Specifications

<table>
<thead>
<tr>
<th>SERIES</th>
<th>STILES</th>
<th>TOP RAIL</th>
<th>BOTTOM RAIL</th>
<th>GLAZING INFILL</th>
</tr>
</thead>
<tbody>
<tr>
<td>250</td>
<td>2&quot; (50.8)</td>
<td>2 1/4&quot; (54)</td>
<td>3 1/2&quot; (81)</td>
<td>1/4&quot; (6) or 1&quot; (25)</td>
</tr>
<tr>
<td>400</td>
<td>3 1/2&quot; (88.9)</td>
<td>3 1/4&quot; (81)</td>
<td>6 1/2&quot; (165.1)</td>
<td>1/4&quot; (6) or 1&quot; (25)</td>
</tr>
<tr>
<td>550</td>
<td>5&quot; (127)</td>
<td>5 1/2&quot; (139.7)</td>
<td>6 1/2&quot; (165.1)</td>
<td>1/4&quot; (6) or 1&quot; (25)</td>
</tr>
</tbody>
</table>

ADA bottom rail option for any Series 9 1/2" (241.3)

I. GENERAL DESCRIPTION

DOOR CONSTRUCTION
Door stiles and rails shall be tubular sections accurately joined at corners with heavy concealed reinforcement brackets secured with bolts, screws and then Mig welded.

DOORS shall have snap-in stops with E.P.D.M. glazing gasket on both sides of the glass. No exposed screws shall be permitted. Each door leaf shall be equipped with an adjusting mechanism, located in the top rail near the lock side, which provides for minor clearance adjustments after installation. A hard-brushed poly-pile weather-strip shall be installed in both stiles of center hung single doors and in hinge stiles of center hung pair of doors.

Door pivot or butt hung doors shall have weather-stripped door stops at frame jamb and header. The active meeting side of all pairs of doors shall have an adjustable astragal with double line of weather-stripping.

OPTIONAL: Door bottom rail will be weathered with an E.P.D.M. blade gasket sweep strip applied with concealed fasteners (NOTE: This option is required for high performance conditions.)

OPTIONAL: Door bottom rail shall receive a concealed weather-stripped insert.

II. PRODUCTS MATERIALS

Door members shall be extruded architectural aluminum 6063-T5 alloy and temper. Major portions of all door sections, except glazing beads, shall be nominal .125 (3.2) inch. Wall thickness of frame members shall be nominal .093 (2.4) inch. Screws, nuts, washers, bolts, rivets and other fastening devices shall be aluminum, stainless steel or other non-corrosive materials.

III. EXECUTION INSTALLATION

DOOR CONSTRUCTION

DOORS shall be tubular sections accurately joined at corners with heavy concealed reinforcement brackets secured with bolts, screws and then Mig welded.

DOORS shall have snap-in stops with E.P.D.M. glazing gasket on both sides of the glass. No exposed screws shall be permitted. Each door leaf shall be equipped with an adjusting mechanism, located in the top rail near the lock side, which provides for minor clearance adjustments after installation. A hard-brushed poly-pile weather-strip shall be installed in both stiles of center hung single doors and in hinge stiles of center hung pair of doors.

DOORS pivot or butt hung doors shall have weather-stripped door stops at frame jamb and header. The active meeting side of all pairs of doors shall have an adjustable astragal with double line of weather-stripping.

OPTIONAL: Door bottom rail will be weathered with an E.P.D.M. blade gasket sweep strip applied with concealed fasteners (NOTE: This option is required for high performance conditions.)

OPTIONAL: Door bottom rail shall receive a concealed weather-stripped insert.

HARDWARE

Hardware for aluminum doors and door frames shall be the entrance manufacturer’s standard. If custom hardware is to be furnished by others, templates and physical hardware must be submitted prior to any fabrication.

FINISH

All exposed framing surfaces shall be free of scratches and other serious blemishes.

Aluminum extrusions shall be given a cosmetic finish followed by anodic oxide treatment to obtain (Specify one of the following).

#11 Clear anodic coating
#22 Dark Bronze anodic coating
#33 Black anodic coating

A Fluoropolymer paint coating conforming with the requirements of AAMA 605.2-92 Color shall be (Specify a U. S. Aluminum standard color).

PROTECTION AND CLEANING

After installation the General Contractor shall adequately protect exposed portions of the aluminum entrance work from damage by grinding and polishing compounds, plaster, lime, acid, cement or other contaminants. The General Contractor shall be responsible for final cleaning.

DOOR CONSTRUCTION

Door stiles and rails shall be tubular sections accurately joined at corners with heavy concealed reinforcement brackets secured with bolts, screws and then Mig welded.

DOORS shall have snap-in stops with E.P.D.M. glazing gasket on both sides of the glass. No exposed screws shall be permitted. Each door leaf shall be equipped with an adjusting mechanism, located in the top rail near the lock side, which provides for minor clearance adjustments after installation. A hard-brushed poly-pile weather-strip shall be installed in both stiles of center hung single doors and in hinge stiles of center hung pair of doors.

DOORS pivot or butt hung doors shall have weather-stripped door stops at frame jamb and header. The active meeting side of all pairs of doors shall have an adjustable astragal with double line of weather-stripping.

OPTIONAL: Door bottom rail will be weathered with an E.P.D.M. blade gasket sweep strip applied with concealed fasteners (NOTE: This option is required for high performance conditions.)

OPTIONAL: Door bottom rail shall receive a concealed weather-stripped insert.

HARDWARE

Hardware for aluminum doors and door frames shall be the entrance manufacturer’s standard. If custom hardware is to be furnished by others, templates and physical hardware must be submitted prior to any fabrication.

FINISH

All exposed framing surfaces shall be free of scratches and other serious blemishes. Aluminum extrusions shall be given a cosmetic finish followed by anodic oxide treatment to obtain. (Specify one of the following).

#11 Clear anodic coating
#22 Dark Bronze anodic coating
#33 Black anodic coating

A Fluoropolymer paint coating conforming with the requirements of AAMA 605.2-92 Color shall be (Specify a U. S. Aluminum standard color).

PROTECTION AND CLEANING

After installation the General Contractor shall adequately protect exposed portions of the aluminum entrance work from damage by grinding and polishing compounds, plaster, lime, acid, cement or other contaminants. The General Contractor shall be responsible for final cleaning.
Typical Details

**Center Hung Doors**

- **D-300**
  - 2' (50.8)
  - 1/8" TYP. (12.7)
  - Single door

- **DT550**
  - 2 1/8" (51.6)
  - Single door

**Offset Hung Doors**

- **D-300**
  - 4 3/8" (105.4)
  - Meeting stiles for pair of doors

- **DT550**
  - 4 1/16" (105.4)
  - Meeting stiles for pair of doors

**D-201**

- 2' 1/4" (54)

**D-101**

- 3 3/4" (90)
  - Special Top rail for offset hung doors with:
  - Overhead Concealed Closers
  - NOTE: Special glass size required.

**D-101**

- 3 3/4" (81)

**Scale:** 3" = 1' - 0"

**Standard**

- Top and Bottom rails

**Special Bottom rail**

- to comply with A.D.A.
ARCADIA GUIDE SPECIFICATION FOR CLEANING AND
MAINTENANCE OF PAINTED & ANODIZED ALUMINUM
EXTRUSIONS AND GLAZED DOOR & WINDOW PANELS

1. **SCOPE**

This recommendation covers procedures for the cleaning and maintenance of painted and anodized aluminum extrusions and glazed panels. The procedures are intended for application with painted and anodized architectural aluminum extrusions such as window frames, door frames, railings, trims, sashes, glazed window and door panels as well as curtain wall panels, column covers, spandrels, mullions, louvers, vertical trim, etc.

2. **PURPOSE**

These recommendations are intended to assist architects, contractors, owners, building managers, et al., who are concerned with the care and maintenance of painted and anodized architectural aluminum. The information contains suggested methods as an aid in establishing safe and sound maintenance procedures.

3. **GENERAL**

3.1 Organic coatings on aluminum do not normally show an appreciable amount of dirt collection. In many atmospheres dirt or soil would not indicate a detrimental risk to the coating, but cleaning and surface care may be desirable for the sake of appearance. Cleaning may become desirable in areas where heavy industrial deposits have dulled the surface, where materials from construction processes have soiled the surface or where cleaner run-down from other surfaces should be removed. Local atmosphere conditions as well as building location within a geographical area quite naturally can affect cleanliness. Very often, rainfall may be sufficient to keep exterior surfaces appearing clean and bright. These factors coupled with owner attitude regarding surface appearance probably would determine cleaning schedules. Areas that are in direct sight at lower levels would more likely be cleaned. Less obvious areas would be less frequently cleaned or in some instances, hardly at all. Cleaning of painted or anodized aluminum may be scheduled with other cleaning. For example, glass and painted aluminum components can be cleaned at the same time.

3.2 Cleaning will be more often required in areas of low rainfall (i.e. Los Angeles) or in heavily industrialized areas. Foggy coastal regions with frequent cycles of condensation and drying may tend to exhibit a buildup of atmospheric salts and dirt. In any climate, sheltered areas such as overhangs, may become soiled because of lack of rain washing. Thorough rinsing is especially important after cleaning of these sheltered areas.

3.5 If automatic wall cleaning equipment is to be used on a building, a test should be made early in equipment design to insure that the cleaning solutions, brushes, as well as the frequency of cleaning should be taken into consideration to insure that there is no detrimental effect on the coating.

2005
4. **CLEANING PROCEDURES AND CARE AFTER INSTALLATION**

Construction soils, including concrete or mortar, etc., should be removed as soon as possible. The exact procedure for cleaning will vary depending on the nature and degree of soil. Try to restrict cleaning to mild weather. Cleaning should be done on the shaded side of the building or ideally on a mild, cloudy day. Method of cleaning, type of cleaner, etc., of one component of the building must be used with consideration for other components such as glass, sealants, painted surfaces, etc.

4.1
The simplest procedure would be to apply the water rinse with moderate pressure to dislodge the soil. If this does not remove the soil, then a concurrent water spray with brushing or sponging should be tested. If soil is still adhering after drying, then a mild detergent will be necessary.

4.2
When a mild detergent or mild soap is necessary for removal of soil, it should be used with brushing or sponging. The washing should be done with uniform pressure, cleaning first with horizontal motion and then with vertical motion. Apply cleaners only to an area that can be conveniently cleaned without changing position. The surface must be thoroughly rinsed with clean water. It may be necessary to sponge the surface. The rinsed surface is permitted to air dry or is wiped dry with a chamois, squeegee or lint free cloth.

4.3
Run down of cleaner (from any operation) to the lower portions of the building should be minimized and these areas should be rinsed as soon as and as long as necessary to lessen streaking, etc. from unavoidable run down, lower areas should be kept wet or flooded with water. Do not allow cleaning chemicals to collect on surfaces or to "puddle" on horizontal surfaces, crevices, etc. These should be flushed with water and dried. Always clean coated surfaces down from the top to bottom and follow with a thorough rinsing with clean water. (With one story or low elevation buildings, it is recommended to clean from bottom up and rinse from top down).

4.4
**Mild Detergents** – Mild soaps or detergents ruled safe for bare hands should be safe for coated aluminum. Stronger detergents such as some dishwasher detergents should be carefully spot tested. Some of the latter would necessitate rubber gloves, long handled brushes, etc. With any, the finish should be thoroughly rinsed with clean water and dried. Some mild cleaning solutions, which would comprise of selected wetting agents in water solutions, are available for automatic building washing machines.

5. **CLEANING OF MEDIUM TO HEAVY SOIL**

5.1
Some type of mild solvent such as mineral spirits may be used to remove grease, sealant or caulkling compounds. Stronger solvent or solvent containing cleaners may be deleterious or have a softening effect on paints. To prevent harm to the finish, these types of solvent or emulsion cleaners should be spot tested and preferably the coating manufacture should be consulted. Care should be taken to assure that no marring of the surface is taking place in this manner since this could give an undesirable appearance at certain viewing angles. Cleaners of this type are usually applied with a clean cloth and removed with cloth. Remaining residue should be washed with mild soap and rinsed with water. Use solvent cleaners sparingly. It may be possible for solvents to extract materials from sealants, which could stain the painted surface or could prove harmful sealants; therefore, these possible effects must be considered. Test a small area first.
5. **CLEANING OF MEDIUM TO HEAVY SOIL** ....... continued

5.2
If cleaning of a heavy surface soil has been postponed or in the case of an especially tenacious soil, stubborn stains, etc., a more aggressive cleaner and technique may be required. Cleaner and technique should be matched to the soil and painted finish. Some local manual cleaning may be needed at this point. Always follow the recommendation. Test clean small area first. Cleaners should not be used indiscriminately. Do not use excessive abrasive rubbing as such may alter surface texture or may impart a “shine” to the surface.

5.2.1
Concrete spillage that has dried on the painted surface may become quite stubborn to remove. Special cleaners and/or vigorous rubbing with non-abrasive brushes or plastic scrapers may be necessary. Diluted solutions of Muriatic Acid (under 10%) may be effective in removing dried concrete stains, however, a test area should be tried first, and proper handling precautions must be exercised for safety reasons. Also, effective proprietary cleaners for concrete and mortar staining are available. See supplier sections for reference companies under 8.1.

5.3
**Never Mix Cleaners** – The mixing of cleaners may not be ineffective, but also very dangerous. For example, mixing of chlorine containing materials such as bleaches, with other cleaning compounds containing ammonia, can result in poison gas emission.

5.4
Always rinse after removal of heavy surface soil

6. **SUMMARY OF GENERAL CLEANING TIPS**

6.1
Over cleaning or excessive rubbing can do more harm than good.

6.2
Strong solvents or strong cleaner concentrations can cause damage to painted surfaces.

6.3
Avoid abrasive cleaners. Do not use household cleaners that contain abrasives on painted and anodized surfaces.

6.4
Abrasive material such as steel wool, abrasive brushes, etc., can wear and harm finishes.

6.5
Avoid drips and splashes. Remove run downs as quickly as possible.

6.6
Avoid extreme temperatures. Heat accelerates chemical reactions and may evaporate water from solution. Extremely low temperature may give poor cleaning effects. Cleaning under adverse conditions may result in streaking or staining. Ideally, cleaning should be done in shade at moderate temperature.

6.7
Do not substitute a heavy duty cleaner for a frequently used mild cleaner.
6. **SUMMARY OF GENERAL CLEANING TIPS ……… continued**

6.8
Do not scour painted surfaces.

6.9
Never use paint removers, aggressive alkaline, acid or abrasive cleaners. Do not use trisodium phosphate or highly alkaline or highly acid cleaners. *Always do a test surface.*

6.10
Follow manufacturers recommendations for mixing and diluting cleaners.

6.11
Never mix cleaners. (See 5.3 for precautions).

6.12
To prevent marring, make sure cleaning sponges, cloth etc., are grit free.

6.13
"An ounce of prevention is worth a pound of cure."

7. **GENERAL INSPECTION AND PRECAUTIONS**

7.1 **Inspection**
It is suggested that the building owner provide a qualified inspector who will see that the desired effect is being obtained with the use of sound procedures. Inspections should commence early in the cleaning procedure.

7.2 **Building Surroundings**
Consideration must be given to possible effects of run down on shrubbery, personnel, equipment, etc., located below. These factors may require consideration toward methods of timing.

8. **GENERAL MAINTENANCE AND OPERATION INSTRUCTIONS SPECIFIC TO ALUMINUM SLIDING WINDOWS & DOORS**

Arcadia Horizontal Sliding Windows and Doors are integrated systems that have been designed to withstand the rigors of today’s modern architecture. Proper use and maintenance of these windows and doors will assure optimum performance for years to come.

8.1 **Operation**
Once installed and adjusted, the windows and doors are ready for day to day operation with little maintenance; however this does not mean no maintenance. During the daily operation, the windows and doors should roll smoothly and not bind through their range of motion. Should binding occur, stop operation and check to make sure the track is clear of all debris and that the track is smooth and lubricated. Additionally, make sure the weathering provided for the windows and doors is undamaged and in its proper location. Should any of these items be evident, please contact a glazing professional for the remedial correction of this product. It is not unusual that the effort to operate the windows and doors when new may seem excessive; over time the effort should diminish. It is normal during times of heavy rainfall and/or high winds that water may appear inside the windows and doors sill tracks. The windows and doors are designed to accept this water infiltration and drain it back to the exterior.
8. **GENERAL MAINTENANCE AND OPERATION INSTRUCTIONS SPECIFIC TO ALUMINUM SLIDING WINDOWS & DOORS**

Annual Maintenance. (These items should be checked at least twice a year to assure optimum performance)

8.2 Check Weatherstripping - make sure that the weathering is in good shape with no tears or kinks and that it is making contact with the opposing surface. If any evident damage is detected, the weatherstripping must be replaced.

8.3 Check Glazing Gasket - make sure that the corners of the exposed rubber along the glass edge do not have any gaps. Over time the elastomer may relax and pull away from the corners. Should this occur, apply a high quality glazing sealant to fill this gap.

The following information concerns the proper care of our roller and locking mechanism hardware.

8.4 Rollers & Locking Mechanism Maintenance - Our hardware is expected to give trouble free operation throughout the life of the window or door it is mounted on. Arcadia has gone to great lengths to ensure the hardware provided will stand up to the tests of time. All of the hardware supplied by Arcadia is protected or enhanced by special coatings and lubricants. These protective coatings and lubricants can be damaged or removed by common household products. If the hardware is properly cared for it will outlast the window and door it is applied to. If the steps outlined below are followed, the hardware on your windows and doors should give years of dependable service.

8.4.1 Cleaning
Due to the wide range of environments our hardware is used in, some cleaning may be required. Wind blown dust and dirt can cause windows or doors to be more difficult to operate, as well as cause the hardware to wear or corrode faster. We recommend the window or door hardware be inspected 4 times a year (more if necessary) and cleared of dirt and grime buildup. Particular attention should be given to cleaning dirt from slides in hinges.
Clean water should be used when possible to flush the hardware clean. A mild (hand wash) dish soap and water mixture can be used to loosen stubborn dirt. Always rinse the hardware with clean water. Allow the hardware to dry completely before lubricating.

Cleaners to Avoid

DO NOT USE THE FOLLOWING:
Vinegar based cleaners
Citrus based cleaners (Lemon, etc.)
Industrial Strength Cleaners
Abrasive Cleaners

These types of cleaners will not only remove the lubricants from the hardware, they can also remove corrosion resistant coatings.

WARNING: Glass cleaners and brick/siding washes, with the above ingredients, must not come in contact with the hardware for the reasons listed above.

2005
8. GENERAL MAINTENANCE AND OPERATION INSTRUCTIONS SPECIFIC TO ALUMINUM SLIDING WINDOWS & DOORS

8.4.2 Lubrication

After the hardware is clean and dried it must be lubricated to restore the smooth operation, and in some cases corrosion resistance. There are a number of commercially available products, which can be used. It is recommended that the replacement lubricant be similar to what was removed. (If the gears were coated with grease before you cleaned them, re-lubricate only with grease, not a spray such as WD40, etc.) The following list of products will help you know where each should be used.

Lithium Grease: Use on all gear drives such as operators and locks. Best choice due to waterproofness.

WD40 or CD2: Use on all sliding or rotating joints; such as rollers, hinges and chains. Doesn’t last as long as oil.

Automotive Grease or Petroleum Jelly: Will work in same areas as White Grease, but is not as waterproof and it will attract dust. Be careful when applying grease since it will stain any wood it contacts.

Light Oil, such as 3 in 1 Oil: Can be used on sliding or rotating joints. Care must be used when applying due to possible staining of wood parts.

Graphite: Can be used on sliding and rotating joints. Also works good on cam locks and hinges.

Warning: Avoid the use of silicone based sprays or lubricants. Silicone can cause some plastic parts to become brittle. There are many other products, which can be used which will give equal results. Care must be used when applying any lubricant to avoid staining and/or damage to window and door parts. Since lubricants only work if present, periodic checks should be done to ensure the function of the hardware.

8.5 Check window and door seal – check to make sure the sealant within the windows and doors are intact and has not pulled away from the surfaces. If this occurs, remove the old sealant and clean the surfaces with a solvent such as isopropyl alcohol and reapply a high quality silicone sealant.

8.6 Check perimeter sealant joint – check the sealant joint between the windows, doors and the surrounding installed conditions. There are many installation techniques and materials used in building construction today. Verify the conditions and construction details as well as sealant materials prior to performing any remedial work to this area.

8.7 Check that operating panel(s) are level and plumb – a panel that is not level and plumb may be hard to operate, allow excessive air and water infiltration, not contact the weatherstripping correctly and will look unsightly. In maintaining the window and door in a level and plumb manner will alleviate many problems and insure a long and useful life.
8. **GENERAL MAINTENANCE AND OPERATION INSTRUCTIONS SPECIFIC TO ALUMINUM SLIDING WINDOWS & DOORS**

8.8
If the glazed panels have insulated glass and fog or condensation appears inside the insulated unit, the entire unit must be replaced. Insulated glass units cannot be repaired. Insulated glass units usually carry a 5 or 10 year replacement warranty directly from the glass manufacturer.

8.9
**Cleaning**
Cement, plaster, terrazzo and other alkaline and acidic-based materials used to clean masonry can damage aluminum finishes. If these materials come into contact with the aluminum finish, immediately flush plenty of water and a mild soap to minimize staining. Prior to cleaning the aluminum, spot test the cleaning agent in an inconspicuous area before using on the aluminum or glazed surfaces. – See sections 4,5 and 6 for special cleaning instructions.

---

**SPECIAL CARE AFTER INSTALLATION OF ANODIZED ALUMINUM**

**GENERAL CONSIDERATIONS**

Building owners and managers, along with the architects who have designed their buildings, have always been concerned about the appearance of the exterior wall. The attractiveness of the wall design and the continued excellent appearance of a properly located building brings in and keeps satisfied tenants. The architect who has specified anodized aluminum wall and window components has done so first because of the beauty which can be achieved with such anodized finishes and second because of the long life, durability, and low maintenance that these finishes provide. It then becomes the responsibility of the building owner or manager to see that the original beauty of the building exterior is maintained in order to preserve the desirability and profitability of the proper.

The Architectural Aluminum Manufacturers Association, recognizing the need for the aluminum industry to provide information on the care and maintenance of exterior wall finishes, released a publication entitled "Voluntary Guide Specification for Cleaning and Maintenance of Architectural Anodized Aluminum, AAMA 609.1-1977." This specification outlines methods, equipment, and materials to clean anodized aluminum after construction and for subsequent, periodic maintenance. The methods outlined are applicable to architectural products fabricated from both rolled and extruded shapes, including window and door frames, store fronts, and entrances, curtain walls, Mullions, hand rails, flag poles, and hardware.

The information provided in the specification is useful to building owners, managers, architects, contractors, and others in the building industry that are interested in the proper care and maintenance of anodized aluminum.

As with any finished building material, aluminum requires reasonable care prior to and during installation and periodic cleaning and maintenance after installation. Although anodized aluminum is exceptionally resistant, to corrosion, discoloration and wear, its natural beauty can be marred by harsh chemicals, abuse or neglect. Such conditions usually affect only the surface finish but do not reduce the service life of the aluminum. All exterior surfaces collect varying amounts of soil and dirt, depending on geographic area, environmental conditions, finish and location on the building. These factors and the owner's attitude regarding surface appearance determine the type and frequency of cleaning required. The aluminum cleaning schedule should be integrated with other cleaning schedules for efficiency and economy. For example, both the glass and the aluminum curtain wall can be cleaned at the same time.

Cleaning may be required more often in one geographic area than another when appearance is of prime importance. More frequent cleaning will be required in heavy industrialized areas than in rural areas. Seasonal rainfall can affect washing...
GENERAL CONSIDERATIONS ........ continued

frequency by removing water-soluble deposits and less adherent soil. In foggy coastal regions, frequent cycles of condensation and drying can create a heavy buildup of atmospheric salts and dirt, which may adhere tenaciously. In climates where the rainfall is low, the opportunity for atmospheric washing of the surface is minimal. Los Angeles, for example, with its unique combination of limited rainfall, temperature fluctuation, snow and condensation, requires that aluminum be cleaned more frequently than in other metropolitan areas with more frequent rainfall.

In both wet and dry climates, recessed and sheltered areas usually become more heavily soiled because of the lack of rainwashing. More frequent and longer periods of condensation also occur in protected areas, increasing the adhesion of the soil. This is particularly true of soffit areas on overhangs, bottoms of facia panels, sheltered column covers and the like. Periodic maintenance inhibits long-term accumulation of soil, which, under certain conditions, can accelerate weathering of the finish.

CLEANING PROCEDURES

Cleaning procedures for aluminum should be initiated as soon as practical after completion of installation to remove construction soils and accumulated environmental soils and discolorations.

Cleaning work should start at the top of the building and proceed to the ground level in a continuous drop. Using a forceful water spray, an area the width of the stage or scaffolding should be rinsed as cleaning proceeds from the top down.

Because surface soils may be light or heavy, several progressively stronger cleaning procedures may be employed depending on the severity and tenacity of the soil. Only trial and simplest procedure to remove the soil is the one that should be used.

For light soils, the simplest procedure is to flush the surface with water using moderate pressure. If soil is still present after air-drying the surface, scrubbing with a brush or sponge and concurrent spraying with water should be tried. If soils still adhere, than a mild detergent cleaner should be used with brushing or sponging. Washing should be done with uniform pressure, first horizontally then vertically. Following the washing the surfaces must be thoroughly rinsed by spraying with clean water.

If it is necessary to remove oil, wax, polish, or other similar materials, MEK or an equivalent solvent is recommended for clean up. Extreme care must be exercised when solvents of this type are used since they may damage organic sealants, gaskets and finishes. These solvents should never be used on anodic finishes protected by clear organic coatings unless the organic coating has deteriorated and should be removed.

Removing heavy surface soils may require the use of an abrasive cleaning pad. In this procedure the pad is thoroughly soaked with clean water or a mild detergent cleaner and the metal surface is hand scrubbed with uniform pressure. Scrubbing action should be in the direction of the metal grain. Scrubbing with a nylon-cleaning pad impregnated with a surface protectant material is also recommended for removing stubborn soils and stains. After scrubbing, the surface should be rinsed thoroughly with clean water to remove all residue.

In some circumstances it may be desirable to wipe the surface with a solvent. The surface is then permitted to air dry or is wiped dry with a chamois, squeegee or lint-free cloth.

Using power-cleaning tools may be necessary to remove unusually heavy soils from large areas including panels and column covers. When using such tools, the surface must be continually flushed with clean water or a mild detergent cleaning solution to provide lubrication and a medium for carrying away the dirt. After an area has been machine scrubbed, it must be rinsed with clean water and thoroughly scrubbed with a fairly stiff bristle brush. The surface may then be air dried or wiped dry.
INSPECTION

It is suggested that the building owner or manager provide an engineer or other qualified representative to inspect the cleaning work. Care must be taken to see that metal seams, crevices, sills and other areas that may trap water, cleaner, or dirt are carefully cleaned and dried. A final inspection to ensure that no discoloration or stains remain on the surface is recommended.

CLEANING PRECAUTIONS

Certain precautions must be taken when cleaning anodized aluminum surfaces. Aluminum finishes must first be identified to select the appropriate cleaning method. Aggressive alkaline or acid cleaners must never be used. Cleaning hot, sun-heated surfaces should be avoided since possible chemical reactions will be highly accelerated and cleaning non-uniformity could occur. Strong organic solvents, while not affecting anodized aluminum, may extract stain-producing chemicals from sealants and may affect the function of the sealants. Strong cleaners should not be used on window glass and other components where it is possible for the cleaner to come in contact with the aluminum. Excessive abrasive rubbing should not be used since it could damage the finish.

FIELD PROTECTION AND MAINTENANCE

Field protection and maintenance of cleaned surfaces is of particular interest. A wipe-on surface protectant is now available which is estimated to provide protection for 12 to 24 months in the harshest environments. This protectant is applied to a thoroughly cleaned and dried anodized surface with a lint-free cloth or felt pad. The benefits of such an application are two-fold; first, it protects the finish, and second, it makes subsequent maintenance easier. Subsequent maintenance may well be reduced to simply flushing the surface with water, permitting it to dry and wiping on a surface protectant every few years. In applying this protectant it is very important that the manufacturer’s recommendations be carefully followed.

Many waxes are available for application to anodized finishes, but they are best used on interior items such as handrails, doors, and decorative metals. It is generally not practical to use these materials on high-rise portions of a building.

EQUIPMENT AND PRODUCTS

Equipment and products needed for cleaning and maintaining anodized aluminum finishes are listed in Section 7 of AAMA 609.1-1977. These include mild soaps, detergents, non-etching cleaners, abrasive cleaning pads and cleaning machines. AAMA, however, has not evaluated these materials nor does its listing constitute an endorsement. This list is included only as an aid to potential users in identifying the materials.
3. Caulking

- Failed urethane caulk has no properties of a proper weather-tight sealant joint and must be replaced immediately with new silicone sealant.

- **Immediately replace all weather joints** with new weatherproofing one-part, medium-modules, Dow Corning 795 Silicone sealant to improve the weather tightness of all joints. Non-dirt collecting silicone sealant and color matching options should be carefully considered when selecting the sealant.

- **Five (5) primary concerns of sealant joints:**
  - Panel to Panel
  - Panel to Steel Tube Frames
  - Aluminum Window Frame to Steel Tube Frames
  - Perimeter Cap Bead at Glazing Gasket & Vision Glass
  - Perimeter Caulk Joint at Garden Level Storefront

- **Surface Preparation and Sealant Application:**
  - ✓ Clean – Joint surfaces must be clean, dry, and dust-free
  - ✓ Prime – Primer is applied to *only* clean surfaces
  - ✓ Pack – Backer rod or bond breaker is applied as required
  - ✓ Seal – Sealant is applied generously into the joint cavity
  - ✓ Tool – Dry tooling techniques are used to create a flush joint and to make certain the sealant has the proper configuration and fully contacts the joint walls

- **Procedure to prepare joint prior to sealant application:**
  - ✓ Based on the recommendation of the sealant manufacturer, clean with a solvent before sealant is applied.
  - ✓ For joints with dirt and dust, use 50% solution of isopropyl alcohol (IPA) and water
  - ✓ Any joint with oily dirt require a degreasing solvent such as xylene

*Attachment(s):*
1) Photo documentation of existing failures & other issues identified above
2) Dow Corning sealant specifications & data sheet
December 18th, 2009

Re: Tempe City Hall – Caulking/Sealant - Photo Attachment Sheet
Observations of existing conditions and recommended improvements

Panel to Panel Joinery

Old Urethane sealant has loss adhesion and is not providing weather tight joint allowing excessive air & water infiltration. Complete removal and replacement is needed with silicone sealant.

Steel Frame to Metal Panel

The sealant joint between the steel tube frames and the aluminum glazing system shows evidence of an oily residue bleeding out from the old sealant joint. These conditions can only be restored if the old non-compatible urethane and butyl sealants are cut away and the new joint is properly cleaned before reapplication of new silicone sealant.
Architectural-Grade Sealant with Outstanding Adhesion

- Available in 11 standard colors; custom colors available
- Accommodates movement up to ±50 percent of the original joint width in a properly designed 2:1 joint without affecting adhesion; cured material resists tear propagation
- Can be used with most common building materials; compatible with two-part silicone insulating glass seals
- SWRI approved
- 20-year Limited Warranty (see page 13)

Dow Corning® 795 Silicone Building Sealant

Ideal for structural and non-structural glazing of glass, metal and plastic and for adhering stiffeners to building panels, Dow Corning® 795 Silicone Building Sealant is also excellent for general weatherproofing applications, including perimeter sealing of door and window framing. It is a neutral, one-part adhesive/sealant for new construction and renovation applications that cures to produce a durable and flexible seal.

Architectural Recommendations

For weathersealing applications, to ensure performance under all temperature variations at the time of installation, good architectural practice recommends that joint width should be two times the total expected thermal joint movement, plus tolerances, and a minimum of 1/4 inch (6.4 mm) for this product. Structural applications and warranties require testing and written print review by the Dow Corning Technical Service staff.

More information and technical data sheets are available online at www.dowcorning.com, or call Dow Corning Customer Service at 1-800-322-8723.

Motorola Phase I Building, Tempe, Arizona. Consultants specified Dow Corning® 795 Silicone Building Sealant for 2- and 4-sided structural glazing on this magnificent new Motorola building. The product was also used to weatherseal the building, owned by developer/general contractor Ryan Companies of Phoenix.

Structural Glazing Capabilities and a Controllable Cure Rate

- Available in gray and black
- Accommodates movement up to ±12 percent of the original joint width in a properly designed 2:1 joint without affecting adhesion; cured material resists tear propagation
- Can be used with most common building materials
- 20-year Limited Warranty (see page 13)

Dow Corning® 983 Silicone Glazing and Curtainwall Adhesive/Sealant

Designed for structural adhesive/sealant applications, such as factory glazing and curtainwall production, where fast cure is needed for rapid throughput of finished units, Dow Corning® 983 Silicone Glazing and Curtainwall Adhesive/Sealant is a high-modulus product offering unprimed adhesion to most common construction materials. It has physical properties sufficient for structural adhesive applications, a noncorrosive by-product, excellent weatherability and durability, and recovers after repeated extensions and compressions. This is a two-part material that requires pumping and metering equipment designed for in-shop use.

Architectural Recommendations

The design of the silicone structural joint must be prepared by a design professional and based upon industry-accepted guidelines. Structural applications and warranties require testing and written print review by the Dow Corning Technical Service staff.

More information and technical data sheets are available online at www.dowcorning.com, or call Dow Corning Customer Service at 1-800-322-8723.
Product Information
Silicone Sealants

**Dow Corning® 795**
Silicone Building Sealant

**FEATURES**
- Suitable for most new construction and remedial sealing applications
- Versatile – high performance structural glazing and weathersealing from a single product
- Available in 11 standard colors; custom colors also available

**BENEFITS**
- Excellent weatherability – virtually unaffected by sunlight, rain, snow, ozone and temperature extremes of -40°F (-40°C) to 300°F (149°C)
- Excellent unprimed adhesion to a wide variety of construction materials and building components, including anodized, clad, coated, and many Kenar®-painted aluminum
- Ease of application – ready to use as supplied
- Ease of use – all-temperature gunnability, easy tooling and low-odor cure byproduct
- Meets global standards (Americas, Asia and Europe)

**COMPOSITION**
- One-part, neutral-cure, RTV silicone sealant

**APPLICATIONS**
- Structural and nonstructural glazing
- Structural attachment of many panel systems
- Panel stiffener applications
- Weathersealing of most common construction materials including glass, aluminum, steel, painted metal, EIFS, granite and other stone, concrete, brick and plastics

**TYPICAL PROPERTIES**
Specification Writers: Please contact your local Dow Corning Sales Application Engineer or Dow Corning Customer Service before writing specifications on this product.

<table>
<thead>
<tr>
<th>Method</th>
<th>Test Description</th>
<th>Unit</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>As Supplied</td>
<td>Tack-Free Time, 50% RH</td>
<td>hours</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Curing Time at 25°C (77°F) and 50% RH</td>
<td>days</td>
<td>7-14</td>
</tr>
<tr>
<td></td>
<td>Full Adhesion</td>
<td>days</td>
<td>14-21</td>
</tr>
<tr>
<td></td>
<td>Flow, Sag or Slump</td>
<td>inches (mm)</td>
<td>0.1 (2.54)</td>
</tr>
<tr>
<td></td>
<td>Working Time</td>
<td>minutes</td>
<td>20-30</td>
</tr>
<tr>
<td></td>
<td>VOC Content</td>
<td>g/L</td>
<td>28</td>
</tr>
<tr>
<td>As Cured – After 21 days at 25°C (77°F) and 50% RH</td>
<td>Durometer Hardness, Shore A</td>
<td>points</td>
<td>35</td>
</tr>
<tr>
<td></td>
<td>Peel Strength</td>
<td>lb/in (kg/cm)</td>
<td>32 (5.7)</td>
</tr>
<tr>
<td></td>
<td>Tensile Adhesion Strength</td>
<td>psi (MPa)</td>
<td>45 (0.318)</td>
</tr>
<tr>
<td></td>
<td>at 25% extension</td>
<td>psi (MPa)</td>
<td>60 (0.414)</td>
</tr>
<tr>
<td></td>
<td>at 50% extension</td>
<td>percent</td>
<td>±50</td>
</tr>
<tr>
<td></td>
<td>Joint Movement Capability</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Staining (granite, marble, limestone, brick and concrete)</td>
<td>None</td>
<td></td>
</tr>
<tr>
<td>As Cured – After 21 days at 25°C (77°F) and 50% RH</td>
<td>Tensile Adhesion Strength</td>
<td>psi (MPa)</td>
<td>35 (0.241)</td>
</tr>
<tr>
<td></td>
<td>at 25% extension</td>
<td>psi (MPa)</td>
<td>50 (0.345)</td>
</tr>
</tbody>
</table>

1 Based on South Coast Air Quality Management District of California. Maximum VOC is listed both inclusive and exclusive of water and exempt compounds. For a VOC data sheet for a specific sealant color, please send your request to product.inquiry@dowcorning.com.

**DESCRIPTION**
*Dow Corning® 795 Silicone Building Sealant* is a one-part, neutral-cure, architectural-grade sealant that easily extrudes in any weather and cures quickly at room temperature.

This cold-applied, non-sagging silicone material cures to a medium-modulus silicone rubber upon exposure to atmospheric moisture. The cured sealant is durable and flexible enough to accommodate ±50 percent movement of original joint dimension when installed in a properly designed weatheseal joint. In a properly designed structurally glazed joint, the sealant is strong enough to support glass and other panel materials under high windload.

**APPROVALS/ SPECIFICATIONS**
- Federal Specification TT-S-001543A (COM-NBS) Class A for silicone building sealants
- Federal Specification TT-S-00230C

---

1 Kenar is a trademark of AkzoNobel Chemicals Inc.
2 Contact your local Dow Corning Sales Application Engineer for specifics.
(COM-NBS) Class A for one-component building sealants
• ASTM Specification C 920 Type S, Grade NS, Class 50, Use NT, G, A and O
• ASTM Specification C 1184 for structural silicone sealants
• Canadian Specification CAN2-19.13-M82

COLORS
Dow Corning 795 Silicone Building Sealant is available in 11 colors: black, white, gray, limestone, bronze, sandstone, adobe tan, dusty rose, rustic brick, blue spruce and charcoal. Custom colors may be ordered to match virtually any substrate.

HOW TO USE
Please consult the Dow Corning Americas Technical Manual, Form No. 62-1112, for detailed information on state-of-the-art application methods and joint design. Please contact your local Dow Corning Sales Application Engineer for specific advice.

Preparation
Clean all joints, removing all foreign matter and contaminants such as grease, oil, dust, water, frost, surface dirt, old sealants or glazing compounds and protective coatings.

Application Method
Install backing material or joint filler, setting blocks, spacer shims and tapes. Mask areas adjacent to joints to ensure neat sealant lines. Primer is generally not required on non-porous surfaces, but may be necessary for optimal sealing of certain porous surfaces. A test placement is always recommended. Apply Dow Corning 795 Silicone Building Sealant in a continuous operation using positive pressure. (The sealant can be applied using many types of air-operated guns and most types of bulk dispensing equipment.) Before a skin forms (typically within 15 minutes), tool the sealant with light pressure to spread the sealant against the backing material and joint surfaces. Remove masking tape as soon as the bead is tooled.

HANDLING PRECAUTIONS
PRODUCT SAFETY INFORMATION
REQUIRED FOR SAFE USE IS NOT INCLUDED IN THIS DOCUMENT.
BEFORE HANDLING, READ
PRODUCT AND MATERIAL SAFETY
DATA SHEETS AND CONTAINER
LABELS FOR SAFE USE, PHYSICAL,
AND HEALTH HAZARD INFORMATION.
THE MATERIAL SAFETY
DATA SHEET IS AVAILABLE ON
THE DOW CORNING WEBSITE AT
WWW.DOWCORNING.COM, OR
FROM YOUR DOW CORNING SALES
APPLICATION ENGINEER, OR
DISTRIBUTOR, OR BY CALLING
DOW CORNING CUSTOMER SERVICE.

USABLE LIFE AND
STORAGE
When stored at or below 27°C (80°F),
Dow Corning 795 Silicone Building
Sealant has a shelf life of 12 months from the date of manufacture. Refer to
product packaging for “Use By Date.”

PACKAGING
Dow Corning 795 Silicone Building
Sealant is supplied in 10.3-fl oz (305-mL)
disposable plastic cartridges that fit
ordinary caulking guns, 20-fl oz (590-mL)
sausages and 2- and 4.5-gal (7.5- and
17-L) bulk containers.

LIMITATIONS
Dow Corning 795 Silicone Building
Sealant should not be used:
• In structural applications without
  prior review and approval by your
  local Dow Corning Sales Application
  Engineer
• In below-grade applications
• When surface temperatures exceed
  50°C (122°F) during installation
• On surfaces that are continuously
  immersed in water
• On building materials that bleed oils,
  plastizizers or solvents that may
  affect adhesion
• On frost-laden or wet surfaces
• In totally confined joints (the sealant
  requires atmospheric moisture for cure)
• If the sealant is intended to be painted
  (paints do not typically adhere to
  most silicone sealants)
• To surfaces in direct contact with
  food or other food-grade applications

This product is neither tested nor
represented as suitable for medical or
pharmaceutical uses.

HEALTH AND
ENVIRONMENTAL
INFORMATION
To support customers in their product
safety needs, Dow Corning has an exten-
sive Product Stewardship organization
and a team of Product Safety and
Regulatory Compliance (PS&RC)
specialists available in each area.

For further information, please see
our website, www.dowcorning.com,
or consult your local Dow Corning Sales
Application Engineer.

LIMITED WARRANTY
INFORMATION – PLEASE READ CAREFULLY
The information contained herein is
offered in good faith and is believed to
be accurate. However, because condi-
tions and methods of use of our
products are beyond our control, this
information should not be used in
substitution for customer’s tests to ensure
that Dow Corning’s products are safe,
effective, and fully satisfactory for the
intended end use. Suggestions of use
shall not be taken as inducements to
infringe any patent.

Dow Corning’s sole warranty is
that the product will meet the
Dow Corning sales specifications
in effect at the time of shipment.

Your exclusive remedy for breach of such
warranty is limited to refund of purchase
price or replacement of any product shown
to be other than as warranted.

DOW CORNING SPECIFICALLY
DISCLAIMS ANY OTHER
EXPRESS OR IMPLIED
WARRANTY OF FITNESS
FOR A PARTICULAR PURPOSE
OR MERCHANTABILITY.

DOW CORNING DISCLAIMS
LIABILITY FOR ANY INCIDENTAL
OR CONSEQUENTIAL DAMAGES.

A 20-year Weatherseal Limited Warranty
is available. Some testing may be required.
Consult your Dow Corning Sales
Application Engineer for details.
4. Steel Framing

- Existing paint on the exposed steel tube framing has exceeded its life cycle, showing signs of chalking, and light rust. This surface is critical to the application of new weather-tight sealant joints at the metal panels, as well as, the aluminum frames of the glazing system.

**Surface Preparation:**

- All surfaces must be clean, dry, and free of all dirt
- Remove all loose, peeling chalky paint by sanding, scraping, or other appropriate methods.
- Repair surface imperfections with suitable patching material
- Mask-off all adjacent surfaces to protect finished material

**Paint Instructions:**

- Apply Dunn-Edwards Paint
  - Syn-Lustro, rust preventative, Alkyd semi-gloss enamel
  - Apply with brush, roller, airless spray, or electrostatic spray

*Attachment(s):*
1) Photo’s of existing conditions
2) Dunn-Edwards specifications/Product Information
DESCRIPTION: SYN-LUSTRO® Semi-Gloss is a premium fast drying alkyd enamel that is designed for use on metal surfaces to protect against corrosion. SYN-LUSTRO® Semi-Gloss displays superior brushing characteristics and flow and leveling. Note: When used in interior areas, SYN-LUSTRO® Semi-Gloss is subject to yellowing in white and other light colors.

PRODUCT INFORMATION

<table>
<thead>
<tr>
<th>SOLVENT TYPE</th>
<th>RESIN TYPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paint thinner</td>
<td>Alkyd</td>
</tr>
</tbody>
</table>

FINISH (ASTM D 523)
Semi-Gloss: 50-60% on a 60" meter after 14 days

COLORS
Stock colors: Navajo White, Pearl White, Cottage White, Swiss Coffee. Other colors can be special ordered or store mixed.

TINT BASES
L. Tintable White, M. Medium, U. Ultra Deep

VISCOITY AT 77°F/25°C (ASTM D 562)
65-90 KU

MAXIMUM VOC CONTENT
370 g/L (as supplied)

SOLIDS BY VOLUME (ASTM D 2697)  SOLIDS BY WEIGHT
54.0% ± 2%  73.0% ± 2%

WEIGHT PER GALLON (ASTM D 1475)
11.50 lbs.

COMPOSITION BY WEIGHT

Paint - 46.0%  Vehicle - 54.0%  
*Prime pigments 21.0  Alkyd resins 25.0  
Reinforcing pigments 25.0  Thinner & additives 29.0  
*Prime pigments include titanium dioxide (TiO2), plus all other pigments directly adding to the hiding power of this paint.

RECOMMENDED FILM THICKNESS PER COAT
Wet: 3.7 mils  Dry: 2.0 mils

PRACTICAL COVERAGE PER COAT AT RECOMMENDED DRY FILM THICKNESS
400-425 sq. ft. per gallon, depending on surface conditions.

AVERAGE DRY TIME AT 77°F/25°C (ASTM D 1640)
To touch: 2-3 hours  Recoat: 24 hours

APPLICATION EQUIPMENT
Brush, roller, airless spray, HVLP spray, electrostatic spray

PACKAGING
Quart, one-gallon, five-gallon containers

CONFORMS TO:
Master Painters Institute (MPI) #81  FDA guidelines for application to direct food contact surfaces

MATERIAL SAFETY DATA SHEET
Form #6

SURFACE PREPARATION
All surfaces must be cured, clean, dry, and free from dirt, dust, rust, stains, grease, oil, mildew, wax, efflorescence, and other contaminants. Remove all loose, peeling, or chalky paint by sanding, scraping, high-pressure washing or other appropriate methods. Repair all cracks, holes, and other surface imperfections with a suitable patching material. Repaired surfaces should then be sanded, cleaned, and spot primed with a suitable primer or sealer. Glossy surfaces should be dulled to provide a roughened surface for good adhesion.

SPECIAL INSTRUCTIONS
- CAUTION: Scraping or sanding surfaces of older buildings (especially pre-1978) may release dust containing lead or asbestos. EXPOSURE TO LEAD OR ASBESTOS CAN BE VERY HAZARDOUS TO YOUR HEALTH. Always wear appropriate personal protective equipment during surface preparation, and finish cleanup of any residues by water-washing all surfaces. For more information, see Dunn Edwards brochure on "Surfaces Preparation Safety" or call EPA's National Lead Information Hotline at 1-800-424-LEAD, or log on to www.epa.gov/lead or asbestos, or contact your state or local Health Department.
- This product can neither cause nor prevent the growth of mold, mildew, or other forms of fungus. Excessive moisture and inadequate ventilation are the main conditions that promote their growth. Correct any such conditions before painting.
- SYN-LUSTRO® Semi-Gloss is recommended for use in preventing the corrosion of metal substrates.

THINNING RECOMMENDATIONS
Do not thin under normal environmental and application conditions.

STORAGE
Store in a dry area. Protect from freezing. Extreme temperatures may cause paint to become unusable. For example: Freezing and thawing may cause paint to gel, and high heat may cause a solid skin to form.

CLEANUP
Paint thinner, where allowed. Dispose of waste in accordance with all applicable laws and regulations.

DISPOSAL
For information on local options to dispose of unwanted, leftover paint, call 1-800-CLEANUP, or log on to www.cleanup.org.

PRIMERS

METAL
Ferrous: Ultra-Grip® (W 715) - INTERIOR ONLY or Corroban® (43-5), Galv-Alum (43-7) or Bico-Rust® (43-4)
Non-Ferrous: Galv-Alum (43-7) or Ultra-Grip® (W 715)
Re:  Tempe City Hall – Steel Framing - Photo Attachment Sheet
Observations of existing conditions and recommended improvements

Steel Tube Framing Grid Design

The painted steel frames have faded excessively and show signs of chalking, and light rust penetrating the finish. This surface is critical to the performance and application of the new weather-tight silicone sealant where the application interfaces with the metal panels and the curtain wall glazing system. Refinishing these steel frames must be done to properly re-seal all exterior joints.
5. Roof Coping

*Replace existing material* - Existing material has failed and doesn’t protect the building from air and water infiltration. Design proper height, and thickness of material to achieve water-tight design capable of withstanding thermal movements.

- New .125” former break metal coping
- Size, shape, and profile to meet the design application and prevent water run-off from roof
- 70% Kynar pained finish to match Bronze finish
- Anchor to steel tube frame structure
- Engineer design to meet anticipated thermal movements for expansion and contraction

**Attachment(s):**
1) Photo’s of existing conditions
2) Roof Coping Design Sketch

Respectfully Submitted,
Michael Bourassa

Manager, Western Region
Heitmann & Associates, Inc.
Re: Tempe City Hall – Roof Coping - Photo Attachment Sheet
Observations of existing conditions and recommended improvements

Roof Coping & Metal Panel

Roof coping trim overlaps the metal panel and sits flush with top of new roof installed a few years ago. Evidence of falling gaskets and seals, pop rivets restricting thermal expansion has caused the trim to fail to prevent water infiltration. Ideal application is to create a curb with the coping resisting the rain water from rolling over the sides of the building and down the façade distributing streaks of dirt down the building creating an unsightly appearance.
Revised Coping Detail

1.5" Thickness Alumni Finish to Match Panels
Re:  Tempe City Hall Municipal Complex

Conclusion of Building Enclosure Report

December 18th, 2009

Western Regional Office – 5210 E. Hampton Ave #3204 Mesa, AZ 85206
480.650.6188 office, 480.248.2186
2. Structural
PRIORIT 2: STRUCTURAL
Please see the following TECHNICAL REPORT by CARUSO, TURLEY & SCOTT, Inc.

GENERAL:
The Municipal Complex was examined by Richard Turley and Jennifer Sheppard of Caruso, Turley, & Scott Consulting Structural Engineers. Jesse Wyatt, a noted industry Concrete Specialist, was also consulted. The project team identified areas of concern and prioritized them, from “A” being the highest priority items involving Life Safety concerns to “D” being the lowest priority items pertaining primarily to aesthetic issues.

OVERVIEW:

Plaza Level: The primary structural concerns occur at 3 of the 4 pedestrian bridges and are related to waterproofing and repair issues discussed in Priority 3.

Garden:
Here waterproofing of all metal weld plate connections, concrete landscape retaining wall cracking, rust, and overgrown ficus tree roots threatening foundations and limbs enveloping cast concrete trellis beams are the primary areas of concern.
PRIORITY TWO: STRUCTURAL

Jennifer Sheppard
Jsheppard@ctsaz.com
480-774-1758

Richard Turley
Rturley@ctsaz.com
480-774-1702

Caruso Turley Scott
1215 W Rio Salado Pkwy, Suite 200
Tempe, AZ 85281
CONTENTS

I. Structural Report Coverage ........................................................... Page 3

II. Detailed Structural Items of Concern:

A. Top Priority Items ................................................................. Page 4 - 11
   Repairs required in a timely manner, structural integrity and/or life safety at high risk
   1. Garden Level bearing wall damage at South bridges
   2. Water damage on bridge planks and beams at South bridges
   3. Garden Level water damage at North West building walls
   4. Trees at trellis beams and foundation systems
   5. Garden Level stair retaining wall cracks
   6. Garden Level landscape retaining wall cracks

B. High Priority Items ................................................................. Page 12 - 21
   Repairs or further investigation recommended, structural integrity and/or life safety at medium risk
   1. Cracks in columns and beams at North and South entry of the Garden Level
   2. Water damage at trellis beams
   3. Cracks at light well structural retaining walls, rust at connections
   4. Cracks in structural topping

C. Medium Priority Items ............................................................. Page 20 - 25
   No immediate repairs or investigation required, structural integrity and/or life safety at low risk
   1. Exposed reinforcing and severe cracking at structural members
   2. Tree roots at sidewalk
   3. Rusted steel trellis members
   4. Deteriorated joint material at precast planks

D. Low Priority Items ................................................................. Page 26 - 31
   Cosmetic damage, little-to-no risk toward structural integrity or threat to life safety
   1. Cracking sidewalks
   2. Cracking at railing beams
   3. Deteriorated caulking at railing beams
   4. Holes in trellis deck
   5. Miscellaneous

III. Map of Items of Concern ....................................................... Page 32 - 33

IV. Recommended Local Concrete Repair Companies ....................... Page 34

** See COST ESTIMATE section for an accounting of related work items**
STRUCTURAL REPORT COVERAGE

PROJECT LOCATION:
Tempe City Hall / Municipal Building
31 E. 5th Street
Tempe, Arizona

Caruso, Turley, Scott has performed multiple site visits to the above location with the intention of documenting the existing structural building conditions. This report includes the findings of those site visits.

This report is intended to identify the general condition of the building’s structural components and provide descriptions, recommendations and rough cost estimates for the areas that we believe require further attention. This report is a general overview of the areas listed, and does not include an evaluation of the existing structural systems for load capacity or code compliance and does not include detailed structural repairs. These items, when and where required, will need to be covered in a separate submittal. The cost estimates provided in this report may significantly vary from the actual estimates received due to many factors including scope, timing of the submittals and each particular contractor’s fees.

The focus of our structural evaluations is on the exterior portions of the building in the lower Garden Level and the upper Plaza Level. There was no attempt to investigate the interior offices or the Administration Building, as no specific issues or concerns have been noted or were requested.

The items listed in this report have been organized into four priorities: Priority ‘A’, ‘B’, ‘C’ and ‘D’. We have used our best judgment to place items in these priority groups by the ones that pose the highest risk to life safety and structural integrity (Priority ‘A’ items) to the ones that pose the lowest risk (Priority ‘D’ items).

We would like to emphasize the need for new and updated waterproofing coatings and systems throughout the extents of this building, as is discussed in further detail under the WATERPROOFING SECTION 3 by MWK Architects. Water damage is the central cause of a majority of damaged structural items, as is very typical with the exposed concrete members this building has been constructed with. However, it is difficult to know the extents of damage when evaluating concrete members by visual observations alone. We have made our best judgments to evaluate the extents of the damage, however it will not be clear until destructive testing is performed during the repair process and we are able to investigate the interior sections of the members. Options have been listed under our repair recommendations on many of the items included in this report because each item and location within a given topic may not require the same repair procedure. The repair recommendations have also been organized in this way to aid in determining the availability to perform the repairs due to budget constraints. Please keep in mind that each of these options has associated risks, as noted, and each has its own expected life span.

In general, please reference the COST ESTIMATE SECTION and the WATERPROOFING SECTION for an accounting of related work items.

Please feel free to contact our office for any questions or clarifications to the items listed in this report.
PRIORITY: A

Repairs required in a timely manor, structural integrity and/or life safety at high risk

Top Priority Items

1. Garden Level bearing wall damage at South bridges  
   Page 5
2. Water damage on bridge planks and beams at South bridges  
   Page 5
3. Garden Level water damage at North West building walls  
   Page 7
4. Trees at trellis beams and foundation systems 
   Page 8
5. Garden Level stair retaining wall cracks  
   Page 10
6. Garden Level landscape retaining wall cracks  
   Page 11

** See COST ESTIMATE section for an accounting of related work items**
TOPIC: 1 - Garden Level bearing wall damage at South bridges

(A) 1a
(A) 1b
(A) 1c

LOCATIONS:
1a, 1b: Garden Level – South East and South West bridges at North wall
1c: Garden Level – South West Bridge at South wall (lintel)

DESCRIPTION:
The north concrete walls directly under the bridge planks have delaminated to the point that the internal reinforcing is exposed. The South concrete lintel walls directly under the bridge planks that enclose the offices also show discoloration. It appears this deterioration of the concrete is due to water infiltration damage.

RECOMMENDATIONS:
All delaminated concrete needs to be removed to expose the reinforcing within the wall and the extents of water damage. Interior reinforcing needs to be inspected for rust damage and replaced if needed. After the area is coated with a waterproofing epoxy to prevent future water seepage, the concrete wall needs to be replaced with a minimum 4,000-psi non-shrink repair material to match the existing concrete finishing conditions. The precast planks above need to be investigated and repaired to ensure they are not the source of any future water seepage. See “TOPIC 2” for more information.

ESTIMATED REPAIR COSTS:
$4,500
(Incl: shoring, concrete removal, minor interior repairs and replacement to match existing conditions)

TOPIC: 2 – Water damage on bridge planks and beams at South bridges

(A) 2a
(A) 2b
LOCATIONS:
2a, 2b, 2c, 2d: Underside of bridge planks at South East and South West Bridges

LOCATIONS:
2c: Underside of bridge planks at South West Bridge
2f: Crack in topping of South West Bridge Deck
2g: Crack in topping of South East Bridge Deck

DESCRIPTION:
The undersides of the precast concrete planks at the bridges are showing extensive water damage as evident in the discoloration and delamination of the concrete as well as the deteriorated joint material. The concrete topping on the bridge decks have large cracks running the length of the decks.

RECOMMENDATIONS:

**Underside of Precast Concrete Bridges Planks, Including Concrete Beams:**
All delaminated concrete needs to be removed to reveal the extents of water damage, possibly exposing the steel reinforcing tendons within. If the interior steel is exposed, it needs to be inspected for rust damage and replaced or repaired if needed. After coating the area with a waterproofing sealant to prevent future water seepage, the concrete needs to be replaced with a minimum 4,000-psi non-shrink repair material to match the existing concrete finishing conditions.
Concrete Topping on Bridges:
The toppings along the bridges need to be removed and the precast concrete planks below need to be reviewed and tested for the extents of water damage. All delaminated concrete needs to be removed from the planks to reveal the extents of water damage, possibly exposing the steel reinforcing tendons within. If the interior steel is exposed, it needs to be inspected for rust damage and replaced or repaired if needed. The concrete then needs to be replaced with a minimum 4,000-psi non-shrink repair material. After the substructure repair is complete, the bridge planks will need to be coated with a waterproofing membrane to prevent future water seepage, and the concrete topping will need to be replaced to match the existing concrete finishing conditions.

ESTIMATED REPAIR COSTS:

Underside of Precast Concrete Bridges Planks, Including Concrete Beams:
$3,500
  Incl: concrete removal, minor interior repairs and replacement to match existing conditions, assuming shoring is already in place from Topic 2

Concrete Topping on Bridges:
Please reference other sections for more information on these repair costs

TOPIC: 3 – Garden Level Water Damage at North West Building Walls

(A) 3a  (A) 3b

LOCATIONS:
3a – 3b: North West corner of building in Garden Level that encloses the offices

DESCRIPTION:
The underside of the precast concrete planks, the concrete walls and the concrete beams show water damage throughout the area as evident in the discoloration and spalling of the concrete and the rust damage on the exposed steel bearing plates. The interior offices adjacent to this area have had water leaks through the concrete topping at the Plaza Level deck, but are currently assumed to be patched.

RECOMMENDATIONS:
Options:
1. No Action: Risks are associated with taking no action to repair or waterproof the areas that have visually been damaged by water intrusion. Once the steel reinforcing bars within the concrete have been damaged by water and infected by rust, the steel’s area greatly increases and pushes out onto the concrete, causing more spalling and damage. If the interior reinforcing is already rusted, it will spread and continue to cause more
damage to the surrounding concrete members until the rust is cleaned and the area is waterproofed. If the rust is allowed to continue to spread, the steel reinforcing will eventually lose cross-sectional area and will need to be replaced, increasing the time and cost of the repair.

2. **Clean, Waterproof and Monitor**: To visually help the appearance of these locations, simply clean off the mold and discoloration caused by water damage from the concrete. All exposed steel, including base plates, also need to be cleaned of all rust to prevent further spreading. If any cracks are present (in the walls, topping, or on the underside of the planks), they need to be sealed with an epoxy-injection solution to prevent future water infiltration into the concrete members. Coating the concrete members with a waterproof sealer will also help prevent water from seeping into the concrete. Once the areas has been cleaned and the waterproofing system is in place, the areas should be monitored to see if the interior reinforcing has already rusted, which will be evident if any existing cracks widen over time, or if any new cracks begin to form.

3. **Test, Repair and Replace**: The extent of the damage that is currently present within the concrete members is unknown until the areas are tested using destructive testing methods. Remove all delaminated concrete to reveal the extents of water damage, possibly exposing the reinforcing within. If the interior reinforcing is exposed, it needs to be inspected for rust damage and replaced if needed. The topping at the Upper Level needs to be tested for any delaminations, and removed as necessary also. After the area is coated with a waterproofing sealant to prevent future water seepage, the concrete needs to be replaced with a minimum 4,000 psi non-shrink repair material to match the existing concrete finishing conditions.

**ESTIMATED REPAIR COSTS:**

1. $0
2. $1,500
3. $3,500
   - Incl: shoring, concrete removal, minor interior repairs and replacement to match existing conditions

**TOPIC: 4 – Trees at Trellis Beams and Foundation Systems**
LOCATIONS:
4a, 4d: North West trellis beam next to building wall
4b: North West trellis beam, J96: South West trellis beam
4c: North East trellis beam next to building wall
4e: Small retaining wall at ramp in North West corner of building
4f: South West trellis beam next to stairs

DESCRIPTION:
Some of the trees in the garden level have grown around the concrete trellis beams. In some locations, the trees have pushed the steel trellis beams out of the way. The trunks of some of these trees are growing into the surrounding walls and foundation systems.

RECOMMENDATIONS: * consultation with an arborist is recommended

Options:
1. **No Action:** Risks are associated with taking no action to trim or remove these large trees. Because they are so large and tall, the trunks and limbs rotate when the wind blows, putting additional stress onto the trellis beams that was not initially designed for. This stress will cause the trellis beams to crack and fail, especially if a large microburst travels through the trees. The tree trunks and roots are dangerously close to building walls and foundation systems. If the trees along the building walls are not removed they will begin pushing against the building walls and foundations, causing differential movement, cracks and widespread damage. This is a slow process but is inevitable because these trees are only getting larger. If needed, repairs to the foundation systems and walls are very pricey.

2. **Trim Key Limbs and Roots:** If certain tree limbs are removed from physically touching the trellis beams, the immediate risk of failure is removed along the trellis. This approach buys time until the limbs grow back near or onto the beams again, at which point the limbs will need continual trimming. This approach can possibly be taken at the root systems as well to remove the areas that are adjacent to the building walls. An arborist needs to be consulted to discuss partial removal options.

3. **Remove Trees Completely:** Because of the proximity to key structural beams, walls and foundations, it is our opinion that the trees be removed completely to avoid major future impact and damage, if it is not damaged already. Once the tree trunks and roots are
removed and the stem walls and foundations are exposed, further evaluation needs to be performed to determine the extents of the damage.

ESTIMATED REPAIR COSTS:
1. $0
2. $1,000 / limb removal
   *Incl: removal and disposal – does not include arborist’s consultation time*
3. $3,000 / tree removal, including root system
   *Incl: removal and disposal – does not include arborist’s consultation time*

TOPIC: 5 – Garden Level Stair Retaining Wall Cracks

LOCATIONS:
5a: NW Stairs, 5b – 5c: SW Stairs

DESCRIPTION:
Horizontal cracks are present through the concrete stair retaining walls along length of the lower section of all three stairs (NW, NE and SW locations). The cracks are measuring a maximum of ¼” thick and are causing differential movement between the concrete on the upper and lower parts of the crack.

RECOMMENDATIONS:
These walls need to be removed down to below visual grade and/or to the stem and replaced using vertical dowels, matching the existing concrete finishing conditions as closely as possible. Proper drainage holes will also need to be installed along this wall to prevent excess hydrostatic pressure, which aids to cause this type of cracking. Structural details will need to be provided once this repair begins, and care needs to be taken to provide shoring for the existing soil in the area while work is being performed.

ESTIMATED REPAIR COSTS:
$200 / LF * approximately 240 LF (36” deep) = $48,000
   *Incl: removal and disposal of existing wall and replacement per structural specifications*
TOPIC: 6 – Garden Level Landscape Retaining Wall Cracks

LOCATIONS:
6a, 6b: NW Landscape Retaining Walls
6c, 6d: SW Landscape Retaining Walls

DESCRIPTION:
Horizontal cracks are present on all of the low concrete landscape retaining walls at all three landscaped areas in the Garden Level (NW, NE and SW locations). The cracks are measuring a maximum of ½” thick and are exposing the internal reinforcing to the weather, water seepage and further damage.

RECOMMENDATIONS:
These walls need to be removed down to the stem and replaced using vertical dowels, matching the existing concrete finishing conditions as closely as possible. Proper drainage holes will also need to be installed along this wall to prevent excess hydrostatic pressure, which aids to cause this type of cracking. Structural details will need to be provided once this repair begins, and care needs to be taken to provide shoring for the existing soil in the area while work is being performed.

ESTIMATED REPAIR COSTS:
$100 / LF * approximately 150 LF (16” deep) = $15,000
Incl: removal and disposal of existing wall and replacement per structural specifications
PRIORITY: B

Repairs or further investigation recommended, structural integrity and/or life safety at medium risk

High Priority Items

1. Cracks in columns and beams at North and South entry of the Garden Level
   Page 13
2. Water damage at trellis beams
   Page 14
3. Cracks at light well structural retaining walls, rust at connections
   Page 16
4. Cracks in structural topping
   Page 18

** See COST ESTIMATE section for an accounting of related work items**
**TOPIC:** 1 – Cracks in column and beams at North and South entry of Garden Level

![Images of cracks in columns and beams](B 1a, B 1b, B 1c, B 1d)

**LOCATIONS:**
- 1a, 1b: Garden Level North Entry Beams and Columns/Connections
- 1c, 1d: Garden Level South Entry Beams and Columns/Connections

**DESCRIPTION:**
Vertical cracks encircle the beams on all four sides at the mid-spans. These are hairline cracks approximately 1/16" thick, and are possibly due to expansion within the concrete members. It appears these cracks have started at the corners of the holes that encompass the recessed lighting because these corners are weak points. Multiple hairline cracks are also present at the beam to column connection points. It is possible that these cracks are forming due to expansion within the concrete members, or because the interior reinforcing steel is rusting from water infiltration and swelling to break the surrounding concrete.

**RECOMMENDATIONS:**

*Options*

1. **No Action:** Risks are associated with taking no action to repair, waterproof or seal these cracks. Once concrete is opened with cracks, water more easily infiltrates the steel reinforcing within. Water causes steel to rust, which increases the steel’s area and pushes out against the concrete, causing more and severe cracks. If the interior reinforcing is already rusted and it is exposed to more water damage, the rust will spread and cause the cracks to widen, and it will spread to engulf more of the concrete members. If the rust is allowed to continue to spread, the steel reinforcing will eventually loose cross-sectional area and will need to be replaced, increasing the time and cost of the repair.
2. **Waterproof and Monitor:** Seal the cracks with an epoxy-injection solution to waterproof around each of the cracks and prevent future water infiltration into the concrete members. Coating the concrete members with a waterproof sealer will also help prevent water from seeping into the concrete. Once the waterproofing system is in place, a crack gauge should be set on the cracks to monitor their widths over time. This monitoring system should be installed to see if the interior reinforcing has already rusted, which will be evident if the cracks widen over time. For more information on waterproofing systems, see *WATERPROOFING SECTION 3*.

3. **Test, Repair and Replace:** The extent of the damage that is currently present is unknown until the areas are tested using destructive testing methods. All delaminated concrete needs to be removed to reveal the extents of water damage, possibly exposing the reinforcing within. If the interior reinforcing is exposed, it needs to be inspected for rust damage and cleaned or replaced as needed. After the area is coated with a waterproofing sealant to prevent future water seepage, the concrete needs to be replaced with a minimum 4,000-psi non-shrink repair material to match the existing concrete finishing conditions. To prevent future cracks at the weakened corners of the light fixture holes, the areas around the holes need to be removed and replaced—with no holes—and a face mounted light fixture system replaced. Structural details may need to be issued once the repair process has begun.

**ESTIMATED REPAIR COSTS:**

1. $0
2. $30 / LF * approximately 90 LF = $2,700
3. $3,500
   *Incl: shoring, concrete removal, minor interior repairs if required and replacement to match existing conditions*

**TOPIC: 2 – Water Damage at Trellis Beams**

(B) 2a (B) 2b
LOCATIONS:
2a: North West junction of trellis beam to wall
2b: Trellis beam to North West building wall
2c, 2d, 2e: Trellis beam connections in North West area
2f: Trellis beam connections in South West area

DESCRIPTION:
The concrete trellis beams show water damage throughout the Garden Level as evident in the discoloration of the concrete, the rust damage on the steel bearing plates and slight spalling of the concrete.

RECOMMENDATIONS:
Options:
1. **No Action**: Risks are associated with taking no action to repair or waterproof the areas that have visually been damaged by water intrusion. Once the steel reinforcing bars within the concrete have been damaged by water and infected by rust, the steel’s area greatly increases and pushes out onto the concrete, causing more spalling and damage. If the interior reinforcing is already rusted, it will spread and continue to cause more damage to the surrounding concrete members until the rust is cleaned and the area is waterproofed. If the rust is allowed to continue spreading, the steel reinforcing will eventually loose cross-sectional area and will need to be replaced, increasing the time and cost of the repair.

2. **Clean, Waterproof and Monitor**: To visually help the appearance of these locations, simply clean off the mold and discoloration caused by water damage from the concrete. All exposed steel, including base plates, also need to be cleaned of all rust to prevent further spreading. If any cracks are present, they need to be sealed with an epoxy-injection solution to prevent future water infiltration into the concrete members. Coating
the concrete members with a waterproof sealer will also help prevent water from seeping into the concrete. Once the area has been cleaned and the waterproofing system is in place, the areas should be monitored to see if the interior reinforcing has already rusted, which will be evident if any existing cracks widen over time, or if any new cracks form. For more information on waterproofing systems, see WATERPROOFING SECTION 3.

3. **Test, Repair and Replace**: The extent of the damage that is currently present is unknown until the areas are tested using destructive testing methods. Choose the top two to three visually worst-case locations and remove all delaminated concrete to reveal the extents of water damage, possibly exposing the reinforcing within. If the interior reinforcing is exposed, it needs to be inspected for rust damage and replaced if needed. After the area is coated with a waterproofing sealant to prevent future water seepage, the concrete needs to be replaced with a minimum 4,000 psi non-shrink repair material to match the existing concrete finishing conditions. The findings from these top two to three locations will help determine the actions required at the rest of the locations.

**ESTIMATED REPAIR COSTS:**

1. $0
2. $30 / LF for cracks * approximately 150 LF = $4,500
3. $1,500 / beam * 1 or 2 of the worst-case beams = $3,000 - $4,500
   (Depending on findings more beams may need repairs)
   Incl: shoring, concrete removal, minor interior repairs and replacement to match existing conditions

**TOPIC: 3 – Cracks at Light Well Retaining Walls, Rusted Connections**

[Images of cracks and rusted connections]

**LOCATIONS:**

3a, 3b: Large North East light well
3d: East light well, third one down, 3e: East light well, fifth one down
3f: East light well, sixth one down, 3c: Small South East light well

DESCRIPTION:
The light well’s concrete retaining walls have cracks on the top measuring a maximum of approximately 1/8” wide. At one location (picture 3b above), vegetation appears to be growing out of the walls. Some portions of the steel grating are rusted, the concrete surrounding the grating and the grating connections themselves are also broken in some areas.

RECOMMENDATIONS:

Concrete Retaining Walls:
Options
1. **No Action**: Risks are associated with taking no action to repair or waterproof the areas that have visually been damaged by water intrusion. Once the steel reinforcing bars within the concrete have been damaged by water and infected by rust, the steel’s area greatly increases and pushes out onto the concrete, causing more spalling and damage. If the interior reinforcing is already rusted, it will spread and continue to cause more damage to the surrounding concrete members until the rust is cleaned and the area is waterproofed. If the rust is allowed to continue to spread, the steel reinforcing will eventually lose cross-sectional area and will need to be replaced, increasing the time and cost of the repair. The vegetation will increase in size over time and will continue to push and break the surrounding concrete.

2. **Seal, Waterproof and Monitor**: All cracks need to be routed and sealed with an epoxy-injection solution and coated with a water-sealant to prevent future water infiltration into the concrete members. The close proximity to the landscape sprinklers is a concern to require additional waterproofing in this area. Once the waterproofing system is in place, the areas should be monitored to see if the interior reinforcing has already rusted, which will be evident if any existing cracks widen over time (this can be monitored using a crack gauge), or if any new cracks form.

3. **Remove and Replace**: Some locations along these concrete retaining walls have loose and spalling concrete. These areas need to be cleaned of all loose concrete to reveal the extents of water damage, possibly exposing the reinforcing within. If the interior reinforcing is exposed, it needs to be cleaned and inspected for rust damage and replaced if needed. After the area is coated with a waterproofing sealant to prevent future water seepage, the concrete needs to be replaced with a minimum 4,000-psi non-shrink repair material to match the existing concrete finishing conditions.

Steel Grating and Connections:
Options
1. **Clean and Waterproof**: Clean all exposed steel grating and steel embedded connections free from rust and apply a waterproof coating to the areas to prevent future water infiltration and damage.

It appears the steel grates have been removed at one point and improperly re-attached at many locations. All connections need proper re-attachments either by welds or bolts.
2. **Remove, Repair and Replace:** If after being cleaned it is revealed that the steel has lost a significant amount of area, it needs to be removed and replaced. There are locations in which the steel embed plates have broken the surrounding concrete, exposing the anchor bolts and compromising the strength of the connection, particularly over the South West mechanical well. This requires the areas be cleaned of all loose concrete to reveal the extents of the damage. The steel embedded connections need to be replaced, and the concrete needs to be patched, with appropriate coverage around all interior steel, with a minimum 4,000-psi non-shrink repair material.

The steel grating has been poorly welded in many locations to the point that significant section area has been lost and has compromised the strength. These steel grates, in particular at the South West mechanical well, need to be replaced and re-attached properly to the existing steel beam supports.

**ESTIMATED REPAIR COSTS:**

**Concrete Retaining Walls:**

1. $0
2. $40 / LF * approximately 250 LF = $10,000
3. $100 / LF * approximately 250 LF (24” deep) = $25,000

**Steel Grating:**

*Please reference other sections for more information on these repair costs*

**TOPIC:** 4 – Cracks in Structural Topping

**LOCATIONS:**

4a: Topping at West bridge to building
4b, 4d: Topping at Stair Tower
4c: Patched crack just North of South East bridge
4e: Topping just East of South East bridge,
4f: Topping at West walkway

DESCRIPTION:
The concrete structural topping at the elevated framing system has a number of cracks measuring a maximum of approximately 1/8" wide. All of these cracks appear to be caused by concrete expansion and do not appear to be signs of further structural problems within the system. There are a number of repaired cracks and deteriorating joint material throughout the concrete topping.

RECOMMENDATIONS:

Options
1. Seal and Monitor: All cracks in the structural concrete topping need to be routed and sealed with an epoxy-injection solution to prevent water infiltration into the concrete and steel members below. Once this waterproofing system is in place, the areas should be monitored to see if the interior reinforcing has already rusted, which will be evident if any existing cracks widen over time (this can be monitored using a crack gauge) or if any new cracks form.

2. Test, Remove, Waterproof and Replace: If the topping has extensive cracking damage, it needs to be removed and the extents of water damage on the substructure needs to be evaluated and repaired accordingly – this will require further investigation and structural details. After a proper waterproofing system is placed above the sub-structure, the concrete topping needs to be replaced with a minimum 3,000psi mix to match the existing exposed aggregate conditions.

In particular, a strip of concrete at the East end of the West-side bridge appears to have significant differential settlement from the beam line adjacent to it. This abrupt change in elevation is not only a tripping hazard, but also appears to collect rain runoff from the deck, accelerating the deterioration process at the joint material and thus into the sub-structure below. At a minimum, this strip of concrete needs to be removed and replaced as stated above, however more of the bridge topping may require removal and replacement for further installation of waterproofing systems. See WATERPROOFING SECTION 3 for more information.

ESTIMATED REPAIR COSTS:
1. $30 / LF * approximately 300 LF = $9,000
2. Please reference other sections for more information on these repair costs
PRIORITY: C

No immediate repairs or investigation required, structural integrity and/or life safety at low risk.

Medium Priority Items

1. Exposed reinforcing and severe cracking at structural members
   Page 21
2. Tree roots at sidewalk
   Page 22
3. Rusted steel trellis members
   Page 24
4. Deteriorated joint material at precast planks
   Page 24

** See COST ESTIMATE section for an accounting of related work items**
TOPIC: 1 – Exposed Reinforcing and Severe Cracks at Structural Members

LOCATIONS:
1a: West Bridge looking from North Side
1b, 1c: North East Bridge, at Bottom of Stairs, 1d, 1e: South East Bridge

DESCRIPTION:
Cracks are present on many of the structural concrete members measuring a maximum of approximately 1/8” wide, and spalling concrete is exposing interior steel reinforcing in many locations. The cracks are also exposing steel base plate connections. These cracks are caused by thermal expansion, settling of the concrete members, water infiltration, etc.

RECOMMENDATIONS:
Options:
1. **No Action**: Risks are associated with taking no action to repair, waterproof or seal these cracks. Once concrete is opened with cracks, water more easily infiltrates the steel reinforcing within. Water causes steel to rust, which increases the steel’s area and pushes out against the concrete, causing more and severe cracks. If the interior reinforcing is already rusted and it is exposed to more water damage, the rust will spread and cause the cracks to widen, and it will spread to engulf more of the concrete members. If the rust is allowed to continue to spread, the steel reinforcing will eventually lose cross-sectional area and will need to be replaced, increasing the time and cost of the repair.

2. **Clean, Patch, Waterproof and Monitor**:
   - **Cracks**
     Seal the cracks with an epoxy-injection solution to waterproof and prevent further water infiltration into the concrete members.
Exposed Reinforcing

The exposed steel reinforcing should be cleaned of all rust, and covered with a minimum 3,000-psi non-shrink repair material to match the existing concrete finishing conditions. The surrounding concrete can also be coated with a waterproof sealer that will help prevent water from seeping further into the concrete.

Steel Plate Connections

Clean all steel plates free from rust, patch any broken concrete with a minimum 3,000-psi non-shrink repair material to match the existing concrete finishing conditions, and replace the connections.

Once the waterproofing systems are in place, the cracks and their surrounding areas should be monitored to determine if the steel reinforcing below the surface has already begun the rusting process. This will be evident if more cracks begin propagating near the original, or if the existing cracks continue to widen.

3. Test, Repair and Replace: The extent of the damage that is currently present is unknown until the areas are tested using destructive testing methods. All delaminated concrete needs to be removed to reveal the extents of any water damage, possibly exposing the reinforcing within. If the interior reinforcing is exposed, it needs to be inspected for rust damage and replaced if needed – structural details will need to be issued for these repairs. After the area is coated with a waterproofing sealant to prevent future water seepage, the concrete needs to be replaced with a minimum 3,000-psi non-shrink repair material to match the existing concrete finishing conditions.

**ESTIMATED REPAIR COSTS:**

1. $0
2. $40 / LF for cracks * approximately 200 LF = $8,000
   $10 / SF for patchwork * approximately 40 SF = $400
3. $200 / SF * approximately 90 SF (3" deep) = $18,000

   *Incl: testing, concrete removal, minor interior repairs if required and replacement to match existing conditions*

**TOPIC: 2 – Tree Roots at Sidewalk**
LOCATIONS:
2b: Sidewalk at the North West corner of Garden Level
2a, 2c, 2d: Sidewalk at the South West corner of Garden Level

DESCRIPTION:
There are large, mature trees present all around the Garden Level that are protruding onto the sidewalk edge. The sidewalks are cracking in nearby locations, possibly due to the root systems exerting upward pressure against the concrete.

RECOMMENDATIONS: *consultation with an arborist is recommended
Options:
1. **No Action**: Risks are associated with taking no action to trim or remove these large trees. If they are not removed then as they increase in size with time, they will continue pressing against the concrete sidewalk and onto the trellis foundation system, causing differential movement, cracks and widespread damage. This is a very slow process but is inevitable because these trees are only getting larger.

2. **Trim Key Roots at Trellis Columns**: It may be possible to strategically remove and/or trim certain roots in order to immediately prevent damage to the nearby concrete trellis columns. This approach buys time until the roots grow back near them again, at which point they will need further trimming. An arborist will need to be consulted to discuss partial removal options.

3. **Cut Sidewalk Back to Allow More Growth**: The planter openings within the sidewalk can be saw-cut and opened wider to allow the trees and their roots to grow and expand without impacting the concrete. This approach buys time until the roots grow back near or onto the walkways again, at which point they will need further review. An arborist will need to be consulted to determine safe locations and depths to saw cut the sidewalk to prevent damaging the trees’ root systems.

4. **Remove Trees Completely**: The trees can be removed completely to avoid continuing and future damage to the concrete sidewalk and trellis columns. Care needs to be taken to replace the voids below the sidewalk with compacted fill to prevent settlement cracks. An arborist will need to be consulted to discuss removal options.

ESTIMATED REPAIR COSTS: *costs do not include arborist’s fees
1. $0
2. Please first consult arborist to determine if this is an acceptable option
3. $500 / planter area
4. $3,000 / tree removal, including roots
TOPIC: 3 – Rusted Metal Trellis Members

LOCATIONS:
3a: North Wall at Garden Level, 3b: Trellis Framing in North West area of Garden Level
3c: Trellis Framing in West area of Garden Level just North of the West Bridge

DESCRIPTION:
Some of the steel trellis beams are showing rust damage from the exposure to the exterior elements. The rust appears to only be on the surface and does not currently pose a threat to the structural integrity of the framing members.

RECOMMENDATIONS:
Options:
1. No Action: If the rust is not cleaned from the existing steel framing members, it will only spread and become more severe, eventually eating away section area of the members, eventually causing them to be replaced.

2. Clean and Treat: The rust needs to be cleaned from the steel trellis members and the area needs to then be treated with a waterproof coating system to help prevent future damage.

ESTIMATED REPAIR COSTS:
1. $0
2. $10 / LF * approximately 200 LF = $2,000

TOPIC: 4 – Deteriorated Joint Material at Precast Planks

LOCATIONS:
4a: East Bridge Deck
4b, 4c: Underside of East Bridge Planks

DESCRIPTION:
The joint material at the precast concrete bridge planks and topping has deteriorated and in some cases is falling out.

RECOMMENDATIONS:
Options:
1. **No Action**: This joint material is present for waterproofing the structural system below and also for aiding to soften the expansion and contraction cycles the concrete exhibits throughout the year. This material is designed to wear out and if not replaced can cause the concrete members on adjacent sides to rub against each other and break, and will cause water to seep into and damage the sub-structure below.

2. **Remove the Old and Replace with New**: All of the old, brittle expansion joint material needs to be removed and replaced with new. Please reference *WATERPROOFING SECTION 3* for additional information.

ESTIMATED REPAIR COSTS:
1. $0
2. Please reference other sections for more information on these repair costs
PRIORITY: D

Cosmetic damage, little-to-no risk toward structural integrity or threat to life safety

Medium Priority Items

1. Cracking sidewalks  
   Page 27
2. Cracking at railing beams  
   Page 28
3. Deteriorated caulking at railing beams  
   Page 28
4. Holes in trellis deck  
   Page 29
5. Miscellaneous  
   Page 30

**See COST ESTIMATE section for an accounting of related work items**
TOPIC: 1 – Cracking Sidewalks

LOCATIONS:
1a: Garden Level sidewalk at base of the South West stairs
1b: Garden Level sidewalk at the base of the South building wall
1c: Garden Level sidewalk at the base of the short retaining wall in the North West area

DESCRIPTION:
Numerous cracks are present in the concrete sidewalk and concrete stairs on grade. These cracks appear to be caused from general wear, the thermal expansion-contraction process, and soil settlement.

RECOMMENDATIONS:
Options:
1. **No Action:** Since these cracks are cosmetic and do not threaten the structural integrity or life safety of the building, there is very little risk associated with not repairing them. If there is differential settlement between the cracks or if the cracks are very wide, they could be tripping hazards to pedestrians. According to the existing plans, there is no internal reinforcing within the sidewalk concrete; therefore we are not concerned with any internal steel being damaged by rust.

2. **Seal Cracks:** The cracks can be grinded smooth and sealed to enclose the openings and protect them from further water intrusion and from being tripping hazards.

3. **Remove and Replace:** The concrete on grade can be removed in sections and replaced altogether to improve the aesthetics of the area and to help with the differential settlement. The new concrete needs to match the texture and color of the existing nearby concrete.

ESTIMATED REPAIR COSTS:
1. $0
2. $20 / LF for cracks * approximately 200 LF = $4,000
3. Please reference other sections for more information on these repair costs
**TOPIC: 2 – Cracking at Railing Beams**

**LOCATIONS:**
2a, 2b: Railing at South East corner of interior Plaza
2c: Railing at the North East stair of outer Plaza

**DESCRIPTION:**
Numerous cracks are present in the concrete railing members. These cracks appear to be caused from general wear, the thermal expansion-contraction process and measure a maximum of approximately 1/16” wide. No rebar is exposed or is being immediately threatened, as different from the cracks mentioned in Priority C, Topic 1.

**RECOMMENDATIONS:**
*Options:*
1. **No Action:** These cracks are cosmetic and do not threaten the structural integrity or life safety of the building. They are not wide enough at this point to allow much water to infiltrate within to the steel reinforcing. The reinforcing will not be damaged by water and rust enough to break out the surrounding concrete for years into the future.
2. **Seal Cracks:** The cracks can be grinded smooth and sealed to enclose the openings and protect them from potential water intrusion. This is a preventative measure so that the cracks do not continue to widen and get worse over time.

**ESTIMATED REPAIR COSTS:**
1. $0
2. $20 / LF for cracks * approximately 200 LF = $4,000

**TOPIC: 3 – Deteriorated Caulking at Railing Beams**

(D) 2a  (D) 2b  (D) 2c

(D) 3a  (D) 3b  (D) 3c
LOCATIONS:
  3a: Railing at North West stairs, 3b: Railing at South East corner of outer Plaza
  3c: Railing at North East corner of outer Plaza

DESCRIPTION:
The caulking between railing concrete members is old and is drying, cracking and falling out. This joint sealant is used to waterproof and seal off the edges of the concrete members.

RECOMMENDATIONS:
Options:
1. No Action: These joints are currently open and exposed to water infiltration, therefore if not repaired the surrounding concrete will continue deteriorating, expanding the areas that will need future repairs. Our structural concern is higher in the areas which the concrete itself has begun deteriorating. Currently in most locations only the joint material has begun deteriorating, and so far this is mainly a waterproofing problem, for more information see WATERPROOFING, SECTION 3.

2. Remove and Replace: The existing caulking needs to be removed altogether and replaced to provide adequate protection for the surrounding concrete. For more information on the replacement material and application, see WATERPROOFING, SECTION 3. If the concrete currently has cracks, please reference other sections of this report for repair recommendations.

ESTIMATED REPAIR COSTS:
Please reference other sections for more information on these repair costs

TOPIC: 4 – Holes in Metal Trellis Deck

LOCATIONS:
  4a, 4b: Trellis deck at North West corner of Garden Level

DESCRIPTION:
There are some holes present in the exterior gyp-board that covers the metal trellis beams. These holes appear to measure a maximum of 2 inches in diameter and have been caused by possibly falling objects or vandalism.
RECOMMENDATIONS:
Options:
1. **No Action**: These holes present no immediate danger to the structural system, however if not repaired could continue increasing in size, allowing objects to pass through them to the pedestrian walkway below.

2. **Patch**: These holes can be patched on an individual basis either using the same or similar material as originally constructed.

ESTIMATED REPAIR COSTS:
*Please reference other sections for more information on these repair costs*

**TOPIC: 5 – Miscellaneous**

LOCATIONS:
5a: Missing bolts at trellis beam connection, South East Garden Level
5b: Loose steel material on trellis beam, North Garden Level
5c: Missing end cap on metal trellis beam, North West Garden Level
5d: Deteriorated flashing at deck edge, East edge of outer Plaza Deck
5e: Exposed metal bolts, top retaining wall at North West stair in Garden Level

DESCRIPTIONS and RECOMMENDATIONS:
**Missing bolts at trellis beam connections**: There are multiple locations in which the trellis beam connections are missing the bolts. These bolts need to be installed as originally intended to complete the structural connections. It appears these connections require ¼" through bolts.

**Loose steel material on trellis beam**: Some locations around the trellis beams have loose steel parts that could blow off and fall on the pedestrians below. These loose parts need to be removed.
**Missing end cap on metal trellis beam:** A few of the metal trellis beams are missing end caps. These caps protect the beams from filling up with debris, animals and or water and they need to be replaced at each missing location.

**Deteriorated flashing at deck edge:** The underside of the plaza level outer deck has flashing that has been damaged by wear and water rust deterioration. At some locations, the flashing is completely deteriorated and is gone. This flashing needs to be replaced to properly protect the concrete substructure, please see *WATERPROOFING, SECTION 3* for more information.

**Exposed metal bolts:** There are a few locations with exposed metal bolts protruding from the concrete members. From what we saw, these locations are generally pretty high and do not pose a threat to pedestrians. However, their purpose should be investigated and if allowable, the bolts should be saw cut flush with the wall.

**ESTIMATED REPAIR COSTS:**
*Please reference other sections for more information on these repair costs*
MAP – PLAZA LEVEL

- PRIORITY “A” ITEMS
- PRIORITY “C” ITEMS
- PRIORITY “B” ITEMS
- PRIORITY “D” ITEMS

<Outer Plaza Deck->

<Inner Plaza Deck->
RECOMMENDATIONS

Due to the nature of the concrete repairs required on this building, and the complexity involved with matching the existing exposed aggregate look, we would like to recommend the following concrete repair companies to perform the work:

RESTRICTION CORPORATION
2105 S Hardy Drive #7
Tempe, AZ 85282
http://www.restruction.com/
Contact: Adam Zius
        Regional Manager
        (480)-557-9174
        azius@restruction.com

CONCRETE PRESERVATION CO.
8756 E San Pedro
Scottsdale, AZ 85258
Contact: Marty Shoot
         Owner
         concretepreservationco@cox.net
         (480) 991-3768

ARIZONA REPAIR MASON'S, INC.
3841 E Superior Ave
Phoenix, AZ 85040-1609
http://www.azrm.net
Contact: Robert Brown
         President
         (602) 470-1311
         bbrown@azrm.net
3. Waterproofing
PRIORITY 3: WATERPROOFING

Please see Plaza Level Plans and Remediation Details, and Product Technical Sheets.

GENERAL:

There are several areas in the Complex that are presenting issues in regards to waterproofing or leaking. The main evidence of waterproofing failure occurs at the South Bridges and all 4 Interior Corners of the Plaza turning down towards the Garden Level. Michael Kelly met with Architect Craig Walling, a noted Roofing & Waterproofing Specialist, to examine these areas of concern and discuss potential solutions, both for short term remediation and long term maintenance of the facility.

INTERIOR CORNERS: The cast concrete interior corners are absorbing variable thermal expansion forces colliding with fixed cast concrete railing columns. All four conditions experience various degrees of concrete cracking and waterproofing failure, the most severe being at the southwest inside corner. All cracks need to be routed out, cleaned and prepared to receive new polyurethane sealants. Micro-seal flashing needs to be used on the transitions from rough exposed aggregate concrete facing to canopy roof areas located above doors, and an edge drip detail needs to be considered to arrest lateral travel of leakage into the building.

EXPANSION JOINTS: There are many Upper Plaza and Garden Levels expansion joints experiencing either cohesive (center) or adhesive (edge) failure—see Waterproofing Images. Currently, approximately 50% of the joints require treatment. The existing failing expansion joint material needs to be removed and replaced with new upgraded systems. A product called EMSEAL (see attached product data) is expandable joint filler recommended for replacement of existing polystyrene (Styrofoam) fillers. On top of that, a new backing rod is recommended. There are several good choices for the polyurethane sealants ranging from gun applied and toolled one part sealants to heavy traffic type two part self-leveling sealants that are easy to install and attain greater hardness. The remaining 50% of the joints should be inspected every 5 years for signs of failure. Complete removal of the old existing joint fillers and sealant system is required, along with a thorough cleaning prior to replacement. Do not attempt to patch and match or selectively repair.
SHRINKAGE CRACKS: For lateral concrete shrinkage cracks, route to a V-shape and apply polyurethane sealants to match. Where the concrete toppings are cracked and are recommended to be replaced, carefully attempt to add a saw cut or tooled shrinkage joint that reinforces the radial geometric joint patterns.

PEDESTRIAN BRIDGES: Concrete toppings on the bridges are experiencing lateral cracking and leaking causing damage to structural concrete below as well as leaking into a Building Inspectors Office. There is no waterproofing membrane protecting structural concrete core slabs. Therefore, all concrete toppings and turn-down edging needs to be removed in its entirety. A waterproofing membrane consisting of W.R. GRACE (or similar) peel’n’stick bituthane should be applied directly to the cleaned and structurally inspected structural deck both on top and on the edges. Add a 3/8 inch thick dimpled drainage mat over the bituthane and replace the 3” concrete edge topping with a new half inch wide metal flashed edge gap for weeping any moisture build-up in the east-west direction. Expansion joints at both ends of the bridge bearing need to be replaced (as described in EXPANSION JOINTS above) due to failing backing rods and failing sealants. Here a two part polyurethane sealant would allow for as much as 50% thermal movement of the joint. At the north and south ends, modify the concrete topping by adding a level but “curbed” concrete edge detail creating a “dam” to reduce any further deterioration of concrete bearing walls below. See Waterproofing Remediation Details. (See the STRUCTURAL REPORT Top Priority A Items for additional concrete concerns at Bridges).

PRECAST CONCRETE TRELLIS WELD PLATES: At the Garden Level, all concrete beam to column weld plate connections on the west side are rusting and in need of cleaning and new sealants. (See STRUCTURAL REPORT). The best sealants for this application are gun applied and tooled two part polyurethane sealants Sika Flex. For beam to beam butt joints, the same sealants apply and should follow similar procedures as described in EXPANSION JOINTS above. On the relatively newer east side trellis, the joints are holding up very well and should be inspected every 5 years for signs of failure.

MISCELLANEOUS WELD PLATES: Throughout the Complex, pre-cast concrete columns and railings weld plate connections are in need of attention. Selectively apply the same sealant procedures as described above where rust is noted.

15 January 2010

Waterproofing

3-2
DSM SYSTEM

Watertight, traffic durable, joint-face-adhered, precompressed, primary seal in structural and non-structural deck joints in parking, stadium, ice rink ice-floor perimeters, stair and elevator perimeters and other applications in concrete or metal-reinforced substrates as well as in positive-side, below-grade foundation and tunnel wall joints. Also a lasting alternative to caulk and backer rod in welded tee connections and other static, and control joints.

Microsphere-modified-acrylic-impregnated foam sealant, factory pre-coated with highway-grade silicone. Watertight, odorless, clean handling, UV stable, non-staining, low temperature flexible, high-temperature stable.

100% free of wax or asphalt compounds (Why does this matter?)

**Note:** With its introduction in 2006 the DSM SYSTEM supersedes its predecessors, 20H SYSTEM and DSH SYSTEM, in most applications. The DSM SYSTEM builds on a track record of over 30 years of sealing horizontal plane joints with impregnated foam sealants and is an evolution of EMSEAL's earlier technologies. The DSM SYSTEM features greater movement capability, dual sealing, a fuel resistant silicone bellows coating, better low temperature flexibility, and improved high temperature stability. It achieves these improvements through EMSEAL's new microsphere-modified-acrylic impregnation technology and is free of any asphalt compounds. Additionally, the DSM SYSTEM is totally free of wax or wax compounds. Consequently the suitability of the DSM SYSTEM is extended geographically as well as to applications such as in metal-angles, and top-decks previously not recommended for joint-face-adhered systems. **

- DSM SYSTEM Tech Data
- DSM SYSTEM Install
- DSM SYSTEM Install (.htm)
- DSM SYSTEM GuideSpec (.htm)
- DSM Guide Specifications (.doc)
- DSM CAD (dwa/adf/lpo)
- Universal-90's Overview (.htm)
- Request a DSM SYSTEM sample
- Maintenance & Snow Removal

- Link to Parking Deck Joint Selection Guide
- Link to Watertight Stadium Joint Selection Guide

- DSM SYSTEM Project Profile (University of Massachusetts Medical Center)

- General Contractor Expansion Joint Responsibilities Division 3 Addendum (.doc)
- (Need Help selecting Parking Deck Expansion Joints and Joint Sealants? Fax or Email us this Checklist)

- (Need help selecting Plaza/Podium/Slab Expansion Joints? Fax or Email Us This Checklist)

http://www.emseal.com/Products/Architectural/DSMSysytem/DSMSYSTEM.htm
Uses
- Ideal for new construction and retrofit of old or failed joint systems in concrete-to-
- Ideal for lasting replacement of tee-to-tee caulk joints in precast-concrete parking,
decks • runways • stadiums • parking decks • airport aprons • arenas • roadways
• positive-side, below-grade foundation and tunnel wall joints.

Movement Capability
+30% and -25% (Total 55%) of nominal material size (see "Performance").

DSM SYSTEM in Typical Concrete Substrates:


joined piece of DSM foam is pushed into the face of the already installed stick. The join
between the two sticks is held above the deck surface until the adjoining stick is seated in the joint...

...the DSM foam on both sides of the join is then eased into final position. This method
ensures a tight compression-fit between the joined faces.

DSM SYSTEM in Existing metal angle substrates:


Product Description
The DSM SYSTEM builds on a track record of over 30 years of sealing horizontal plan
The system is comprised of:
1) Precompressed, silicone-and-impregnated-foam hybrid installed into...
2) field-applied epoxy adhesive on the joint faces; with the silicone bellows locked tc
3) a silicone sealant band (see Figure 1).

The DSM SYSTEM features an innovation in sealant technology in the form of a paten
The material features sealing performance significantly greater than any acrylic impr
The result is extension of the usability of the product to applications where asphalt a
Suitability is further extended to horizontal-plane joint applications in colder geograph;

Features
Watertight—the tensionless silicone bellows is installed just below the deck surface.

Non-Invasive Anchoring—there are no hard metal-to-concrete connections in the

Continuity of Seal—as in all EMSEAL expansion joint systems, continuity of seal th
Movement Capability
+30% and -25% (Total 55%) of nominal material size (see "Performance").

Aesthetics & Versatility—Standard color is gray (other colors available), uniform bellows appearance, double sealing, fuel resistance, and an enhanced ability to handle variations in joint size are among other system features.

Performance
• Capable, as a dual seal, of movements of +30%, -25% (55% total) of nominal material size.

• Substrates must be parallel, plumb and capable of resisting approx. 2.5 psi backpressure from the foam.

• Standard sizes from 1/2" (12mm) to 6" (150mm). Other sizes available subject to review of application: consult EMSEAL. For sizes greater than 4" a coverplate should be installed when the joint will experience pedestrian or vehicular traffic.

• Fuel Resistance: Silicone sealant is not degraded by contact with fuel. Some swelling of the material will normally occur, but it will return to its original shape upon evaporation of the fuel.

Composition
• DSM is produced by coating an impregnated cellular foam with highway-grade silicone.

• The expanding foam is cellular polyurethane foam impregnated with a water-based acrylic containing a high performance micro-cellular additive.

• The silicone external facing is factory applied to the foam at a width greater than maximum joint extension and is cured before final compression.

• Silicone application and curing takes place in a factory-controlled environment. In contrast to field applied liquid sealant and backer rod installations, no movement takes place during curing that can cause deformation or stresses in the material.

• When compressed, a bellows is created in the coating. As joint movement occurs the bellows simply folds and unfolds free of tension on the bondline, and virtually free of tensile stresses in the silicone material.

• The foam provides a resilient backing to the silicone coating, making the system capable of resisting reasonable transient point loads.

• DSM SYSTEM is supplied in 6.56 LF (2m) shrink-wrapped lengths (sticks). It is precompressed to less than the joint size for easy insertion. After removal from the shrink-wrap and hard board restraining packaging, it expands gradually.

100% free of wax or asphalt compounds (Why does this matter?)

Patent Pending

UNIVERSAL 90's
(Expanded Universal-90's information)

Factory-Fabricated Transitions— as in all EMSEAL expansion joint systems, continuity of seal through changes in plane and direction is an essential performance differentiator.

DSM is manufactured in straight-run sticks which can be joined in the field to EMSEAL's patent-pending "Universal-90" transitions.
EMSHIELD DFR2
Water, Fire, Traffic, Movement—One Install Does it All

Traffic Durable, Watertight, 2-Hour Rated Expansion Joint

EMSHIELD DFR2 is a watertight, fire-rated, traffic-durable primary seal for both retrofit and new structural expansion joints in horizontal-plane applications.

EMSHIELD DFR2 eliminates the need for additional fire blankets, mineral wools, liquid sealants, cover plates, or other fire stopping materials.

For joints from 1 to 4-inches (25-100mm) where +25% and -25% (total 50%) of nominal material size joint movement is expected.

EMSHIELD DFR2 (Deck, Fire-Rated 2-Hours) builds on EMSEAL’s track record of over 30 years of innovation in sealing structural expansion joints with impregnated foam sealants and is the first in a comprehensive line of breakthrough, multi-function, structural expansion joint materials being released by EMSEAL. Tested and certified by Underwriters Laboratories (UL), to the rigors of UL 2079, additional versions for walls and floors are expected to be made.
EMSHIELD DFR2 was tested both with just the intumescent bellows on the bottom side (standard offering to allow visual inspection verification of presence of fire proofing), as well as with the intumescent bellows on the bottom side coated with a silicone bellows (optional at additional charge to suit designers aesthetic preference).

Joint Cycling: Before any fire testing can commence, the product must pass UL’s cycling requirement through the extremes of the offered movement range (+25%, -25% from nominal).

Joint movement under UL 2079 occurs at two levels. The first, 400 cycles @ 10 cycles/minute simulates thermal and wind-sway cycling. The second, an additional 100 cycles @ 30 cycles per minute, is more rapid and is designed to simulate seismic movement. EMSHIELD DFR2 passed cycling at both levels.

Fire Resistance: Within 96 hours of the cycling tests the fire testing must occur. The concrete slabs with installed expansion joint material are placed over the test oven.

The joint gap is set at the maximum offered opening for the material size tested (4-inch nominal material at +25% movement claim = 5-inches).

Thermo couples are placed on

available shortly—consult EMSEAL.

Fire retardant impregnated foam is factory pre-coated on the underside with an intumescent fire proofing material. The traffic surface receives a traffic grade silicone coating. The resulting composite is then factory compressed to less than its nominal size for installation into structural or other openings.

NEW! EMSHIELD WFR2 (Wall Fire-Rated 2-hours) for wall and vertical rise applications is now available. It can be combined with EMSHIELD DFR2 to create a completely fire rated horizontal and vertical system.

EMSHIELD DFR2 provides a watertight, clean handling, UV stable, non-staining, low-temperature flexible, high temperature stable, watertight, traffic durable and fire rated joint seal in a single installation process.

<table>
<thead>
<tr>
<th>DFR2 Product Summary (pdf)</th>
<th>UL and ULC Directory Listing Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>DFR2 Installation Instructions (htm)</td>
<td>Universal-90’s Overview (htm)</td>
</tr>
<tr>
<td>DFR2 Installation Instructions (pdf)</td>
<td>MSDS—EMSHIELD DFR2 Foam</td>
</tr>
<tr>
<td>DFR2 GuideSpec (htm)</td>
<td>MSDS—EMSHIELD DFR2 Intumescent Sealant</td>
</tr>
<tr>
<td>DFR2 GuideSpec (doc)</td>
<td>MSDS—EMSHIELD DFR2 Silicone Sealant</td>
</tr>
<tr>
<td>DFR2 CAD (dxf &amp; pdf)</td>
<td>MSDS—EMSHIELD DFR2 Epoxy</td>
</tr>
<tr>
<td>Request DFR2 Sample</td>
<td></td>
</tr>
</tbody>
</table>

Uses

For expansion joints in decks and floors where watertightness and/or a fire rating and/or traffic durability are required. Applications examples are:

- Stadiums
- Arenas
- Parking Decks
- Elevator Tower Perimeters
- Stair Tower Perimeters
- Deck-to-Deck
- Deck-To-Wall
- Bridge Expansion Joints
- Interior Floors Under Joint Covers

Can be used alone or under any other expansion joint cover, plate or filler where depth of substrate allows.

Product Description

EMSHIELD DFR2 features a traffic grade silicone sealing surface adhered to a fire retardant impregnated foam backing and an intumescent bellows on the bottom (fire side).

Highway Grade Silicone
Trafficable Bellows

Fire Retardant
Impregnated Foam

Intumescent Bellows

The system is installed into epoxy adhesive field-applied to the sides of the foam and on the joint faces. A field injected silicone sealant band seals the bellows to the substrate. (Note: A sealant band of intumescent caulk from the underside is NOT REQUIRED enabling the installation to be done entirely from the top side). Joins between each stick are executed using field-applied silicone sealant band at the top of the joint and an intumescent sealant coating over the remaining foam at the adjoining faces.

Figure 1: EMSHIELD DFR2 in Typical Deck-To-Deck Installation
the top side of the material. (When fire-blankets are tested, because they cannot support traffic of any kind, they are tested with a plate or other joint cover across the joint gap onto which the thermo couples are set.)

For the DFR2, the thermo couples were placed directly on the trafficable exposed upper surface of the material—in the middle of the product, at the substrate interface, and directly over the field join.

The oven is ignited and the temperature rises rapidly to near 1650°F (899°C) in about 30 minutes. After two hours the internal temperature of the oven reaches 1850°F (1010°C).

The data from the thermo couples is monitored throughout the 2 hour duration of the test.

To pass, no single thermo couple can read in excess of 356°F (180°C) at any point during the duration of the test.

After two hours, no single thermo couple on the ESMIELD DFR2 read in excess of 248°F (120°C). (The noticeable bow in the concrete slabs is evidence of the differential expansion of the heated concrete on the fire-side of the slabs.)

The successful conclusion of the test earns the ESMIELD DFR2 the certification by UL of this product in sizes from 4-inches and smaller at depths of 4-inches and with a movement capability of ±25% and -25% (total 50%) to be fire-rated for up to 2 hours.

**Figure 2: ESMIELD DFR2 in Typical Deck-To-Wall Installation**

**Features**

**Watertight** — ESMIELD DFR2 is installed with the tensionless traffic-grade, fuel-resistant bellows facing the traffic ensuring that watertightness is achieved.

**Fire-Rated** — The fire-retardant-impregnated foam and intumescent bellows is installed facing the lower floor ensuring 2-hour fire protection in accordance with UL-2079.

**Non-Invasive Anchoring** — There are no hard metal-to-substrate connections with ESMIELD DFR2. This includes embedded pins, anchors, screws, bolts or tracks, trays or rails, flanges or coverplates. The system is locked to the joint faces by means of the 1) back pressure of the foam; 2) the epoxy adhesive, and 3) the injected sealant bands at the joint face.

**Versatility** — The standard ESMIELD DFR2 top surface color is gray (other colors are optional). The standard underside color is "Intumescent-red". This provides a visual inspection cue to ensure the presence of the fire-proofing. At the designer's option, an additional silicone color coating can be applied to the underside.

**Joint-Size Variation** — Uniform bellows appearance, and the ability to handle variations in joint size through size-switching.

**Sound Attenuation** — Floors sealed with EMSEAL impregnated foam sealants offer exceptional acoustic dampening and feature sound transmission coefficients virtually equal to that of the solid slab.

**Factory-Fabricated Terminations and Transitions** — as in all EMSEAL expansion joint systems, continuity of seal through changes in plane and direction is an essential performance differentiator.

ESMIELD DFR2 is manufactured in straight-run sticks which can be joined in the field to EMSEAL's patent-pending DFR2 "Universal-90°" Transitions and Terminations.

---

Underwriters Laboratories UL Certification

ULC Certification

---
# Sikaflex 2c

Professional-grade, two-part polyurethane sealant

## ADVANTAGES
- Easy to mix
- Long pot life
- Excellent adhesion
- Potable water
- Creamy consistency
- Easy to tool
- Fast cure
- Excellent resistance to weathering
- Water immersible
- Color versatility
- Non-sag, self-levelling, and traffic grades available.
- Pre-pigmented limestone color available (No Color-pak)

## APPLICATIONS
- Building facades
- Balconies
- Parking structures
- Civil structures
- Plazas
- Barrier walls

## KEY DATA
- Pot life at 73°F: 4-6 hours
- Pot life at 95°F: 3+ hours
- Final cure: 3 days
- Joint Movement: +/- 50%
- Elongation: 300%
- Service range: -40°F to 170°F
- Specification conformance: ASTM C 920; Federal specifications TT-S-00227E; CRD C 506
- Meets ASTM C-920, Type M, Grade NS, Class 25, use T, NT, M, G, A, O and Federal Specification TT-S-00227E, Type II, Class A. Meets CAN/CGSB 19.24 - M90
- NSF certified to ANSI/NSF 60 approval for contact with potable water

1-800-933-SIKA NATIONWIDE
Regional Headquarters and Sales Centers
For the location of your nearest Sika sales office, contact your regional center.

**Sika Corporation (USA)**
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: 201-933-8800
Fax: 201-933-6225

**Sika Mexicana S.A. de C.V.**
Carretera Libre Celaya Km. 8.5
Corregidora, Queretaro
C.P. 76920 A.P. 136
Phone: 52 42 25 0122
Fax: 52 42 25 0637

**Sika Canada, Inc.**
601 Delmar Avenue
Pointe Claire,
Quebec H9R4A9
Phone: 514-697-2610
Fax: 514-694-2792

Sika...INNOVATIVE SOLUTIONS FOR A CONCRETE WORLD®
# Sikaflex-2c Polyurethane Sealants

## Standard Colors

<table>
<thead>
<tr>
<th>White</th>
<th>Sierra Beige</th>
<th>Sandalwood</th>
<th>Limestone</th>
</tr>
</thead>
<tbody>
<tr>
<td>Colonial White</td>
<td>Sandalwood Beige</td>
<td>Pearl Ash</td>
<td>Aluminum Gray</td>
</tr>
<tr>
<td>Brite White</td>
<td>Buff</td>
<td>Parchment</td>
<td>Minnesota Gray</td>
</tr>
<tr>
<td>Eggshell Cream</td>
<td>Geographic Beige</td>
<td>Dover Sky</td>
<td>Gray</td>
</tr>
<tr>
<td>Amarillo White</td>
<td>Van Dyke</td>
<td>Precast</td>
<td>Tan</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Sahara</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Green Gray</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Black</td>
</tr>
</tbody>
</table>

The final cured color of the actual product may vary. Use actual Sikaflex-2c and color pak for actual color matching.
Sikaflex®-1a
One part polyurethane, elastomeric sealant/adhesive

Description

Where to Use
- Designed for all types of joints where maximum depth of sealant will not exceed 1/2 in.
- Excellent for small joints and fillets, windows, door frames, reglets, flashing, common roofing detail applications, and many construction adhesive applications.
- Suitable for vertical and horizontal joints; readily placeable at 40°F.
- Has many applications as an elastic adhesive between materials with dissimilar coefficients of expansion.
- Submerged conditions, such as canal and reservoir joints.

Advantages
- Eliminates time, effort, and equipment for mixing, filling cartridges, pre-heating or thawing, and cleaning of equipment.
- Fast tack-free and final cure times.
- High elasticity - cures to a tough, durable, flexible consistency with exceptional cut and tear-resistance.
- Stress relaxation.
- Excellent adhesion - bonds to most construction materials without a primer.
- Excellent resistance to aging, weathering.
- Proven in tough climates around the world.
- NSF Registered, meets 1998 USDA guidelines.
- Odorless, non-staining.
- Jet fuel resistant.
- NSF Certified to NSF/ANSI Standard 61 for potable water contact.
- Urethane-based; suggested by EPA for radon reduction.
- Paintable with water-, oil- and rubber-based paints.
- Capable of ±35% joint movement.

Coverage
10.1 fl. oz. cartridge seals 12.4 lineal ft. of 1/2 x 1/4 in. joint. 20 fl. oz. uni-pac sausage seals 24 lineal ft. of 1/2 x 1/4 in. joint.

Packaging
Disposable 10.1 fl. oz., moisture-proof composite cartridges, 24/case; and uni-pac sausages, 20 fl. oz., 20/ carton.

Typical Data (Material and curing conditions @ 73°F (23°C) and 50% R.H.)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>10.1 fl. oz. cartridges</td>
<td>Store at 40°-95°F (4°-35°C). Condition material to 65°-75°F before using.</td>
<td>White, colonial white, aluminum gray, limestone, black, dark bronze, capitol tan. Special architectural colors on request.</td>
<td>40° to 100°F Sealant should be installed when joint is at mid-range of its anticipated movement.</td>
<td>Tack-free time 4 hours Tack-free to touch 3 hours Final cure 4 to 7 days</td>
<td>55 lb./in.</td>
<td>21 day 40±5</td>
<td>21 day</td>
<td>Concrete 20 lb. 0%</td>
<td>Excellent</td>
<td>Good resistance to water, diluted acids, and diluted alkalines. Consult Technical Service for specific data.</td>
</tr>
</tbody>
</table>
How to Use
Surface Preparation
Clean all surfaces. Joint walls must be sound, clean, dry, frost-free, and free of oil and grease. Curing compound residues and any other foreign matter must be thoroughly removed. Install bond breaker tape or backer rod to prevent bond at base of joint.

Priming
Priming is not usually necessary. Most substrates only require priming if testing indicates a need or where sealant will be subjected to water immersion after cure. Consult Sikaflex Primer Technical Data Sheet or Service Technical Data for additional information on priming.

Application
Recommended application temperatures: 40° - 100°F. For cold weather application, condition units at approximately 70°F; remove prior to using.

For best performance, Sikaflex-1A should be gunned into joint when joint slot is at mid-point of its designed expansion and contraction.

Place nozzle of gun into bottom of the joint and fill entire joint. Keep the nozzle in the sealant, continue on with a steady flow of sealant preceding the nozzle to avoid air entrapment.

Avoid overlapping of sealant to eliminate entrapment of air. Tool sealant to ensure full contact with joint walls and remove air entrapment. Joint dimension should allow for 1/4 inch minimum and 1/2 inch maximum thickness for sealant. Proper design is 2:1 width to depth ratio.

For use in horizontal joints in traffic areas, the absolute minimum depth of the sealant is 1/2 in. and closed cell backer rod is recommended.

Limitations
- Allow 1-week cure at standard conditions when using Sikaflex-1A in total water immersion situations and prior to painting.
- When overcoating with water, oil and rubber based paints, compatibility and adhesion testing is essential.
- Avoid exposure to high levels of chlorine. (Maximum continuous level is 5 ppm of chlorine.)
- Maximum depth of sealant must not exceed 1/2 in.; minimum depth is 1/4 in.
- Maximum expansion and contraction should not exceed 25% of average joint width.
- Do not cure in the presence of curing silicone sealants.
- Do not contact with alcohol and other solvent cleaners during cure.
- Do not apply when moisture-vapor-transport condition exists from the substrate as this can cause bubbling within the sealant.
- Use opened cartridges and uni-pac sausages the same day.
- When applying sealant, avoid air-entrapment.
- Since system is moisture-cured, permit sufficient exposure to air.
- White color tends to yellow slightly when exposed to ultraviolet rays.
- Light colors can yellow if exposed to direct gas fired heating element.
- The Ultimate performance of Sikaflex-1A depends on good joint design and proper application with joint surfaces properly prepared.
- The depth of sealant in horizontal joints subject to traffic is 1/2 in.
- Do not tool with detergent or soap solutions.
- Do not use in contact with bituminous/asphaltic materials.

Caution
Irritant
Keep away from open flames and high heat. Contains xylene, avoid breathing vapors. Use with adequate ventilation.

Combustible
Avoid skin and eye contact. Use of NIOSH approved organic vapor respirator, safety and chemical-resistant gloves recommended. Remove contaminated clothing and shoes.

First Aid
In case of skin contact, wash thoroughly with soap and water. For eye contact, flush immediately with plenty of water for at least 15 minutes; contact physician. Wash clothing before re-use. Discard contaminated shoes.

Clean Up
Uncured material can be removed with approved solvent. Cured material can only be removed mechanically. For spillage, collect, absorb, and dispose of in accordance with current, applicable local, state, and federal regulations.

Linear Feet of Sealant per Gallon

<table>
<thead>
<tr>
<th>Depth</th>
<th>Width</th>
<th>1/4</th>
<th>1/3</th>
<th>1/2</th>
<th>1</th>
<th>1 1/2</th>
<th>1 3/4</th>
<th>2</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>308.0</td>
<td>154.0</td>
<td>77.0</td>
<td>12.7</td>
<td>51.3</td>
<td>34.2</td>
<td>19.3</td>
</tr>
<tr>
<td>1 1/2</td>
<td>1 1/2</td>
<td>124.0</td>
<td>62.0</td>
<td>31.0</td>
<td>15.6</td>
<td>61.6</td>
<td>30.8</td>
<td>20.5</td>
</tr>
<tr>
<td>2</td>
<td>2</td>
<td>61.3</td>
<td>30.6</td>
<td>15.3</td>
<td>7.6</td>
<td>31.2</td>
<td>15.6</td>
<td>12.3</td>
</tr>
</tbody>
</table>

Keep container tightly closed. Keep out of reach of children. Not for internal consumption. For industrial use only. All information provided by Sika Corporation ("Sika") concerning Sika products, including but not limited to any recommendations and advice relating to the application and use of Sika products, is given good faith based on Sika's current experience and knowledge of its products when properly stored, handled and applied under normal conditions in accordance with Sika's instructions. In practice, the differences in materials, substrates, storage and handling conditions, actual site conditions and other factors outside of Sika's control are such that Sika assumes no liability for the provision of such information, advice, recommendations or instructions related to its products, nor shall any legal relationship be created by or arise from the provision of such information, advice, recommendations or instructions related to its products. The user of the Sika product must test the product(s) for suitability for the intended applications and purpose before proceeding with the full application of the Sika product(s). Sika reserves the right to change the properties of its products without notice. All sales of Sika product(s) are subject to its current terms and conditions of sale which are available at www.sika.com or by calling 800-933-7452.

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most recent Technical Data Sheet, product label and Material Safety Data Sheet which are available online at www.sikadatasheets.com or by calling Sika's Technical Service Department at 800-933-7452. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instructions for each Sika product as set forth in the current Technical Data Sheet, product label and Material Safety Data Sheet prior to product use.

LIMITED WARRANTY: Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Technical Data Sheet as used and directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer's sole remedy shall be limited to the purchase price or replacement of product exclusive of labor or cost of labor. NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. Sika shall not be liable under any legal theory for special, consequential or other damages. Sika shall not be responsible for the loss of this product in manner to infringe on any patent or any other intellectual property rights held by others.

Visit our website at www.sikaconstruction.com 1-800-933-SIKA NATIONWIDE

Regional Information and Sales Centers. For the location of your nearest Sika sales office, contact your regional center.

Sika Corporation
201 Polito Avenue
Lyndhurst, NJ 07071
Phone: 800-933-7452
Fax: 201-933-0223

Sika Canada Inc.
601 Delmar Avenue
Pointe Claire
Quebec H9R 4A8
Phone: 514-697-2610
Fax: 514-694-2782

Sika Mexico S.A. de C.V.
Carretera Libre Celaya Km. 8.5
Fracc. Industrial Balvanera
Corregidora, Queretaro
C.P. 76029
Phone: 52 442 2385800
Fax: 52 442 2250377

Sika and Sikaflex are registered trademarks. Made in USA. Printed in Canada.
Sikaflex®-2c NS
Two-component, non-sag, polyurethane elastomeric sealant

Description
Sikaflex-2c NS is a 2-component, premium-grade, polyurethane-based, elastomeric sealant. It is principally a chemical cure in a non-sag consistency. Meets ASTM C-920, Type M, Grade NS, Class 25, use T, NT, M, G, A, O, I and Federal Specification TT-S-00227E, Type II, Class A. Tested in accordance with ASTM C-1382 for use in EIFS systems.

Where to use
- Intended for use in all properly designed working joints with a minimum depth of 1/4 inch.
- Ideal for vertical and horizontal applications.
- Placeable at temperatures as low as 40°F.
- Adheres to most substrates commonly found in construction.
- Submerged environments, such as canal and reservoir joints.

Advantages
- Capsule of ±50% joint movement.
- Chemical cure allows the sealant to be placed in joints exceeding 6 in. in depth.
- High elasticity with a tough, durable, flexible consistency.
- Exceptional cut and tear resistance.
- Exceptional adhesion to most substrates without priming.
- Available in 40 architectural colors.
- Color uniformity assured via Color-pak system.
- Available in pre-pigmented Limestone Gray (no Color-pak needed).
- Non-sag even in wide joints.
- Easy to mix.
- Paintable with water-, oil-, and rubber-base paints.
- ANSI/NSF 61 approval for contact with potable water.
- Jet fuel resistant.

Coverage
1 gal. yields 231 cu. in. or 154 lin. ft. of a 1/2 in. x 1/4 in. joint.

Packaging
1.5 gal. unit. 3 gal units. Color-pak is purchased separately. Limestone Gray color available pre-pigmented.

Typical Data (Material and curing conditions 73°F (23°C) and 50% R.H.)

<table>
<thead>
<tr>
<th>Property</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelf Life</td>
<td>One year in original, unopened containers.</td>
</tr>
<tr>
<td>Storage Conditions</td>
<td>Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F before using.</td>
</tr>
<tr>
<td>Colors</td>
<td>A wide range of architectural colors are available. Special colors available on request.</td>
</tr>
<tr>
<td>Application Temperature</td>
<td>40° to 100°F; ambient and substrate temperatures. Sealant should be installed when joint is at mid-range of its anticipated movement.</td>
</tr>
<tr>
<td>Service Range</td>
<td>-40° to 170°F (-40°-75°C).</td>
</tr>
<tr>
<td>Curing Rate (ASTM C-679)</td>
<td></td>
</tr>
<tr>
<td>Tack-Free Time</td>
<td>6-8 hrs.</td>
</tr>
<tr>
<td>Final Cure</td>
<td>3 days</td>
</tr>
<tr>
<td>Application Life</td>
<td>3-4 hrs.</td>
</tr>
<tr>
<td>Tear Strength</td>
<td>ASTM D-624 45 lb./lin.</td>
</tr>
<tr>
<td>Shore A Hardness</td>
<td>ASTM D-2240 25 ± 5</td>
</tr>
<tr>
<td>Tensile Properties (ASTM D-412)</td>
<td></td>
</tr>
<tr>
<td>Tensile Strength at Break</td>
<td>120 psi</td>
</tr>
<tr>
<td>Tensile Elongation</td>
<td>500%</td>
</tr>
<tr>
<td>100% Modulus</td>
<td>70 psi</td>
</tr>
<tr>
<td>Adhesion in Peel (Fed Spec. TT-S-00227E)</td>
<td></td>
</tr>
<tr>
<td>Substrate</td>
<td>Con tue 25 lb.</td>
</tr>
<tr>
<td>Peel Strength</td>
<td>Zero</td>
</tr>
<tr>
<td>% Adhesion Loss</td>
<td>Good resistance to water, diluted acids, diluted alkalines, and residential sewage. Consult Technical Service for specific data.</td>
</tr>
<tr>
<td>Weathering Resistance</td>
<td>Excellent</td>
</tr>
<tr>
<td>Chemical Resistance</td>
<td>Good resistance to water, diluted acids, diluted alkalines, and residential sewage. Consult Technical Service for specific data.</td>
</tr>
</tbody>
</table>

How to Use

Surface Preparation
All joint-wall surfaces must be clean, sound, and frost-free. Joint walls must be free of oils, grease, curing compound residues, and any other foreign matter that might prevent bond. Ideally, this should be accomplished by mechanical means. Bond breaker tape or backer rod must be used in bottom of joint to prevent bond.
Priming

Priming is typically not necessary. Most substrates only require priming if sealant will be subjected to water immersion after cure. Testing should be done, however, on questionable substrates, to determine if priming is needed.

Consult Technical Service or Sikaflex Primer Technical Data Sheet for additional information on priming.

Note: Most Exterior Insulation Finish Systems (EIFS) manufacturers recommend the use of a primer. When EIFS manufacturer specifies a primer or if on-site bond testing indicates a primer is necessary, Sikaflex 429 primer is recommended. On-site adhesion testing is recommended with final system prior to the start of a job.

Mixing

Pour entire contents of Component ‘B’ into pail of Component ‘A’. Add entire contents of Color-pak into pail and mix with a low-speed drill (400-600 rpm) and Sikaflex paddle.* Mix for 3-5 minutes to achieve a uniform color and consistency. Scrape down sides of pail periodically. Avoid entrapping of air during mixing.

When mixing in cold weather (<50°F), do not force the mixing paddle to the bottom of the pail. After adding Component ‘B’ and Color-pak into Component ‘A’, mix the top 1/2 to 3/4 of the pail during the first minute of mixing. After scraping down the sides of the pail, mix again for another minute. The paddle should reach the bottom of the pail between the first and second minute of mixing. Scrape down the sides of the pail a second time and then mix for an additional 2-3 minutes until the sealant is well blended. Color-pak must be used with tint base. For pre-pigmented Limestone base, just mix with low speed drill and Sikaflex paddle (no Color-pak needed).

Application

Recommended application temperatures 40°-100°F. Pre-conditioning units to approximately 70°F is necessary when working at extremes. Move pre-conditioned units to warm areas just prior to application.

Apply sealant only to clean, sound, dry, and frost-free substrates. Sikaflex-2c should be applied into joints when joint slot is at mid-point of its designed expansion and contraction.

To place, load directly into bulk gun or use a follower plate loading system. Place nozzle of gun into bong of joint and fill entire joint. Keeping the nozzle deep in the sealant, cover with a steady flow of sealant preceding nozzle to avoid air entrapment. Also, avoid overfilling of sealant since this also entraps air. Joint dimension should allow for 1/4 inch minimum and 1/2 inch maximum thickness for sealant. Proper design is 2.1 width to depth ratio. Tool sealant to ensure full contact with joint walls and remove air entrapment.

Limitations

- The ultimate performance of Sikaflex-2c NS depends on good joint design and proper application.
- Minimum depth in working joint is 1/4 in.
- Maximum expansion and contraction should not exceed 50% of average joint width.
- Do not cure in the presence of curing silicones.
- Avoid contact with alcohol and other solvent cleaners during cure.
- Allow 3-day cure before subjecting sealant to total water immersion.
- Avoid exposure to high levels of chlorine. (Maximum level is 5 ppm).
- Do not apply when moisture vapor transmission exists since this can cause bubbling within the sealant.
- Avoid over-mixing sealant.
- Light color shades tend to yellow over time when exposed to ultraviolet rays.
- Light colors can yellow if exposed to direct gas fired heating elements.
- When overcoating: an on-site test is recommended to determine actual compatibility.
- The depth of sealant in horizontal joints subject to traffic is 1/2 inch.
- In horizontal joints exposed to vehicular or foot traffic, “TG” additive is recommended. See Sikaflex-2c NS TG data sheet for specific details.

Caution

Component ‘A’; Irritant - Avoid contact. Product is a skin, respiratory and eye irritant. Use of safety goggles and chemical resistant gloves recommended. Use of a NIOSH approved respirator required if PEIs are exceeded. Use with adequate ventilation.

Component ‘B’; Combustible; Sensitizer; Irritant - Contains Xylene. Keep away from heat, sparks and open flame. Use with adequate ventilation. Product is a respiratory and skin sensitizer. Avoid contact. Product is an eye, skin, and respiratory irritant. Use of safety goggles and chemical resistant gloves recommended. Use of a NIOSH approved respirator if PEIs are exceeded.

First Aid

Eyes – Rinse eyes thoroughly for fifteen minutes. Contact physician. Skin – Wash affected area thoroughly with soap and water. Remove contaminated clothing. If irritation persists contact physician. Inhalation – Remove to fresh air. If breathing stops, institute artificial respiration. Contact physician. Ingestion – Dilute with water. Contact physician.

Clean Up

Uncured material can be removed with approved solvent. Cured material can only be removed mechanically. For spillage, collect, absorb, and dispose of in accordance with current, applicable local, state, and federal regulations.

KEEP CONTAINER TIGHTLY CLOSED - KEEP OUT OF REACH OF CHILDREN - NOT FOR INTERNAL CONSUMPTION - FOR INDUSTRIAL USE ONLY

All information provided by Sika Corporation ("Sika") concerning Sikaflex products, including but not limited to, any recommendations and advice relating to the application and use of Sikaflex products, is given in good faith based on Sika's current experience and knowledge of its products when properly stored, handled and applied under normal conditions in accordance with Sika's instructions. In practice, the differences in materials, substrates, storage and handling conditions, and other factors outside of Sika's control are such that Sika cannot be held responsible for the provision of such information, advice, recommendations or instructions related to its products, nor shall any legal relationship be created by or arise from the provision of such information, advice, recommendations or instructions related to its products. The user of the Sikaflex product(s) must test the product(s) for suitability for the intended application and purposes before proceeding with the full application of the product(s). Sika reserves the right to change the properties of its products without notice.

All sales of Sikaflex product(s) are subject to its current terms and conditions of sale which are available at www.sikaglobal.com or by calling 800-633-7452.

Prior to each use of any Sikaflex product, the user must always read and follow the warnings and instructions on the product's most current Technical Data Sheet, product label and Material Safety Data Sheet which are available online at www.sikaglobal.com or by calling Sika's Technical Service Department at 800-633-7452. Nothing contained in any Sika materials relieves the user of the obligation to follow the warnings and instructions for each Sikaflex product as set forth in the current Technical Data Sheet, product label and Material Safety Data Sheet prior to product use. Sikaflex products are hazardous and should be used for the intended purpose for one year from date of shipment. If the user fails to follow the warnings and instructions on the current Technical Data Sheet, the product may be subject to replacement at the user's expense.

SiKA shall not be liable for any costs, damages, losses, or expenses incurred in connection with the use of this product or its failure to perform as described herein. The user shall indemnify and hold SiKA harmless from and against any cost, expense, liability, or damage arising out of or caused by the use of this product or its failure to perform as described herein, or the user's violation of the laws or regulations applicable to the use of this product.

SiKA shall not be liable for any costs, damages, losses, or expenses incurred in connection with the use of this product or its failure to perform as described herein. The user shall indemnify and hold SiKA harmless from and against any cost, expense, liability, or damage arising out of or caused by the use of this product or its failure to perform as described herein, or the user's violation of the laws or regulations applicable to the use of this product.

SiKA shall not be liable for any costs, damages, losses, or expenses incurred in connection with the use of this product or its failure to perform as described herein. The user shall indemnify and hold SiKA harmless from and against any cost, expense, liability, or damage arising out of or caused by the use of this product or its failure to perform as described herein, or the user's violation of the laws or regulations applicable to the use of this product.

SiKA Corporation
201 Polka Avenue
Lynhurst, NJ 07071
Phone: 800-633-7452
Fax: 201-633-6228

SiKA Canada Inc.
601 Delmar Avenue
Ponce Claire
Quebec H3E 4A9
Phone: 514-697-2610
Fax: 514-694-2792

SiKA Mexico S.A. de C.V.
Carrerela Libre Colaya Km. 8.5
Fracc. Industrial Balvanera
Corregidora, Queretaro
C.P. 76900
Phone: 52 442 2385800
Fax: 52 442 2250537

SiKA and Sturfo are registered trademark. Made in USA. Printed in USA.
# Sikaflex®-2c SL

Two-component, self-leveling, polyurethane elastomeric sealant

---

## Description
Sikaflex-2c SL is a 2-component, premium-grade, polyurethane-based, elastomeric sealant. It is principally a chemical cure in a self-leveling consistency. Meets ASTM C-920, Type M, Grade P, Class 25, use T, NT, M, G, A, O, I and Federal Specification TT-S-00227E, Type 1, Class A.

## Where to use
- Intended for use in all properly designed working joints with a minimum depth of 1/4 inch.
- Ideal for horizontal applications.
- Placeable at temperatures as low as 40°F.
- Adheres to most substrates commonly found in construction.
- Submerged conditions, such as canal and reservoir joints.

## Advantages
- True self-leveling properties.
- Capable of ±50% joint movement.
- Chemical cure allows the sealant to be placed in joints exceeding 1/2 in. in depth.
- High elasticity with a tough, durable, flexible consistency.
- Exceptional cut and tear resistance.
- Exceptional adhesion to most substrates without priming.
- Available in 40 architectural colors.
- Color uniformity assured via Color-pak system.
- Available in pre-pigmented Limestone Gray (no Color-pak needed).
- Self-leveling consistency, easy to apply in horizontal joints.
- Easy to mix.
- Paintable with water-, oil-, and rubber-base paints.
- Jet fuel resistant.
- USDA approved.
- No color-pak needed in pre-pigmented Limestone.

## Coverage
1 gal. yields 231 cu. in. or 154 lin. ft. of a 1/2 in. x 1/4 in. joint.

## Packaging
1.5 gal. unit. 3 gal. units. Color-pak is purchased separately. Limestone Gray color available pre-pigmented.

---

## Typical Data (Material and curing conditions 73°F (23°C) and 50% R.H.)

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shelf life</td>
<td></td>
<td>1 year</td>
</tr>
<tr>
<td>Storage Conditions</td>
<td></td>
<td>Store dry at 40°F-95°F (4°C-35°C). Condition material to 65°F-75°F before using.</td>
</tr>
<tr>
<td>Colors</td>
<td></td>
<td>A wide range of architectural colors are available. Special colors available on request.</td>
</tr>
<tr>
<td>Application Temperature</td>
<td></td>
<td>40° to 100°F, ambient and substrate temperatures. Sealant should be installed when joint is at mid-range of its anticipated movement.</td>
</tr>
<tr>
<td>Service Range</td>
<td></td>
<td>-40° to 170°F (-40° to 75°C).</td>
</tr>
<tr>
<td>Curing Rate (ASTM C-879)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tack-free Time</td>
<td></td>
<td>6-8 hrs.</td>
</tr>
<tr>
<td>Final Cure</td>
<td></td>
<td>3 days</td>
</tr>
<tr>
<td>Application Life</td>
<td>TT-S-00227E</td>
<td>4 hrs.</td>
</tr>
<tr>
<td>Tear Strength</td>
<td>ASTM D-624</td>
<td>100 lb./in.</td>
</tr>
<tr>
<td>Shore A Hardness</td>
<td>ASTM D-2240</td>
<td>40 ± 5</td>
</tr>
<tr>
<td>Tensile Properties (ASTM D412)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Tensile Strength at Break</td>
<td></td>
<td>175 psi</td>
</tr>
<tr>
<td>Tensile Elongation</td>
<td></td>
<td>650%</td>
</tr>
<tr>
<td>100% Modulus</td>
<td></td>
<td>100 psi</td>
</tr>
<tr>
<td>Adhesion in Peel (Fed Spec. TT-S-00227E)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Concreate</td>
<td></td>
<td>30 lb.</td>
</tr>
<tr>
<td>% Adhesion Loss</td>
<td></td>
<td>Zero</td>
</tr>
<tr>
<td>Weathering Resistance</td>
<td></td>
<td>Excellent</td>
</tr>
<tr>
<td>Chemical Resistance</td>
<td></td>
<td>Good resistance to water, dilute acids, dilute alkalines, and residential sewage. Consult Technical Service for specific data.</td>
</tr>
</tbody>
</table>

---

## How to Use

### Surface Preparation
All joint-wall surfaces must be clean, sound, and frost-free. Joint walls must be free of oil, grease, curing compound residues, and any other foreign matter that might prevent bond. Ideally this should be accomplished by mechanical means. Bond breaker tape or backer rod must be used in bottom of joint to prevent bond.
**Primin**

Primin is typically not necessary. Most substrates only require priming if sealant will be subjected to water immersion after cure. Testing should be done, however, on questionable substrates, to determine if priming is needed.

Consult Technical Service or Sikaflex Primer Technical Data Sheet for additional information on priming.

**Mixing**

Pour entire contents of Component B into pail of Component A. Add entire contents of Color-pak into pail and mix with a low-speed drill (400-600 rpm) and Sikaflex paddle. * Mix for 3-5 minutes to achieve a uniform color and consistency. Scrape sides down of pail periodically. Avoid entrapment of air during mixing.

Color-pak must be used with tint base.

*Note: When mixing 3 gal. unit, two containers of Component B and two color-paks must be used.

*For pre-pigmented Limestone base, just mix with low speed drill and Sikaflex paddle (no Color-pak needed).

**Limitsations**

- The ultimate performance of Sikaflex-2c, depends on good joint design and proper application.
- Minimum depth in working joint is 1/4 in.
- Maximum expansion and contraction should not exceed 50% of average joint width.
- Do not cure in the presence of curing silicones.
- Avoid contact with any solvent cleaners during cure.
- Allow 3 day cure before subjecting sealant to total water immersion.
- Avoid exposure to high levels of chlorine. (Maximum level is 5 ppm)
- Do not apply when moisture vapor transmission exists since this can cause bubbling within the sealant.
- Avoid over-mixing sealant.
- White color tends to yellow slightly when exposed to ultraviolet rays.
- Light colors can yellow if exposed to direct gas fired heating elements.
- When overcoating: an on-site test is recommended to determine actual compatibility.
- The minimum depth of sealant in horizontal joints subject to traffic is 1/2 inch.
- Do not use with detergent or soap solution.

**Caution**

Component A; Irritant - Avoid contact. Product is a skin, respiratory and eye irritant. Use of safety goggles and chemical resistant gloves recommended. Use of a NIOSH approved respirator required if PELs are exceeded. Use with adequate ventilation.

Component B; Combustible, Sensitizer; Irritant - Contains Xylene. Keep away from heat, sparks and open flame. Use with adequate ventilation. Product is a respiratory and skin sensitizer. Avoid contact. Product is an eye, skin, and respiratory irritant. Use of safety goggles and chemical resistant gloves recommended. Use of a NIOSH approved respirator required if PELs are exceeded.

**First Aid**

In case of skin contact, wash thoroughly with soap and water. For eye contact, flush immediately with plenty of water for at least 15 minutes; contact physician. For respiratory problems, remove to fresh air. Wash clothing before re-use. Discard contaminated shoes.

**Clean Up**

Uncured material can be removed with approved solvent. Cured material can only be removed mechanically. For spillage, collect, absorb, and dispose of in accordance with current, applicable local, state, and federal regulations.

---

**Linear Feet of Sealant per Gallon**

<table>
<thead>
<tr>
<th>Depth Width</th>
<th>1/4</th>
<th>1/2</th>
<th>3/4</th>
<th>1</th>
<th>1 1/4</th>
<th>1 1/8</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inches</td>
<td>308.0</td>
<td>154.0</td>
<td>102.7</td>
<td>77.0</td>
<td>1 1/4</td>
<td>1 1/8</td>
</tr>
<tr>
<td>Feet</td>
<td>12.1</td>
<td>6.1</td>
<td>3.9</td>
<td>3.0</td>
<td>4.4</td>
<td>4.8</td>
</tr>
<tr>
<td>Millimeters</td>
<td>774.6</td>
<td>392.1</td>
<td>260.8</td>
<td>190.5</td>
<td>292.1</td>
<td>304.8</td>
</tr>
</tbody>
</table>

---

**KEEP CONTAINER TIGHTLY CLOSED • KEEP OUT OF REACH OF CHILDREN • NOT FOR INTERNAL CONSUMPTION • FOR INDUSTRIAL USE ONLY**

All information provided by Sika Corporation ("Sika") concerning Sika products, including but not limited to, any recommendations and advice relating to the application and use of Sika products, is given in good faith based on Sika’s current experience and knowledge of its products when properly stored, handled and applied under normal conditions in accordance with Sika’s instructions. In practice, the differences in materials, substrates, storage and handling conditions, actual site conditions and other factors outside of Sika’s control are such that Sika assumes no liability for the provision of such information, advice, recommendations or instructions related to its products, nor shall any legal relationship be created by or arise from the provision of such information, advice, recommendations or instructions related to its products. The user of the Sika product(s) must test the product(s) for suitability for the intended application and purpose before proceeding with the full application of the product(s). Sika reserves the right to change the properties of its products without notice.

All sales of Sika product(s) are subject to its current terms and conditions of sale which are available at www.sikacorp.com or by calling 800-633-7452.

Prior to each use of any Sika product, the user must always read and follow the warnings and instructions on the product's most current Technical Data Sheet, product label and Material Safety Data Sheet which are available online at www.sikakorea.com or by calling Sika’s Technical Service Department at 800-633-7452. Nothing contained in any Sika materials relieves the user of the obligation to read and follow the warnings and instructions for each Sika product as set forth in the current Technical Data Sheet, product label and Material Safety Data Sheet prior to product use.

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet the technical properties on the current Technical Data Sheet if used as directed within shelf life. User determines suitability of product for intended use and assumes all risks. Buyer’s sole remedy is limited to the purchase price or replacement of product exclusive of labor or cost of labor. NO OTHER WARRANTIES EXPRESS OR IMPLIED SHALL APPLY INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. SIKA SHALL NOT BE RESPONSIBLE FOR THE USE OF THIS PRODUCT IN A MANNER TO INFRINGE ON ANY PATENT OR ANY OTHER INTELLECTUAL PROPERTY RIGHTS HELD BY OTHERS.
# Sikaflex®-2c NS TG

Two-component, traffic-grade, polyurethane elastomeric sealant

| Description | Sikaflex-2c NS TG is a premium-grade, polyurethane-based elastomeric sealant. It is principally a chemical cure in a non-sag consistency. Available in 40 standard colors (>320 special colors) with a convenient Color-pak. Also available as a pre-pigmented product in Limestone Gray. Meets ASTM C 920, Type M, Grade NS, use T, NT, O, M, G, A and Federal Specification TT-S-0027E. Product developed by addition of Sikaflex 2c NS TG Component to the standard Sikaflex 2c NS EZ Mix joint sealant. |
| Where to Use | - Applications to include: parking garages, walkways, plazas, platforms, etc., with exposure to foot or pneumatic-tire traffic.  
- Intended for horizontal joints with a minimum depth of 1/4 inch.  
- Acceptable at temperatures as low as 40°F.  
- Adheres to most substrates commonly found in construction.  
- Acceptable for sealing joints in institutions, correctional facilities, etc., as a tamper resistant sealant. |
| Advantages | - Capable of ±25% joint movement.  
- Chemical cure allows the sealant to be placed in joints exceeding 1/4 inch in depth.  
- Tough, durable, flexible consistency.  
- Exceptional cut and tear resistance.  
- Exceptional adhesion to most substrates without priming.  
- Color uniformity assured via Color-pak system or pre-pigmented Limestone Gray.  
- Fuel resistant.  
- No Color-pak needed in pre-pigmented Limestone Gray. |
| Coverage | 1 gal. yields 231 cu. in. or 154 lin. ft. of a 1/2 in. X 1/4 in. joint. |
| Packaging | Sikaflex 2c NS - 1.5 gal. unit plus, Sikaflex 2c NS TG Component - 1/2 pint can (8- 1/2 pint cans/case). Contents 5.25- fl. oz./can.  
Color-pak is also purchased separately. Limestone Gray color available pre-pigmented. |

### Typical Data (Material and curing conditions 73°F (23°C) and 50% R.H.)

- **Shelf Life**: One year in original, unopened containers.
- **Storage Conditions**: Store dry at 40°-95°F (4°-35°C). Condition material to 65°-75°F before using.
- **Colors**: A wide range of architectural colors are available. Special colors available on request.
- **Application Temperature**: 40° to 100°F, ambient and substrate temperatures. Sealant should be installed when joint is at mid-range of its anticipated movement.
- **Service Range**: -40° to 170°F (-40° - 75°C)
- **Shore A Hardness (ASTM D-2240)**: 21 day 45 ± 5
- **Tensile Properties (ASTM D-412)**: 21 day  
  - **Tensile Stress**: 220 psi  
  - **Elongation at Break**: 300%  
- **Modulus of Elasticity**:  
  - 25% 75 psi  
  - 50% 110 psi  
  - 100% 140 psi  
- **Adhesion in Peel (TT-S-00230C, ASTM C-794)**:  
  - **Substrate**: Concrete  
  - **Peel Strength**: 25 lb.  
  - **Adhesion Loss**: 0%  
- **Weathering Resistance**: Excellent  
- **Chemical Resistance**: Good resistance to water, diluted acids, and diluted alkalines. 
  Consult Technical Service for specific data.
- **Joint Movement Capability**: ± 25%
How to Use

**Surface Preparation**

All joint-wall surfaces must be clean, sound, and frost-free. Joint walls must be free of oils, grease, curing compound residues, and any other foreign matter that might prevent bond. Ideally, this should be accomplished by mechanical means. Bond breaker tape or backer rod must be used in bottom of joint to prevent bond.

**Priming**

Priming is typically not necessary. Most substrates only require priming if sealant will be subjected to water immersion after cure. Testing should be done, however, on questionable substrates, to determine if priming is needed. Consult Technical Service or Sikaflex Primer Technical Data Sheet for additional information on priming.

**Mixing**

Pour entire contents of Component ‘B’ and (1) 1/2 pint unit of Sikaflex-2c NS TG Component into bowl of Component ‘A’. For tint base, add entire contents of Color-pak into bowl and mix with a low-speed drill (400-600 rpm) and Sikaflex paddle. *Mix for 3-5 minutes to achieve a uniform color and consistency. Scrapes down sides of bowl periodically. Enter air into sealant during mixing.*

*For pre-pigmented limestone base, just mix with low speed drill and Sikaflex paddle without color-pak.*

**Application**

Recommended application temperatures 40°-100°F. Pre-conditioning units to approximately 70°F is necessary when working at extremes. Move pre-conditioned units to work areas just prior to application. Apply sealant only to clean, sound, dry, and frost-free substrates. Sikaflex-2c NS TG should be applied into joints when joint slot is at mid-point of its designed expansion and contraction. To place NS TG, load directly into bulk gun or use a follower plate loading system. Place nozzle of gun into bottom of joint and fill entire joint. Keeping the nozzle deep in the joint, continue with a steady flow of sealant. If sealant sticks to nozzle before use, avoid air entrapment. If required, select specific type of air entrapment. Tool as required. Proper depth is 2:1 width to depth ratio.

**Limitations**

- The ultimate performance of Sikaflex 2c NS TG depends on good joint design and proper application.
- Minimum depth in working joint is 1/4 in; maximum depth for working joint is 1/2 in.
- Maximum expansion and contraction should exceed 25% of average joint width.
- Do not cure in the presence of curing silicons.
- Avoid contact with alcohol and other solvent cleaners during curing.
- Allow 3-day cure before subjecting sealant to total water immersion and prior to painting.
- Do not apply when moisture vapor transmission exists since this can cause bubbling within the sealant.
- Avoid over-mixing sealant.
- White color tends to yellow over time when exposed to ultraviolet rays.
- When over-coating: an on-site test is recommended to determine actual compatibility.
- The depth of sealant in horizontal joints subject to traffic is 1/2 in.
- Avoid exposure to high levels of chlorine. (Maximum continuous level is 5 ppm.)
- Do not tool with detergent or soap solutions.
- Protect Sikaflex-2c NS TG Component from moisture. Use entire contents of container.
- Maximum addition rate of TG Component is (1) 1/2 pint container/unit of Sikaflex-2c NS.

**Caution**

**Component ‘A’**; Irritant - Avoid contact. Product is a skin, respiratory and eye irritant. Use of safety goggles and chemical resistant gloves recommended. Use of a NIOSH approved respirator required if PELs are exceeded. Use with adequate ventilation.

**Component ‘B’**; Combustible; Sensitizer; Irritant - Contains Xylene. Keep away from heat, sparks, and open flame. Use with adequate ventilation. Product is a respiratory and skin sensitizer. Avoid contact. Product is an eye, skin, and respiratory irritant. Use of safety goggles and chemical resistant gloves recommended. Use of a NIOSH approved respirator required if PELs are exceeded.

Sikaflex 2c NS TG Component; Irritant; Sensitizer; Combustible - Contains Xylene, Isocyanate. Keep away from heat, sparks, and open flame. Use with adequate ventilation. Avoid skin contact. Product is an eye, skin, and respiratory irritant. Product is a respiratory and skin sensitizer. Use of goggles and chemical resistant gloves recommended. Use of an NIOSH approved respirator required if PELs are exceeded.

**First Aid**

In case of skin contact, wash thoroughly with soap and water. For eye contact, flush immediately with plenty of water for at least 15 minutes; contact physician. For respiratory problems, remove to fresh air. In case of ingestion, dilute with water and milk; contact a physician. Wash clothing before re-use. Discard contaminated shoes.

**Clean Up**

Uncured material can be removed with approved solvent. Cured material can only be removed mechanically. In case of spillage, wear suitable protective equipment, collect with absorbent materials and dispose of in accordance with current, applicable local, state, and federal regulations.

---

**KEEP CONTAINER TIGHTLY CLOSED - KEEP OUT OF REACH OF CHILDREN - NOT FOR INTERNAL CONSUMPTION - FOR INDUSTRIAL USE ONLY**

All information provided by Sika Corporation ("Sika") concerning Sika products, including but not limited to, any recommendations and advice relating to the application and use of Sika products, is given in good faith based on Sika's current knowledge and experience and is based on products when properly stored, handled and applied under normal conditions in accordance with Sika's instructions. In practice, the differences in materials, substrates, storage and handling conditions, actual site conditions and other factors outside of Sika's control are such that Sika assumes no liability for the provision of such information, advice, recommendations or instructions related to its products, nor shall any legal responsibility attach to Sika in this connection or prevent Sika from discontinuing or changing the products without notice. All sales of Sika product(s) are subject to its current terms and conditions of sale which are available at www.sikacors.com or by calling 800-933-7452.

Prior to the use of any Sika material, the user must always read and follow the warnings and instructions on the product's current Technical Data Sheet, product label and Material Safety Data Sheet which are available online at www.sikacors.com, or by calling 800-933-7452. Nothing contained in any Sika material relieves the user of the obligation to read and follow the warnings and instructions for each Sika product set forth in the current Technical Data Sheet, product label and Material Safety Data Sheet prior to product use.

**LIMITED WARRANTY**

Sika warrants this product for one year from date of installation to be free from manufacturing defects and to meet Sika’s published current Standard Technical Specifications. However, Sika accepts no liability for any loss, damage or claim arising out of the use of this product in any way. Sika shall be under no obligation to repair or replace any equipment or machine on which Sika’s products are used if said equipment or machine is not used in accordance with Sika’s written instructions. Sika shall not be responsible for the use of this product in any manner that infringes on any patent or other intellectual property rights held by others.

Visit our website at www.sikacors.com for Regional Information and Sales Centers. For the location of your nearest Sika sales office, contact your local center.
4. ADA
Accessibility
**PRIORITY 4: ADA ACCESSIBILITY**

**Overview:**
Our team reviewed the recent highly detailed ADA Accessibility Survey Report performed by Abilities UNlimited, Inc. for the DLR Group which identified deficient areas of concern for ADA (American with Disabilities Act) compliance. Working closely with Karl Stephens, the City’s ADA Compliance Officer, we sought to devise solutions in the non-compliant areas. Following the priorities of the Assessment Report, we focused primarily on Public Accessibility and other incremental improvements such as compliant accessible Toilets on the Garden Level. We evaluated how disabled patrons would drive and park, utilize public transportation, and navigate arrival at their desired destinations within the Municipal Complex. Several ramps and sidewalks were found to have excessive cross slopes, but cannot be remedied without complete re-engineering, removal, and reconstruction which is cost prohibitive at this time. For the Northwest Parking Lot, a new solution is presented to achieve enhanced ADA compliance that congregates handicap parking nearest the ramps. We also noted where added ADA compliant Braille signage would be helpful at several locations.

Please See A01.02 Garden Level Plan & A01.03 West Parking Lot and Toilet Room Enlargement Plans in Appendix D.

**Sub-Priority 1: ROUTE OF TRAVEL**
Focus on Getting Patrons to the Building.
Goal to define two viable means of access/egress to the upper and lower levels

**Issue:** Walkways from NW Parking Lot to Building
**Report Remedy:** None
**Proposed Solution:** Our parking lot solution described above incorporates a new level cast concrete walkway east-west across the entire north end of the accessible parking lot connecting to the center island walkway by means of a short ramp.
**Issue:** Walkway from Accessible Parking to Ramps at Building (NW)

**Report Remedy:** Modify entire walkway from accessible parking to building ramps

**Proposed Solution:** Congregate West Parking Lot Accessible Parking Spaces, add detectable warnings at driveway entrances, add new yellow striping and symbols, add curb cuts and ramps in center island joining two accessible routes. See Sheet A01.03 West Parking Lot.

**Issues:** Garden Level Walkway Slopes- Path of Travel & at Doors

**Report Remedy:** Decrease Slopes

**Proposed Solution:** To ensure proper drainage at the Garden Level, may need to maintain slopes, but add door openers to Development Services and move existing openers to be 5 feet from wall (ensure they do not encroach in path of travel). Long-term, perhaps during a larger concrete paving and drainage project, consider replacing some of the heavier aggregate concrete with a smoother aggregate surface (non-slip) and improved the cross slopes. Postponed work allowed per ADAAG 4.1.6 (1) (j) Exception.

**New Issue:** Ramp from Building/ Plaza level leading West

**Report Remedy:** N/A (Not Addressed)

**Proposed Solution:** As-built survey determined that existing 1:20 slopes were acceptable not requiring improvement. Edge curb treatments recommended but not required.
Ramps
Issue: NW Ramp Lower Section 1 & 2 have cross slope too steep
Report Remedy: Level Ramp Landings
Proposed Solution: May not be able to modify without substantial cost prohibitive reconstruction of the ramp- ADAAG 4.1.6 (3) (a) (i) & (ii) permitted.

Issue: Garden Level Ramp near Breakroom at Council Chambers
Report Remedy: Ramp Treatment- handrails, ramp treatment
Proposed Solution: Add Handrails for disabled employees on an as-needed basis. Low priority.

Issue: Curb Ramps inside accessible parking space
Report Remedy: Remove Ramp from Parking Space & provide compliant ramp elsewhere
Proposed Solution: Reconfigure Accessible Parking Spaces and compliant ramps to the center median and across- see proposed drawing A01.03 West Parking Lot.

Issues: Curb Ramps end in the path of vehicular traffic with excessive slopes
Report Remedy: Level bottom of curb ramp, provide accessible route markings thru vehicular path or alternate route
Proposed Solution: Provide more distinctive accessible route markings.

Parking & Drop Off
Issue: Slope too steep, access behind space thru vehicular traffic
Report Remedy: Provide compliant accessible parking & route of travel
Proposed Solution: Same as above- see proposed drawing A01.03 West Parking Lot.

Issue: Must cross vehicular path of traffic to get to building ramp
Report Remedy: Provide Complaint route of travel to City Hall.
Proposed Solution: Same as above- see proposed drawing A01.03 West Parking Lot.
Tempe Municipal Complex Renovation

Issue: Curb Ramps inside accessible parking space
Report Remedy: Remove Ramp from Parking Space & provide compliant ramp elsewhere
Proposed Solution: Reconfigure Accessible Parking Spaces and compliant ramps to the center median and distinctive contrasting level path across driveways while adding detectable warning pavement such as stamped concrete at driveway entrance- see proposed drawing A01.03 West Parking Lot.

**Entrances**

**Issues:** Main Public Entrance Doors to Pyramid aren’t wide enough & door pressure too great
**Report Remedy:** Provide Required Door Width Clearance & modify door pressure
**Proposed Solution:** N/A- already remedied with a new double door Automatic Door Opener at single North Entrance to Tower Lobby.

**Sub-Priority 2: HORIZONTAL & VERTICAL CIRCULATION: INTERIOR**

**Issue:** TV Blocks the Path of Travel (Garden Level)
**Report Remedy:** Raise TV or Relocate
**Proposed Solution:** Go to future Flat Panel TV- Not a priority.

**Issue:** Half Wall Minimizes Path of Travel (2nd Floor)
**Report Remedy:** Remove Half Wall
**Proposed Solution:** Half Wall confirmed to be structural and unable to remedy.

**Doors**

**Issues:** Door Closer Pressure Too Great
**Report Remedy:** Adjust Door Closer
**Proposed Solution:** Adjust Door Closer

**Issues:** Door Clearance Width too Narrow- at Second & Third Floor Bridges, Latch side clearance inadequate
**Report Remedy:** Increase Width, provide adequate latch side clearance
**Proposed Solution:** Move new panic hardware down to 36-40 inches AFF. Requires removing improvised mounting spacers, remove old hardware, add automatic opener at each location, latch side clearance unable to remedy, structural prohibits.

**Issues:** Latch Side Clearance too small
**Report Remedy:** Increase Clearance
**Proposed Solution:** Unable to remedy, structural issues prohibit.
Issues: Door Pressure too great, door clearance inadequate
Report Remedy: Adjust Door Closer, Provide adequate door clearance
Proposed Solution: Adjust door closer, unable to modify door width
Issues: Round Door Hardware, inadequate latch side clearance
Report Remedy: Replace door hardware, provide adequate latch clearance
Proposed Solution: Replace door hardware, unable to remedy clearances

Signage
Issues: Signage Missing at Many Interior Locations
Report Remedy: Add Signs with Braille Lettering at proper height
Proposed Solution: Add signage as necessary. Not a priority. Most signage provided already.
Issues: Signage on Door
Report Remedy: Relocate Signage to Latch side of door at proper height
Proposed Solution: None
Issue: Overhead signage lettering too small
Report Remedy: Verify ADA Compliance Letter sizes for overhead signage
Proposed Solution: Same as above. Low priority.
Issues: Signage Too High & Not Enough Clearance
Report Remedy: Lower Signage / Relocate to Other Side of Door
Proposed Solution: Same as above. Low priority.
Issue: Missing Site Signage along North Side of Building Indicating Accessible Route
Report Remedy: N/A Not Addressed in Report
Proposed Solution: Provide Additional Signage indicating Accessible Route from Parking Garage / Public Transportation on Northeast Plaza Corner indicating Accessible Route to GL (similar to Police Signage across the street)
Issue: Missing signage in Garden Level on accessible route indicating location of accessible restrooms
Report Remedy: N/A Not Addressed in Report
Proposed Solution: Provide Additional Signage indicating Accessible Restroom locations

Controls
Issue: Control Height too High
Report Remedy: Lower Thermostat Height
Proposed Solution: Lower Thermostat Height- (low priority)
Seats/Tables/Counters
Issues: Counter Heights too High
Report Remedy: Address with Furniture / Millwork when remodeling occurs
Proposed Solution: Address with Furniture / Millwork when remodeling occurs

Stairs
Issues: Lacking Compliant areas of Rescue / No Communication
Report Remedy: Provide Compliant Area of Rescue & Communication
Proposed Solution: Structurally Unable to remedy- Provide Communication

Elevators
Issue: Panel Requires Use of Finger Dexterity
Report Remedy: Emergency Call Button / Panel Replacement
Proposed Solution: Replace with latch type hardware or remove one set of closure magnets to lessen resistance- discuss with Thyssen Krupp.

Sub-Priority 3: TOILET STALLS
Issues: Lacking 60x60 Clear Floor Space
Report Remedy: Provide 60x60 Clear Floor Space
Proposed Solution: Provide New fully ADA compliant Restrooms on Garden Level- see proposed locations and options on A01.02 Garden Level Plan. Two ADA Restroom Design Options include a primary location NE of Council Chambers. (See sketch detail Option 2)

A secondary location option is near Public Works under the pedestrian bridge. (See sketch details 1 & 1A). One (Option 1) is a single toilet design and the other a dual toilet design (option 1A). This work would need to be coordinated with a potential new Public Works / Engineering Single Entrance.

Provide proper new ADA compliant signage and automatic door openers.

Issues: W/C centerlines & fixture heights non-compliant
Report Remedy: Adjust Fixture Locations / Lower Fixture Heights
Proposed Solution: Update when Fixtures replaced- (low priority)
Lavatories
Issues: Pipes are not wrapped
Report Remedy: Wrap Pipes
Proposed Solution: Wrap Pipes

Issue: Drawers obstructing knee clearance
Report Remedy: Remove Drawers
Proposed Solution: Remove Drawers

Issues: Dispensers too High
Report Remedy: Lower Dispensers
Proposed Solution: Low Priority

Issues: Lavatories / Counters too High
Report Remedy: Lower Lavatories
Proposed Solution: Low Priority

Issues: Inadequate knee clearance
Report Remedy: Provide adequate knee clearance
Proposed Solution: Low Priority

Sub-Priority 4: MISCELLANEOUS
Drinking Fountains No Issues (except location of one near ADA restroom)

Telephones
Issues: Telephones too high & Furniture Obstructs access
Report Remedy: Lower Telephones & Remove Furniture Obstruction
Proposed Solution: Lower Telephones or eliminate in favor of cell phones and/or public access desk phones.
5. Lighting
PRIORITY 5: EXTERIOR LIGHTING

Please see the following TECHNICAL REPORT by ENERGY SYSTEMS DESIGN, Inc.

GENERAL:

The Exterior Lighting throughout the Municipal Complex has been evaluated to determine areas of deficiency, non-code compliance, and public safety concerns. From these observations, along with documentation of measured photometric light levels, two approaches were recommended. The objectives were to improve lighting controls, eliminate or replace non-compliant fixtures, unify and reduce the number of different lighting types, and to update with easily maintained fixtures meeting all compliance criteria while bathing the complex in a more uniform level of lighting that enhances its overall ambiance and security at night. Improving Energy Conservation by introducing more progressive lighting solutions were also a part of our study.

Conventional Approach:
The first prescriptive approach is to keep all the compliant and easy to maintain fixtures while replacing dated non-compliant fixtures with existing fixture types thereby reducing the number of diverse fixtures in the complex. We augmented lighting per CPTED (Crime Prevention Through Environmental Design) recommendations (i.e. above each doorway in the Garden Level) and increased the foot-candle levels on the Upper Plaza, especially on the west side.

Progressive Approach:
The second approach takes a more progressive look at the complex as a whole and seeks to provide more uniform lighting levels with more energy efficient fixtures replacing or augmenting existing fixtures. Other considerations are the historic nature of some of the fixtures and the desire to preserve their original design intent. The primary difference to the conventional lighting approach is found at the Garden Level where a more uniform standard of lighting was added under the Trellis Canopy in lieu of random placement “hot spot” lighting at each doorway. We also explored options for integral continuous handrail lighting at the ADA ramps and North stairs leading to the City Council Chambers available in energy saving fluorescent and LED options.
Tempe City Hall Renovations
Priority Five

Consultant Report on Exterior Lighting Objectives

November 30, 2009
ESD 091069.000

Prepared for
Michael Wilson Kelly – Architects, Ltd.
21 East 6th Street, Suite 518
Tempe, AZ 85281
Priority 5 - Table of Contents

Objectives of Study ................................................................. 2

Exterior Lighting Requirements per City Code ................................... 2

Existing Exterior Lighting and Lighting Contactors ............................. 2

Exterior Lighting Assessment.......................................................... 3

Base Lighting Requirements .......................................................... 3

Lighting Options for Garden level ..................................................... 4
  A. Conventional Lighting Approach .............................................. 5
  B. Progressive Lighting Scheme ................................................... 7

Exterior Lighting Recommendations
  A. Ground Level (Upper Level) ................................................... 5
  B. Garden Level (Lower Level) .................................................... 7

Priority 5 Attachment 1: Photos of Upper and Lower Levels At Night

Priority 5 Attachment 2: Photos of Existing Light Fixtures

Priority 5 Attachment 3: New Lighting Fixture Schedule

Priority 5 Attachment 4: Existing Lighting

Priority 5 Attachment 5: Compliant Lighting

Priority 5 Attachment 6: Energy Compliance Calculations
OBJECTIVES OF STUDY

Identify requirements for upper and lower levels of Tempe City Hall that 1) replace all exterior lighting for the complex which do not meet dark sky requirements and 2) add lighting to meet City required lighting criteria. Refer to Attachment 1 for photos taken of each of these levels during the day and night. Ultimately, the objectives were to unify lighting Types and controls, preserve (or match) iconic original fixtures, to provide an even level of lighting enhancing security, and to improve lighting control and energy efficiency.

EXTERIOR LIGHTING REQUIREMENTS PER CITY CODE

A. The following summary of the existing Code Requirements for Exterior Lighting are found in:

   City of Tempe Zoning and Development Code:
   http://www.tempe.gov/ZONING/

B. Summary of Lighting Requirements:

   1. All light fixtures require full cut-off.
   2. Stairways, ramps and landings - 5 foot candles.
   3. Exterior pedestrian pathways and adjacent landscape areas within 20 feet of pathways - 0.5 foot candles.
   4. All building entrances - 5 foot candles at the entrance and 2 foot candles within 15-foot radius from the center point of entrance.
   5. Section C(5) will allow uplight from incandescent with clear glass up to 50 watts but no greater than 600 lumens.

EXISTING EXTERIOR LIGHTING AND LIGHTING CONTACTORS

Refer to the photos in the Attachment 2 along with the following descriptions.

- Type 'A' fixture is the custom 8 inch square cylinder which is original to the building design. The incandescent lamps have been replaced with PAR compact fluorescent lamps.

- The 'B' fixture was a replacement to fixture Type 'A' to give more light on the upper level from the west parking to the building on a northwest corner but violates dark sky ordinances.

- Type 'C' is a custom light fixture on the west side of the building with MR 11 fixtures illuminated up to reflect off pieces of metal. One of these fixtures was never reconnected during the last remodel of Harry Mitchell Plaza.

- The two custom Copper Light pole fixtures are broken and not working.

- Type 'F2' fixtures are the bell shaped fixtures found along the east side of the plaza mounted on 30 ft. tall poles. There is a similar 16 ft. high Type 'F' located along the walkway of the Orchid House building to the south.

- Type 'G' fixtures (sometimes called the pumpkin head or tulip fixtures) do not comply with dark sky requirements.

- Type 'K' fixtures are the wall mount KLM fixtures at the north lower level.

- Type 'M' and 'N' fixtures are located on the lower level and are to be removed and have cover plates installed to cover the hole.
• Type 'H' fixtures are square shoebox pole top KIM fixtures that exist above the ramp on the south end. They shine downward from the Plaza level to the Garden level.

Existing lighting contactors for the exterior lights are Suntracker # EC71ST with the 120 volt coils. There are currently five of them at the Garden level. One is located in the central plant on the south side and controls the light on the south end. The second in the southwest corner closet controls the lights on the west side. The third one is located in the northeast corner which controls the lights on the north. The fourth is located on the northeast corner of the complex which controls the east side lights. The fifth one is in the basement of the tower which controls the lights at the north entry.

EXTERIOR LIGHTING ASSESSMENT

A. Existing photometrics were calculated and later verified with a light meter to determine existing conditions. Some of the lights were not working and they were taken into account with the measurements. Refer to Existing Lighting layout and Photometric calculation given in Attachment 4.

1. The down lights, Type "J", at the building are mostly burned out (all but one no longer function at night).

2. The eight-inch square fixtures, Type 'A' fixture, light only in a small area and therefore do not do an adequate job of lighting the area.

3. The light levels at the doors do not comply with the 5-foot candles minimum at the door and 2-foot candles 15 feet away. They are also not on emergency power backup.

4. The lighting at the ground level was found to be at low levels at the southwest, north and south plazas, stairs, ramps, walkways and bridges. The east plaza had acceptable lighting levels due mostly to the spill light from the pole lights installed to serve the garage to the east.

5. The lighting at the garden level was found to have low levels at the doors, ramps and stairs.

BASE LIGHTING REQUIREMENTS

A. "BASE" LIGHTING REQUIREMENTS

1. Add lighting in the Garden level to improve the light levels to the City standards.

2. Add lighting on the north, east and south sides of the upper level to improve the lighting at the walkways and stairs.

3. Replace all non-dark sky fixtures that are not part of a public art installation or City standard. The non-dark sky fixtures are Types B, G, N, and O. Type C will be left for artistic reasons, with the option to replace three of them with Type 'H2' on the west plaza ramp to enhance security and accessibility.

4. There are existing circuits that can be made available for new lighting at each of the existing panels. New 20/1 breakers would need to be added with the removal of existing two pole breakers that are not being used.

5. Work to be performed to also include:

a. All work will be performed in accordance with whichever is the most strict, the soon to be adopted or the latest editions, revisions, amendments, or supplements of applicable statutes, ordinances, codes, or regulations of Federal, State, and Local Authorities Having Jurisdiction.
b. Materials and equipment will conform to and be in accordance with the latest applicable standards established by OSHA, Underwriters Laboratories, National Electrical Manufacturers Association (NEMA), and American National Standards Institute (ANSI).

c. All systems will be provided complete and fully operable.

d. Existing light fixtures that are to be demolished, with the City having first right of salvage.

e. Provide all new lighting as called out in plans and circuit through new lighting contactors.

f. New Lighting Controls: Existing lighting contactors (total of 5) to be modified or replaced to accept new Energy Management System (EMS). The sun trackers have three pole 120-volt contactors. They would require a low-voltage relay to activate the 120 volt coil in order to tie into the Energy Management System.

g. Exterior Lighting: All exterior lighting outside each egress door is to have emergency power backup. Lights are to be off during the day and will be on at night with building lights.

h. Building lights that are to remain are to be made functional (such as all the soffit mounted down lights within the City Hall building and the two pole fixtures on the south ramp to the lower level that illuminate the exterior grounds).

**LIGHTING OPTIONS FOR GARDEN LEVEL**

A. Conventional Lighting Approach

An option of adding only wall lights directly above each of 19 doors in the Garden level was investigated to improve the light levels to the City standards. These plans are called "Conventional" and shown as E2.0 and E2.1 in Attachment 5.

B. Progressive Lighting Scheme

A progressive lighting scheme for lighting the Garden level was then studied which had lighting spaced along on the bottom side of the trellis and LED lightbars for the handicap ramps for a more even lighting than the previous option. The perimeter lighting approach was augmented by replacement of all non dark sky compliant pole mounted fixtures with H2 fixtures in adjacent landscape areas. These "Progressive" plans are shown as E2.0ALT and E2.1ALT in Attachment 5.

The "Conventional" option has hot spots but can be achieved incrementally while the second, "Progressive", option provides a more even lighting level along the garden level walkway. This second option is preferred as the one to use as the final design.

**EXTERIOR LIGHTING RECOMENDATIONS**

Refer to lighting cut sheets for new lighting in Attachment 3 and plans for new and replacement fixtures in Attachment 5.
A. Upper Plaza Level

1. Replace all 8" square light fixtures that are part of the original building (Type 'A' fixtures) with matching dark bronze fixtures with more light producing updated energy efficient lamps.

2. Replace all Type 'B' fixtures that replaced the Type 'A' fixtures with light fixtures that match those that were original (same as item 1 above).

3. Add new 30 foot tall pole lights on the west side to match the same "Bell" shape 'F2' fixtures on the east side.

4. Add new Type 'F' 16 foot tall pole lights on the south and north ends, next to the walkway bridges, to light the stairs and walkways.

5. The one Type 'C' light fixture on the west side of the building that was never reconnected during the last remodel of the Harry Mitchell Plaza area is to be reconnected if possible or provide an Alternate to replace three Type 'C' fixtures on the West Ramp with Type 'H2' KIM fixtures for improved security on the ADA accessible route.

6. The "Progressive" lighting layout proposes the use of integral handrail lighting on the northwest and northeast ADA ramps and the North central stairs leading to the City Council Chambers. These fixtures have LED or linear fluorescent lamping options to allow value engineering.
B. Garden Level (Lower Level)

1. Provide wall lights Type 'W' above the doors (conventional scheme) or linear fluorescent lights (Type 'L' fixtures) at the trellis (progressive scheme) to provide the required lighting at the doors and walkways.

2. Replace the existing pole lights (Type 'G') with Type 'H2' post top full cut off lights.

3. Remove lighting that is not being used or failing.

4. Add full cutoff lighting at proposed new single entrance of Public Works/Engineering. Replace all surface mounted lights.

5. Add integral LED handrail lighting to improve lighting on ramp walkways on the northeast, northwest and the main north stairs leading to the City Council Chambers ("Progressive" scheme).

6. Circuit all new and remodeled lighting through new contactors controlled by the new Energy Management System (EMS).

7. Lighting in the feature glass enclosure at the City Council Chambers to be made functional and existing MR16s to be replaced with multicolor LED replacement MR16s with enhanced lighting controls.
8. The two Copper Light pole fixtures on the north end of the garden level are to be disconnected and removed along with the two copper wall light fixtures.

9. Handrails on north stairs to be replaced and circuited with linear LED or fluorescent handrail lighting ("Progressive" scheme).

Trellis Canopy

Respectfully submitted,

Energy Systems Design, Inc.

James E. Morris, P.E.
Vice President
Ground (Upper) Level at Night (minimal)

Note: Tiered soffit lighting at the Tower was off.

Garden (Lower) Level at Night

Note: Dark under trellis canopies and non-dark sky compliant pole mounted lighting (to be replaced).
Type A Pole Light Fixture
(Original, considered Iconic but decorative)

Type B Pole Light Fixture
(Non-compliant replacement for Type "A")

Type C Pole Light Fixture
(Custom design by Public Artist, but ineffective)
Type "Copper Pole Light" Fixture
(Inoperable; to be removed)

Type "Copper Wall Fixture"
(Ineffective; to be removed)

Type F2 Pole Light Fixture
(Proposed for use at west side for Upper Plaza)

Type G Pole Light Fixture
(Non-compliant; to be replaced)

Type H Pole Light Fixture
(Relatively new, but inoperable due to difficult access; requires new lamps)

Type K Wall Light
(Compliant; to remain for security reasons)
Type M Original Recessed Light Fixture
(Inoperable, ineffective; to be removed)

Type N Wall Fixture
(Non-compliant; casts yellow light; to be removed)

Type O Wall Light
(Non-compliant; to be removed)
## PRIORITY 5 - ATTACHMENT 3
### NEW LIGHTING FIXTURE SCHEDULE

<table>
<thead>
<tr>
<th>Type</th>
<th>Image</th>
<th>Manufacturer</th>
<th>Catalog Number</th>
<th>Quantity/Lamp</th>
<th>Finish</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>L</td>
<td><img src="image1.png" alt="Image" /></td>
<td>Axis Lighting</td>
<td>Wet Beam WBW F 4 T8 2 C UNV E 2 TF</td>
<td>(2) GE F32T8/SP35</td>
<td>Bronze</td>
<td>4&quot; wide x 3.4&quot; deep x 4' long, linear, wet-location, wall-mounted, 2-lamp, T8, fluorescent light fixture with flush, frosted acrylic lens. 59 watts. <strong>Cut Sheet</strong> To be used at perimeter Trellis Canopy, Two fixtures per bay. Two are to be used at entrance near back door of Council Chambers.</td>
</tr>
<tr>
<td>A</td>
<td><img src="image2.png" alt="Image" /></td>
<td>Kirlin Lighting</td>
<td>HWS 07195 43 (39 watt) 94 (stepped black baffle) 37 87 (match existing) 99 (no indirect lamp/ballast in top of housing)</td>
<td>(1) GE 39 watt, MH</td>
<td>Bronze</td>
<td>7.25&quot; square x 25.2&quot; tall, wall-mounted, 1-lamp, metal halide, wall sconce with black baffle and integral ballast. Verify mounting height with Architect. <strong>Cut Sheet</strong> To replace Types 'A' and 'B' fixtures, typical</td>
</tr>
</tbody>
</table>

---

<table>
<thead>
<tr>
<th>Type</th>
<th>Image</th>
<th>Manufacturer</th>
<th>Catalog Number</th>
<th>Quantity/Lamp</th>
<th>Finish</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Z</td>
<td></td>
<td>Cole Lighting</td>
<td>Lightrail LR 5W LED BRZ</td>
<td>LED's and LED Drivers included with fixture</td>
<td>Bronze/ Clear</td>
<td>1.9&quot; diameter, extruded aluminum, ADA, wet location, LED lighted handrail with drivers in tube. Verify mounting and all details with Architect prior to installation. <strong>Cut Sheet</strong></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Prismatic</td>
<td>To be used at Northwest ADA ramps and main North stair leading to Council Chambers.</td>
</tr>
<tr>
<td>F</td>
<td>SEE</td>
<td>Architectural</td>
<td>UCM-H5-FTG-150MH LUM BEL SLA 17-BC5-4 WITH POLE AND BASE</td>
<td>(1) 150W pulse start Metal Halide</td>
<td>Bronze</td>
<td>Medium Scale Full cutoff with 16 foot pole Use at North and South bridges</td>
</tr>
<tr>
<td></td>
<td>SHEET E2.1</td>
<td>Area Lighting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>F2</td>
<td>SEE</td>
<td>Architectural</td>
<td>UCL-H5-FTG-250MH LUM BEL SLA 17-BC5-4 WITH POLE AND BASE</td>
<td>(1) 250W pulse start Metal Halide</td>
<td>Bronze</td>
<td>Large Scale Full cutoff with 30 foot pole Use at edge of West Plaza</td>
</tr>
<tr>
<td></td>
<td>SHEET E2.1</td>
<td>Area Lighting</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>H2</td>
<td>SEE</td>
<td>Kim Lighting</td>
<td>EKG501-3/175PMH-ED28 WITH 12 FOOT POLE AND ONE WITH NEW BASE</td>
<td>(1) 175W pulse start Metal Halide</td>
<td>Bronze/ Clear</td>
<td>EKG Conventional Shoebox Luminaire. Die Cast Alum. Replaces ‘G’ at Garden Level</td>
</tr>
<tr>
<td></td>
<td>SHEET E2.1</td>
<td></td>
<td></td>
<td></td>
<td>Prismatic</td>
<td></td>
</tr>
<tr>
<td>M</td>
<td></td>
<td>Color Kinetics</td>
<td>IColor MR g2 plus lighting control</td>
<td>Three color LED – 50,000 hour</td>
<td>Bronze/ Clear</td>
<td>LED replacement for exiting MR16 Use at Art Feature at Council Chambers</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>Prismatic</td>
<td></td>
</tr>
<tr>
<td>Type</td>
<td>Image</td>
<td>Manufacturer</td>
<td>Catalog Number</td>
<td>Quantity/Lamp</td>
<td>Finish</td>
<td>Notes</td>
</tr>
<tr>
<td>------</td>
<td>-------</td>
<td>--------------</td>
<td>----------------</td>
<td>---------------</td>
<td>--------</td>
<td>-------</td>
</tr>
</tbody>
</table>
| W    | ![Image](image) | LITHONIA | WSQ 2/42TRT MD MVOLT | (2) 42 W TRT | BRONZE | WALL FIXTURE  
Option in Conventional Lighting Scheme above each of the 19 doors at Garden Level  
Along rear entrance to Council Chambers. |
KEYED NOTES:

1. Replace existing non-compliant dark sky type with high intensity discharge (HID) fixture and pole.
2. Replace existing sodium mount non-compliant dark sky type with HID fixture. Light will come from new wall mount W over doors.
3. Purge new wall mount, type W, feed with emergency standby power.
4. Remove old lighting and provide new recessed LED fixtures and controls for display area.

SHEET NOTES:

1. Feed new lights with direct in 3/4" NM. Conduit pipe within slit in steel panel. Egress lighting on both sides of column.
2. Lighting fixtures to be arranged to be controlled by new control system in lieu of time clock.
3. A = Existing to remain
   P = Exterior untinted panel
   W = Existing to be replaced
PRIORITY 5 - ATTACHMENT 6
ENERGY COMPLIANCE CALCULATIONS

COMcheck Software Version 3.6.0
Exterior Lighting Compliance Certificate

2006 IECC

Section 1: Project Information

Project Type: Addition
Project Title: Garden Lvl-Tempe City Hall

Construction Site: 31 East Fifth Street
Tempe, AZ 85281

Owner/Agent: Michael Kelly
Michael Kelly Architects
Tempe, AZ

Designer/Contractor: Jim Morris
Energy Systems Design
Phoenix, AZ 85016

Section 2: Exterior Lighting Area/Surface Power Calculation

<table>
<thead>
<tr>
<th>A</th>
<th>Exterior Area/Surface</th>
<th>B</th>
<th>Quantity</th>
<th>C</th>
<th>Allowed Watts / Unit</th>
<th>D</th>
<th>Tradable Wattage</th>
<th>E</th>
<th>Allowed Watts (C x D)</th>
<th>F</th>
<th>Proposed Watts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walkway &gt; 10 feet wide</td>
<td>10567 ft²</td>
<td>0.2</td>
<td>Yes</td>
<td>2117</td>
<td>370</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walkway &lt; 10 feet wide</td>
<td>257 ft of walkway length</td>
<td>1</td>
<td>Yes</td>
<td>257</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plaza area</td>
<td>8707 ft²</td>
<td>0.2</td>
<td>Yes</td>
<td>1741</td>
<td>2079</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main entry/exit</td>
<td>12 ft of door width</td>
<td>30</td>
<td>Yes</td>
<td>390</td>
<td>128</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other entry/exit</td>
<td>57 ft of door width</td>
<td>20</td>
<td>Yes</td>
<td>1140</td>
<td>3080</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Tradable Watts*</td>
<td>5616</td>
<td></td>
<td></td>
<td>5620</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Allowed Watts</td>
<td>5816</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Allowed Supplemental Watts**</td>
<td>281</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* Wattage tradeoffs are only allowed between tradable areas/surfaces.
** A supplemental allowance equal to 5% of total allowed wattage may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

<table>
<thead>
<tr>
<th>A</th>
<th>Fixture ID</th>
<th>Description / Lamp / Wattage Per Lamp / Ballast</th>
<th>B</th>
<th>Lamps/ Fixtures</th>
<th>C</th>
<th># of Fixtures</th>
<th>D</th>
<th>Fixture Watt.</th>
<th>E</th>
<th>(C x D)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walkway &gt; 10 feet wide (10567 ft²)</td>
<td>Tradable Wattage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HID 1.1: WALL HID / Metal Halide 70W / Pulse start</td>
<td></td>
<td>1</td>
<td>4</td>
<td>75</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compact Fluorescent 12: DOWNLIGHT: WALL SCONCE / Triple 4-pin 32W / Electronic</td>
<td></td>
<td>1</td>
<td>2</td>
<td>35</td>
<td>70</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walkway &lt; 10 feet wide (257 ft of walkway length)</td>
<td>Tradable Wattage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Compact Fluorescent 7: DOWNLIGHT: SCONCE / Triple 4-pin 32W / Electronic</td>
<td></td>
<td>1</td>
<td>1</td>
<td>35</td>
<td>35</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Plaza area (8707 ft²)</td>
<td>Tradable Wattage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HID 3.2: POLETOP HID / Metal Halide 175W / Pulse start</td>
<td></td>
<td>1</td>
<td>11</td>
<td>189</td>
<td>2079</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Main entry/exit (12 ft of door width)</td>
<td>Tradable Wattage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear Fluorescent 1: L. 48&quot; T8 32W / Electronic</td>
<td></td>
<td>1</td>
<td>4</td>
<td>32</td>
<td>128</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other entry/exit (57 ft of door width)</td>
<td>Tradable Wattage</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Linear Fluorescent 2: L. 4 Linear Fluorescent / 48&quot; T8 32W / Electronic</td>
<td></td>
<td>1</td>
<td>94</td>
<td>32</td>
<td>3008</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Tradable Proposed Watts</td>
<td>5620</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Section 4: Requirements Checklist

Lighting Wattage:

Project Title: Garden Lvl-Tempe City Hall
Data filename: U:\2009\09\080 Tempe City Hall\Filing\3.6 Elec Lighting\ComCheck-Tempe-Exterior-Garden.cck
Report date: 11/18/09
Page 1 of 2
1. Within each non-tractable area/surface, total proposed Watts must be less than or equal to total allowed Watts. Across all tractable areas/surfaces, total proposed Watts must be less than or equal to total allowed Watts.

   Compliance: Passes using supplemental allowance watts.

Controls, Switching, and Wiring:

2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.

3. All lighting fixtures are controlled by a photosensor or astronomical time switch that is capable of automatically turning off the fixture when sufficient daylight is available or the lighting is not required.

   Exceptions:

   Covered vehicle entrance/exit areas requiring lighting for safety, security and eye adaptation.

Exterior Lighting Efficacy:

4. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 80 lumens/watt.

   Exceptions:

   Controlled by motion sensor or exempt from consideration under the provisions of Section 509.6.2.

Exterior Lighting Passes: Design 0.0% better than code

Section 5: Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2006 IECC requirements in COMcheck Version 3.6.0 and to comply with the mandatory requirements in the Requirements Checklist.

Name - Title  Signature  Date
2006 IECC

Section 1: Project Information

Project Type: Addition
Project Title: Ground Lvl-Tempe City Hal

Construction Site: 31 East Fifth Street
Tempe, AZ 85261

Owner/Agent: Michael Kelly
Michael Kelly Architects
Tempe, AZ

Designer/Contractor: Jim Morris
Energy Systems Design
Phoenix, AZ 85016

Section 2: Exterior Lighting Area/Surface Power Calculation

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Walkway &gt;= 10 feet wide</td>
<td>7348 ft²</td>
<td>0.2</td>
<td>Yes</td>
<td>1489</td>
<td>2000</td>
</tr>
<tr>
<td>Walkway &lt; 10 feet wide</td>
<td></td>
<td>1</td>
<td>327</td>
<td>518</td>
<td></td>
</tr>
<tr>
<td>Plaza area</td>
<td>41976 ft²</td>
<td>0.2</td>
<td>Yes</td>
<td>8398</td>
<td>4175</td>
</tr>
<tr>
<td>Main entry/exit</td>
<td>6 ft of door width</td>
<td>30</td>
<td>Yes</td>
<td>180</td>
<td>102</td>
</tr>
<tr>
<td>Other entry/exit</td>
<td>18 ft of door width</td>
<td>20</td>
<td>Yes</td>
<td>360</td>
<td>306</td>
</tr>
</tbody>
</table>

Total Tradable Watts* = 10732
Total Allowed Watts = 10732
Total Allowed Supplemental Watts** = 537

* Wattage tradeoffs are only allowed between tradable areas/surfaces.
** A supplemental allowance equal to 5% of total allowed wattage may be applied toward compliance of both non-tradable and tradable areas/surfaces.

Section 3: Exterior Lighting Fixture Schedule

<table>
<thead>
<tr>
<th>A Fixture ID : Description / Lamp / Wattage Per Lamp / Ballast</th>
<th>B Lamps/ Fixture</th>
<th>C # of Fixtures</th>
<th>D Fixture Watt.</th>
<th>E [C x D]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Walkway &gt;= 10 feet wide (7345 ft²): Tradable Wattage</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HID 1: F. BELL FIXTURE HID / Metal Halide 150W / Pulse start</td>
<td>1</td>
<td>5</td>
<td>176</td>
<td>880</td>
</tr>
<tr>
<td>Compact Fluorescent 12: A BUILDING STANDARD 8&quot; SQUARE CYL / Triple 4-pin 32W / Electronic</td>
<td>1</td>
<td>20</td>
<td>35</td>
<td>700</td>
</tr>
<tr>
<td>Incandescent 1: C. EXISTING CONTEMPORARY / Incandescent 35W</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Walkway &lt; 10 feet wide (327 ft of walkway length): Tradable Wattage</td>
<td>4</td>
<td>3</td>
<td>140</td>
<td>420</td>
</tr>
<tr>
<td>Compact Fluorescent 7: S. EXISTING STEP LIGHT / Triple 4-pin 13W / Electronic</td>
<td>1</td>
<td>11</td>
<td>16</td>
<td>176</td>
</tr>
<tr>
<td>HID 4: H. EXISTING POST TOP AT SOUTH RAMP / Metal Halide 150W / Pulse start</td>
<td>1</td>
<td>2</td>
<td>157</td>
<td>314</td>
</tr>
<tr>
<td>Compact Fluorescent 10: A. BUILDING STANDARD 8&quot; SQUARE CYL / Quad 2-pin 13W / Electronic</td>
<td>1</td>
<td>2</td>
<td>13</td>
<td>26</td>
</tr>
</tbody>
</table>

Plaza area (41976 ft²): Tradable Wattage

HID 3: F2. BELL FIXTURE HID / Metal Halide 250W / Pulse start
Compact Fluorescent 10: J. EXISTING DOWNLIGHT / Triple 4-pin 32W / Magnetic
Compact Fluorescent 10: A. BUILDING STANDARD 8" SQUARE CYL / Quad 2-pin 13W / Electronic

Main entry/exit (8 ft of door width): Tradable Wattage
Compact Fluorescent 8: J. DOWNLIGHT CFL / Triple 4-pin 32W / Magnetic
Linear Fluorescent 1: FLUOR. ABOVE ENTRY / 48" T8 32W / Electronic

Project Title: Ground Lvl-Tempe City Hal
Data filename: J2009/091006 Tempe City Hall/Filing/3.6 Elec Lighting/ComCheck-Tempe-Exterior-Ground Lvl.cck
Report date: 11/16/09
Page 1 of 2
Section 4: Requirements Checklist

**Lighting Wattage:**

- 1. Within each non-tradable area/surface, total proposed watts must be less than or equal to total allowed watts. Across all tradable areas/surfaces, total proposed watts must be less than or equal to total allowed watts.
  - Compliance: Passes.

**Controls, Switching, and Wiring:**

- 2. All exemption claims are associated with fixtures that have a control device independent of the control of the nonexempt lighting.
- 3. All lighting fixtures are controlled by a photosensor or astronomical time switch that is capable of automatically turning off the fixture when sufficient daylight is available or the lighting is not required.
  - Exceptions:
    - Covered vehicle entrance/exit areas requiring lighting for safety, security and eye adaptation.

**Exterior Lighting Efficacy:**

- 4. All exterior building grounds luminaires that operate at greater than 100W have minimum efficacy of 60 lumen/watt.
  - Exceptions:
    - Controlled by motion sensor or exempt from consideration under the provisions of Section 505.6.2.

Section 5: Compliance Statement

Compliance Statement: The proposed exterior lighting design represented in this document is consistent with the building plans, specifications and other calculations submitted with this permit application. The proposed lighting system has been designed to meet the 2006 IECC requirements in COMcheck Version 3.6.0 and to comply with the mandatory requirements in the Requirements Checklist.

---

Energy Systems Design, Inc.
PRELIMINARY COST ESTIMATES:

One of the most important factors is the relative cost of the proposed improvements. Our cost estimator Vince Notaro and his CONSTRUCTION CONSULTANTS Engineering Team based the Cost Estimates on our Conceptual Design Documents and Architectural 
& Engineering Report Recommendations. Reasonable Allowances were made for current unknowns. It should be noted that our initial Conceptual Design Documents were not intended to be developed to the level of 100% Construction Bid Documents as this time. Therefore, we added a conservative 10% Design Contingency amount to the raw Preliminary Construction Cost Estimates to compensate for the inherent lack of design detailing and specificity common at this stage in the process.

Building Envelope Sub-consultant Mike Bourassa of Heitmann & Associates solicited preliminary bids from industry specialist Sub-contractors in areas of glass safety film application, laminated and dual pane glass replacement, painting, and weatherproofing. Mr. Notaro verified the sub-contractor quantities and costs and factored the methodology and logistics into the preliminary cost determinations.

The Grand Cost Estimate Summary is based on the Base Costs for City selected and consultant recommended Priority treatments. Additional Options and Alternate Pricing are given within the more detailed context of each Priority Cost Summary Breakdown.

Electrical & Lighting quantities derived from detailed Preliminary Lighting Plans by Energy Systems Design, Inc. to ascertain preliminary costs for Conventional vs. Progressive Lighting Schemes with Optional Pricing for two types of integral ADA compliant handrail lighting (fluorescent vs. LED) considered for the NW ADA Ramp and both sides of the Main Stairs leading down to the City Council Chambers. Both Schemes include provisions for new EMS Lighting Controls.
PRELIMINARY ESTIMATE
OF
CONSTRUCTION COST

TEMPE MUNICIPAL COMPLEX RENOVATION
TEMPE, ARIZONA

PREPARED FOR:
MICHAEL WILSON KELLY ARCHITECTS LTD.
TEMPE, ARIZONA

PREPARED BY:
CONSTRUCTION CONSULTANTS
PHOENIX, ARIZONA

DECEMBER 2, 2009
**GRAND CONSTRUCTION COST SUMMARY**

**PROJECT:** TEMPE MUNICIPAL COMP. RENOV.  
**DATE:** DEC. 2, 2009  
**LOCATION:** TEMPE, AZ.  
**ESTIMATE NO:** PRELIMINARY

<table>
<thead>
<tr>
<th>Description of Work</th>
<th>BASE COST</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIORITY 1 BUILDING ENV.</td>
<td>600,000</td>
</tr>
<tr>
<td>PRIORITY 2 STRUCTURAL</td>
<td>288,000</td>
</tr>
<tr>
<td>PRIORITY 3 WATERPROOFING</td>
<td>270,000</td>
</tr>
<tr>
<td>PRIORITY 4 ADA</td>
<td>125,000</td>
</tr>
<tr>
<td>PRIORITY 5 ELECTRICAL</td>
<td>285,000</td>
</tr>
<tr>
<td><strong>TOTAL BASE COSTS</strong></td>
<td><strong>1,588,000</strong></td>
</tr>
</tbody>
</table>

FOR OPTIONS/ALTERNATES
SEE INDIVIDUAL PRIORITY SUMMARY SHEETS
# Construction Cost Summary

**Project:** Tempe Municipal Comp. Renov.  
**Location:** Tempe, AZ.  
**Date:** Dec. 2, 2009  
**Estimate No:** Preliminary

<table>
<thead>
<tr>
<th>Description of Work</th>
<th>Base Cost</th>
<th>Optional Costs</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Priority 1: Building Envelope</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Security Film Application</td>
<td>385,000</td>
<td></td>
</tr>
<tr>
<td>Garden Level Storefront</td>
<td></td>
<td></td>
</tr>
<tr>
<td>NW/West/SW</td>
<td>0</td>
<td>150,000</td>
</tr>
<tr>
<td>NE/East/SE</td>
<td>0</td>
<td>165,000</td>
</tr>
<tr>
<td>New Entry West Side</td>
<td>0</td>
<td>22,000</td>
</tr>
<tr>
<td>Pyramidal Tower</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Caulking</td>
<td>160,000</td>
<td></td>
</tr>
<tr>
<td>Steel Framing Paint</td>
<td>20,000</td>
<td></td>
</tr>
<tr>
<td>Roof Coping</td>
<td>38,000</td>
<td></td>
</tr>
<tr>
<td>Tower Glass Replacement</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 1 Insulated</td>
<td></td>
<td>2,130,000</td>
</tr>
<tr>
<td>Option 2 Monolithic</td>
<td></td>
<td>1,810,000</td>
</tr>
<tr>
<td><strong>Total Building Envelope (Rounded)</strong></td>
<td>600,000</td>
<td></td>
</tr>
<tr>
<td>Description of Work</td>
<td>BASE COST</td>
<td>OPTIONAL COSTS</td>
</tr>
<tr>
<td>-------------------------------------</td>
<td>-----------</td>
<td>----------------</td>
</tr>
<tr>
<td>PRIORITY 2: STRUCTURAL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>A. TOP PRIORITY ITEMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>GARDEN LEVEL BEARING WALL</td>
<td>6,100</td>
<td></td>
</tr>
<tr>
<td>WATER DAMAGE ON BRIDGE PLANKS</td>
<td>4,700</td>
<td></td>
</tr>
<tr>
<td>GARDEN LEVEL WATER DAMAGE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLEAN WATERPROOF &amp; MONITOR</td>
<td>0</td>
<td>2,000</td>
</tr>
<tr>
<td>TEST REPAIR &amp; REPLACE</td>
<td>4,700</td>
<td></td>
</tr>
<tr>
<td>TREES AT TRELLIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>LIMB REMOVAL</td>
<td>0</td>
<td>5,400</td>
</tr>
<tr>
<td>TREE REMOVAL</td>
<td></td>
<td>77,000</td>
</tr>
<tr>
<td>GARDEN LEV. STAIR RET. WALL</td>
<td>64,800</td>
<td></td>
</tr>
<tr>
<td>GARDEN LEV. LANDSCAP'G WALL</td>
<td>20,100</td>
<td></td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>177,400</strong></td>
<td></td>
</tr>
<tr>
<td>B. HIGH PRIORITY ITEMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRACKS AT COLUMNS BEAMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>WATERPROOF &amp; MONITOR</td>
<td>0</td>
<td>3,600</td>
</tr>
<tr>
<td>TEST REPAIR &amp; REPLACE</td>
<td>10,000</td>
<td></td>
</tr>
<tr>
<td>WATER DAMAGE AT TRELLIS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLEAN WATERPROOF &amp; MONITOR</td>
<td>0</td>
<td>5,500</td>
</tr>
<tr>
<td>TEST REPAIR &amp; REPLACE</td>
<td>8,000</td>
<td></td>
</tr>
<tr>
<td>CRACKS AT LIGHT WELL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SEAL WATERPROOF &amp; MONITOR</td>
<td>0</td>
<td>13,500</td>
</tr>
<tr>
<td>REMOVE &amp; REPLACE</td>
<td>34,000</td>
<td></td>
</tr>
<tr>
<td>CLEAN WATERPROOF STL. GRATE</td>
<td>0</td>
<td>28,000</td>
</tr>
<tr>
<td>REMOVE/REPAIR/REPLACE STL. GRATE</td>
<td>75,000</td>
<td></td>
</tr>
<tr>
<td>CRACKS AT STRUCTURAL TOPPING</td>
<td>12,000</td>
<td></td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>139,000</strong></td>
<td></td>
</tr>
<tr>
<td>C. MEDIUM PRIORITY ITEMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>EXPOSED REINFORCING</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CLEAN, PATCH MONITOR</td>
<td>0</td>
<td>11,300</td>
</tr>
<tr>
<td>TEST REPAIR &amp; REPLACE</td>
<td>24,000</td>
<td></td>
</tr>
<tr>
<td>TREE ROOT AT SIDEWALK</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TRIM TREE ROOTS</td>
<td>0</td>
<td>1,000</td>
</tr>
<tr>
<td>CUT SIDEWALK</td>
<td>0</td>
<td>2,000</td>
</tr>
<tr>
<td>REMOVE TREES</td>
<td>12,000</td>
<td></td>
</tr>
<tr>
<td>RUSTED METAL TRELLIS</td>
<td>2,700</td>
<td></td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td><strong>38,700</strong></td>
<td></td>
</tr>
<tr>
<td>D. LOW PRIORITY ITEMS</td>
<td></td>
<td></td>
</tr>
<tr>
<td>CRACKING/CAULKING AT RAILING</td>
<td>10,800</td>
<td>10,800</td>
</tr>
<tr>
<td><strong>TOTAL STRUCTURAL (ROUNDED)</strong></td>
<td><strong>239,000</strong></td>
<td></td>
</tr>
</tbody>
</table>

*HIGHEST COSTS HAVE BEEN APPLIED
<table>
<thead>
<tr>
<th>Description of Work</th>
<th>Base Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIORITY 3: WATERPROOFING</td>
<td></td>
</tr>
<tr>
<td>INTERIOR CORNERS</td>
<td>8,000</td>
</tr>
<tr>
<td>EXPANSION JOINTS (50%)</td>
<td>70,000</td>
</tr>
<tr>
<td>SHRINKAGE CRACKS</td>
<td>7,000</td>
</tr>
<tr>
<td>MAJOR EXPANSION JOINT</td>
<td>16,000</td>
</tr>
<tr>
<td>GAPS/SETTLEMENT AT BRIDGES</td>
<td>35,000</td>
</tr>
<tr>
<td>PEDESTRIAN BRIDGES (3)</td>
<td>95,000</td>
</tr>
<tr>
<td>SEAL BRICK PAVERS</td>
<td>6,500</td>
</tr>
<tr>
<td>PRECAST CONC. TRELLIS</td>
<td>5,000</td>
</tr>
<tr>
<td>MISC. WELD PLATES</td>
<td>8,000</td>
</tr>
<tr>
<td>EDGE FLASHING AT PLAZA</td>
<td>18,000</td>
</tr>
<tr>
<td>TOTAL WATERPROOFING (ROUNDED)</td>
<td>270,000</td>
</tr>
</tbody>
</table>
### CONSTRUCTION COST SUMMARY

**PROJECT:** TEMPE MUNICIPAL COMP. RENOV.  
**LOCATION:** TEMPE, AZ.  
**DATE:** DEC. 2, 2009  
**ESTIMATE NO:** PRELIMINARY

<table>
<thead>
<tr>
<th>Description of Work</th>
<th>BASE COST</th>
<th>OPTIONAL COSTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIORITY 4: ADA ACCESSIBILITY</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUBPRIORITY 1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>PARKING LOT REVISIONS</td>
<td>54,300</td>
<td></td>
</tr>
<tr>
<td>RAMP H/C SIGNAGE</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td>55,800</td>
<td></td>
</tr>
<tr>
<td>SUBPRIORITY 2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DOOR CLOSURE PRESSURE</td>
<td>75</td>
<td></td>
</tr>
<tr>
<td>2ND &amp; 3RD FLOOR BRIDGE LATCH</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td>MISSING SITE SIGNAGE N. SIDE</td>
<td>675</td>
<td></td>
</tr>
<tr>
<td>MISSING SITE SIGNAGE GARDEN</td>
<td>350</td>
<td></td>
</tr>
<tr>
<td>CONTROLS (THERMOSTAT)</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td>STAIR COMMUNICATION</td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td>ELEVATOR CALL BUTTON</td>
<td>400</td>
<td></td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td>5,750</td>
<td></td>
</tr>
<tr>
<td>SUBPRIORITY 3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>RESTROOM OPTION 1 WEST</td>
<td>0</td>
<td>87,000</td>
</tr>
<tr>
<td>RESTROOM OPTION 1A WEST, EXPANDED</td>
<td></td>
<td>95,000</td>
</tr>
<tr>
<td>RESTROOM OPTION 2 NORTH</td>
<td>50,700</td>
<td></td>
</tr>
<tr>
<td>LAVATORIES WRAP PIPE</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td>LAVATORIES DRAWER OBSTRUCT</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td>61,300</td>
<td></td>
</tr>
<tr>
<td>SUBPRIORITY 4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>TELEPHONE (LOWER)</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td><strong>SUBTOTAL</strong></td>
<td>500</td>
<td></td>
</tr>
<tr>
<td><strong>TOTAL ADA ACCESSIBILITY</strong></td>
<td>125,000</td>
<td></td>
</tr>
</tbody>
</table>
### Construction Cost Summary

**Project:** Tempe Municipal Comp. Renov.  
**Location:** Tempe, AZ.  
**Date:** Dec. 2, 2009  
**Estimate No:** Preliminary

<table>
<thead>
<tr>
<th>Description of Work</th>
<th>Base Cost</th>
<th>Optional Costs</th>
<th>Alternate Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>Priority 5: Exterior Lighting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Conventional Approach</td>
<td></td>
<td>200,000</td>
<td></td>
</tr>
<tr>
<td>Progressive Approach</td>
<td>285,000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Option 1 Fixture Z (LED)</td>
<td>0</td>
<td>135,000</td>
<td></td>
</tr>
<tr>
<td>Option 2 Fixture Z (Fluorescent)</td>
<td>0</td>
<td>102,000</td>
<td></td>
</tr>
<tr>
<td>Alternate Replace H-2 (At Ramp)</td>
<td>0</td>
<td></td>
<td>10,000</td>
</tr>
<tr>
<td>Total Exterior Lighting</td>
<td>285,000</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
PRIORIT Y 1: BUILDING ENCLOSURE
<table>
<thead>
<tr>
<th>DIV.</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>COST</th>
<th>SUB-CONTR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRIORITY 1: BUILDING ENVELOPE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PYRAMIDAL TOWER</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SECURITY FILM APPLICATION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PREP AND INSTALL FILM</td>
<td>20,120</td>
<td>SF</td>
<td>13.50</td>
<td>271,620</td>
<td></td>
</tr>
<tr>
<td></td>
<td>(FURNITURE &amp; WINDOW COVERING REMOVAL &amp; REPLACEMENT)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>BY OTHERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>34</td>
<td>%</td>
<td></td>
<td>92,350</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>385,000</td>
</tr>
<tr>
<td></td>
<td>GARDEN LEVEL STOREFRONT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NW/WEST/SW</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOVE DOORS</td>
<td>8</td>
<td>EA</td>
<td>75.00</td>
<td>600</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOVE EXIST ZIPPER SYSTEM</td>
<td>351</td>
<td>LF</td>
<td>15.00</td>
<td>5,265</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW DOORS</td>
<td>8</td>
<td>EA</td>
<td>1,500.00</td>
<td>12,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW STOREFRONT</td>
<td>351</td>
<td>LF</td>
<td>270.00</td>
<td>94,770</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SUBTOTAL</td>
<td></td>
<td></td>
<td></td>
<td>112,635</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td></td>
<td>39,422</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td>150,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NE/EAST/SE OPTION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOVE DOORS</td>
<td>11</td>
<td>EA</td>
<td>75.00</td>
<td>825</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOVE EXISTING SYSTEM</td>
<td>374</td>
<td>LF</td>
<td>15.00</td>
<td>5,610</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW DOORS</td>
<td>11</td>
<td>EA</td>
<td>1,500.00</td>
<td>16,500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW STOREFRONT</td>
<td>374</td>
<td>LF</td>
<td>270.00</td>
<td>100,980</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SUBTOTAL</td>
<td></td>
<td></td>
<td></td>
<td>123,915</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td></td>
<td>43,370</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td>165,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW ENTRY WESTSIDE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOVE DOORS</td>
<td>2</td>
<td>EA</td>
<td>75.00</td>
<td>150</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOVE EXISTING SYSTEM</td>
<td>15</td>
<td>LF</td>
<td>15.00</td>
<td>225</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW DOORS</td>
<td>2</td>
<td>EA</td>
<td>1,500.00</td>
<td>3,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NEW STOREFRONT</td>
<td>25</td>
<td>LF</td>
<td>270.00</td>
<td>6,750</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ROOF STRUCTURE &amp; ROOF'G DRAIN</td>
<td>143</td>
<td>SF</td>
<td>15.00</td>
<td>2,145</td>
<td></td>
</tr>
<tr>
<td></td>
<td>GYP BOARD CEILING &amp; PAINT</td>
<td>143</td>
<td>SF</td>
<td>6.00</td>
<td>858</td>
<td></td>
</tr>
<tr>
<td></td>
<td>PAINT CEILING</td>
<td>143</td>
<td>SF</td>
<td>1.00</td>
<td>143</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FIRE SPRINKLERS</td>
<td>143</td>
<td>SF</td>
<td>4.60</td>
<td>644</td>
<td></td>
</tr>
<tr>
<td></td>
<td>HVAC</td>
<td>1</td>
<td>LS</td>
<td>500.00</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ELECTRIC POWER &amp; LIGHT</td>
<td>1</td>
<td>LS</td>
<td>2,000.00</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SUBTOTAL</td>
<td></td>
<td></td>
<td></td>
<td>16,416</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td></td>
<td>5,745</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td>22,000</td>
<td></td>
</tr>
</tbody>
</table>
## Quantities / Prices by: V. Notaro

### Date: Dec. 2, 2009

<table>
<thead>
<tr>
<th>DIV</th>
<th>DESCRIPTION</th>
<th>Quantity</th>
<th>Unit</th>
<th>Cost</th>
<th>Sub-Cost</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Priority 1: Building Envelope</strong></td>
<td>Tymidal Tower</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Caulking</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prep and Caulk All Joints</td>
<td>40,000</td>
<td>SF</td>
<td>3.00</td>
<td>120,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>34</td>
<td>%</td>
<td></td>
<td>40,800</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>160,000</td>
</tr>
<tr>
<td><strong>Steel Framing</strong></td>
<td>Paint</td>
<td>1</td>
<td>LS</td>
<td>14,695</td>
<td>14,695</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>34</td>
<td>%</td>
<td></td>
<td>4,996</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>20,000</td>
</tr>
<tr>
<td><strong>Roof Coping</strong></td>
<td>Remove &amp; Replace Caping 1/8&quot; Th.</td>
<td>540</td>
<td>LF</td>
<td>52.00</td>
<td></td>
<td>28,080</td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>35</td>
<td>%</td>
<td></td>
<td></td>
<td>9,828</td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>38,000</td>
</tr>
<tr>
<td><strong>Tower Glass Replacement</strong></td>
<td>Option 1 Insulated Glass</td>
<td>18,360</td>
<td>SF</td>
<td>86.00</td>
<td></td>
<td>1,578,960</td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>35</td>
<td>%</td>
<td></td>
<td></td>
<td>552,636</td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>2,130,000</td>
</tr>
<tr>
<td></td>
<td>Option 2 Monolithic Glass</td>
<td>18,360</td>
<td>SF</td>
<td>73.00</td>
<td></td>
<td>1,340,280</td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>35</td>
<td>%</td>
<td></td>
<td></td>
<td>469,098</td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>1,810,000</td>
</tr>
</tbody>
</table>
PRIORITY 2: STRUCTURAL
## CONSTRUCTION CONSULTANTS

**PROJECT:** TEMPE MUNICIPAL COMP. RENOV.  
**LOCATION:** TEMPE, AZ.  

**PRICING SHEET:** 3 OF 13  
**ESTIMATE NO:** PRELIMINARY

<table>
<thead>
<tr>
<th>QUANTITIES / PRICES BY: V. NOTARO</th>
<th>DATE: DEC. 2, 2009</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>DIV.</strong></td>
<td><strong>DESCRIPTION</strong></td>
</tr>
<tr>
<td><strong>PRIORITY 2: STRUCTURAL</strong></td>
<td>(SEE STRUCTURAL REPORT FOR FURTHER DESCRIPTION)</td>
</tr>
<tr>
<td></td>
<td>DESCRIPTION OF WORK</td>
</tr>
<tr>
<td></td>
<td>A. TOP PRIORITY ITEMS</td>
</tr>
<tr>
<td></td>
<td>GARDEN LEVEL BEARING WALL</td>
</tr>
<tr>
<td></td>
<td>DAMAGE AT SOUTH BRIDGES</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
</tr>
<tr>
<td></td>
<td>WATER DAMAGE ON BRIDGE PLANKS AND BEAMS AT SOUTH BRIDGES</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST EACH</td>
</tr>
<tr>
<td></td>
<td>FOR WATERPROOFING COSTS SEE PRIORITY 3: WATERPROOFING</td>
</tr>
<tr>
<td><strong>GARDEN LEVEL WATER DAMAGE AT NORTH WEST BLDG. WALLS</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CLEAN, WATERPROOF &amp; MONITOR</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
</tr>
<tr>
<td></td>
<td>TEST REPAIR &amp; REPLACE</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
</tr>
<tr>
<td></td>
<td>TREES AT TRELLIS BEAMS AND FOUNDATION SYSTEMS</td>
</tr>
<tr>
<td></td>
<td>LIMB REMOVAL</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
</tr>
<tr>
<td></td>
<td>TREE REMOVAL (3 REMAIN, SEE C ITEMS)</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
</tr>
<tr>
<td><strong>GARDEN LEVEL STAIR RETAINING WALL CRACKS (36&quot; DEEP)</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>240</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
</tr>
<tr>
<td><strong>GARDEN LEVEL LANDSCAPING RETAINING WALL CRACKS</strong></td>
<td></td>
</tr>
<tr>
<td></td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
</tr>
</tbody>
</table>
## Construction Consultants

**Project:** Tempe Municipal Comp. Renov.  
**Location:** Tempe, AZ.  
**Pricing Sheet:** 4 of 13  
**Estimate No:** Preliminary  
**Date:** Dec. 2, 2009

### Quantities / Prices by: V. Notaro

<table>
<thead>
<tr>
<th>Div. Code</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Cost</th>
<th>Sub-Contr.</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>P2 S. 2.</td>
<td>Structural</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(See structural report for further description of work)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>High Priority Items</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Cracks in columns and beams at northern and southern entry of the Garden level</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Waterproof and Monitor</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>945</td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>3,600</td>
</tr>
<tr>
<td></td>
<td>Test Repairs &amp; Replace</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>2,450</td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10,000</td>
</tr>
<tr>
<td></td>
<td>Water Damage at Trellis Beams</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Clean Waterproof &amp; Monitor</td>
<td>150</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>1,075</td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5,500</td>
</tr>
<tr>
<td></td>
<td>Test Repair &amp; Replace</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>2,100</td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8,000</td>
</tr>
<tr>
<td></td>
<td>Cracks at Light Well Structural</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Retaining Walls Rust at Conn.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Seal Waterproof &amp; Monitor</td>
<td>250</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>3,500</td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13,500</td>
</tr>
<tr>
<td></td>
<td>Remove &amp; Replace</td>
<td>250</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>8,750</td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>34,000</td>
</tr>
<tr>
<td></td>
<td>Clean/Waterproof Steel Grating</td>
<td>1,600</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>6,720</td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>26,000</td>
</tr>
<tr>
<td></td>
<td>Remove/Repair/Replace Stl. Grate</td>
<td>1,600</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>19,600</td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>75,000</td>
</tr>
<tr>
<td></td>
<td>Cracks at Structural Topping</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Seal and Monitor</td>
<td>300</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Indirect Costs</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>3,150</td>
</tr>
<tr>
<td></td>
<td>Total Cost</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12,000</td>
</tr>
<tr>
<td>DIV.</td>
<td>DESCRIPTION</td>
<td>QUANTITY</td>
<td>UNIT</td>
<td>COST</td>
<td>SUB-CONTR</td>
<td>TOTAL</td>
</tr>
<tr>
<td>-----</td>
<td>-------------</td>
<td>----------</td>
<td>------</td>
<td>------</td>
<td>-----------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td>PRIORITY 2: STRUCTURAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>(SEE STRUCTURAL REPORT FOR FURTHER DESCRIPTION OF WORK)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>C. MEDIUM PRIORITY ITEMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>EXPOSED REINFORCING &amp; SEVERE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CRACKING AT STRUCTURAL MEMBERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CLEAN, PATCH, WATERPROOF, MONITOR</td>
<td>200</td>
<td>LF</td>
<td>42.00</td>
<td>8,400</td>
<td>2,940</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11,300</td>
</tr>
<tr>
<td></td>
<td>TEST REPAIR &amp; REPLACE</td>
<td>90</td>
<td>SF</td>
<td>200.00</td>
<td>18,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>6,300</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24,000</td>
</tr>
<tr>
<td></td>
<td>TREE ROOTS AT SIDEWALK</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TRIM KEY ROOTS AT TRELIS COL</td>
<td>3</td>
<td>EA</td>
<td>250.00</td>
<td>750</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>257</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,000</td>
</tr>
<tr>
<td></td>
<td>CUT SIDEWALK BACK, ALLOW GROWTH</td>
<td>3</td>
<td>EA</td>
<td>500.00</td>
<td>1,500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>525</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,000</td>
</tr>
<tr>
<td></td>
<td>REMOVE TREE COMPLETELY</td>
<td>3</td>
<td>EA</td>
<td>3,000.00</td>
<td>9,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>3,150</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>12,000</td>
</tr>
<tr>
<td></td>
<td>RUSTED METAL TRELIS MEMBERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CLEAN &amp; TREAT</td>
<td>200</td>
<td>LF</td>
<td>10.00</td>
<td>2,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>700</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>2,700</td>
</tr>
<tr>
<td></td>
<td>D. LOW PRIORITY ITEMS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CRACKING AT RAILING BEAMS</td>
<td>200</td>
<td>LF</td>
<td>20.00</td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>1,400</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5,400</td>
</tr>
<tr>
<td></td>
<td>DETERIORATED CAULKING AT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RAILING BEAMS</td>
<td>200</td>
<td>LF</td>
<td>20.00</td>
<td>4,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COST</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>1,400.00</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5,400</td>
</tr>
</tbody>
</table>
PRIORITY 3: WATERPROOFING
CONSTRUCTION CONSULTANTS

PROJECT: TEMPE MUNICIPAL COMP. RENOV.
LOCATION: TEMPE, AZ.

PRICING SHEET: 6 OF 13
ESTIMATE NO: PRELIMINARY

QUANTITIES / PRICES BY: V. NOTARO
DATE: DEC. 2, 2009

<table>
<thead>
<tr>
<th>DIV.</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>COST</th>
<th>SUB-CONTR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>PRIORITY 3: WATERPROOFING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>INTERIOR CORNERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PREP &amp; RESEAL</td>
<td>4</td>
<td>EA</td>
<td>1,500.00</td>
<td>6,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td></td>
<td>2,100</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL COST</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4,400</td>
</tr>
<tr>
<td></td>
<td>EXPANSION JOINTS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PREP &amp; RESEAL 50%</td>
<td>3,500</td>
<td>LF</td>
<td>15.00</td>
<td>52,500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td></td>
<td>18,375</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL COST</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>70,875</td>
</tr>
<tr>
<td></td>
<td>SHRINKAGE CRACKS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ROUTE &amp; RESEAL</td>
<td>125</td>
<td>LF</td>
<td>40.00</td>
<td>5,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td></td>
<td>1,750</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL COST</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>7,750</td>
</tr>
<tr>
<td></td>
<td><strong>MAJOR EXPANSION JOINT</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOVE JOINT</td>
<td>84</td>
<td>LF</td>
<td>15.00</td>
<td>1,260</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REPLACE JOINT</td>
<td>84</td>
<td>LF</td>
<td>75.00</td>
<td>6,300</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RESTORE SURFACE</td>
<td>84</td>
<td>LF</td>
<td>50.00</td>
<td>4,200</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td>11,760</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td></td>
<td>4,116</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL COST</strong></td>
<td></td>
<td></td>
<td></td>
<td>16,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>GAPS/SETTLEMENT AT BRIDGES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOVE JOINT</td>
<td>96</td>
<td>LF</td>
<td>15.00</td>
<td>1,440</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REPAIR DECK</td>
<td>96</td>
<td>LF</td>
<td>100.00</td>
<td>9,600</td>
<td></td>
</tr>
<tr>
<td></td>
<td>REPLACE JOINT</td>
<td>96</td>
<td>LF</td>
<td>75.00</td>
<td>7,200</td>
<td></td>
</tr>
<tr>
<td></td>
<td>RESTORE SURFACE</td>
<td>96</td>
<td>LF</td>
<td>75.00</td>
<td>7,200</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td>25,440</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td></td>
<td>10,430</td>
<td></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL COST</strong></td>
<td></td>
<td></td>
<td></td>
<td>35,870</td>
<td></td>
</tr>
<tr>
<td>DIV.</td>
<td>DESCRIPTION</td>
<td>QUANTITY</td>
<td>UNIT</td>
<td>COST</td>
<td>SUB-CONTR</td>
<td>TOTAL</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------</td>
<td>----------</td>
<td>-------</td>
<td>------</td>
<td>-----------</td>
<td>-------</td>
</tr>
<tr>
<td></td>
<td>PRIORITY 3: WATERPROOFING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PEDESTRIAN BRIDGES (3)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOVE TONING</td>
<td>1,536</td>
<td>SF</td>
<td>1.50</td>
<td></td>
<td>2,304</td>
</tr>
<tr>
<td></td>
<td>REMOVE EDGE</td>
<td>192</td>
<td>LF</td>
<td>5.00</td>
<td></td>
<td>960</td>
</tr>
<tr>
<td></td>
<td>PREP DECK</td>
<td>1,536</td>
<td>SF</td>
<td>1.50</td>
<td></td>
<td>2,304</td>
</tr>
<tr>
<td></td>
<td>WATERPROOF MEMBRANE</td>
<td>1,728</td>
<td>SF</td>
<td>4.00</td>
<td></td>
<td>6,912</td>
</tr>
<tr>
<td></td>
<td>DRAINAGE MAT</td>
<td>1,536</td>
<td>SF</td>
<td>10.00</td>
<td></td>
<td>15,360</td>
</tr>
<tr>
<td></td>
<td>TOPPING</td>
<td>1,728</td>
<td>SF</td>
<td>10.00</td>
<td></td>
<td>17,280</td>
</tr>
<tr>
<td></td>
<td>EDGE PREMIUM</td>
<td>192</td>
<td>LF</td>
<td>10.00</td>
<td></td>
<td>1,920</td>
</tr>
<tr>
<td></td>
<td>EDGE CURB</td>
<td>192</td>
<td>LF</td>
<td>15.00</td>
<td></td>
<td>2,880</td>
</tr>
<tr>
<td></td>
<td>MISC.</td>
<td>3</td>
<td>EA</td>
<td>5,000.00</td>
<td></td>
<td>15,000</td>
</tr>
<tr>
<td></td>
<td>SUBTOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>64,920</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>41</td>
<td>%</td>
<td></td>
<td></td>
<td>26,617</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>95,000</td>
</tr>
<tr>
<td></td>
<td>FOR STRUCTURAL COSTS SEE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>PRIORITY 2: STRUCTURAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>SEAL BRICK PAVERS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>PREP/PATCH SURFACE</td>
<td>2,200</td>
<td>SF</td>
<td>0.75</td>
<td></td>
<td>1,650</td>
</tr>
<tr>
<td></td>
<td>SEAL BRICKS</td>
<td>2,200</td>
<td>SF</td>
<td>1.50</td>
<td></td>
<td>3,300</td>
</tr>
<tr>
<td></td>
<td>SUBTOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4,950</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>34</td>
<td>%</td>
<td></td>
<td></td>
<td>1,683</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6,500</td>
</tr>
<tr>
<td></td>
<td>PRECAST CONC. TRELLIS WELD PLATES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>CLEAN &amp; RESEAL</td>
<td>14</td>
<td>EA</td>
<td>240.00</td>
<td></td>
<td>3,360</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td></td>
<td></td>
<td>1,175</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5,000</td>
</tr>
<tr>
<td></td>
<td>MISC. WELD PLATES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>CLEAN &amp; RESEAL</td>
<td>25</td>
<td>EA</td>
<td>240.00</td>
<td></td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td></td>
<td></td>
<td>2,100</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>8,000</td>
</tr>
<tr>
<td></td>
<td>EDGE FLASHING AT PLAZA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>REMOVE FLASHING &amp; PREP</td>
<td>1,152</td>
<td>LF</td>
<td>2.50</td>
<td></td>
<td>2,880</td>
</tr>
<tr>
<td></td>
<td>NEW FLASHING</td>
<td>1,152</td>
<td>LF</td>
<td>7.00</td>
<td></td>
<td>8,064</td>
</tr>
<tr>
<td></td>
<td>PATCH TIPPING EDGE AS REQUIRED</td>
<td>1,152</td>
<td>LF</td>
<td>2.00</td>
<td></td>
<td>2,304</td>
</tr>
<tr>
<td></td>
<td>SUBTOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>13,248</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>34</td>
<td>%</td>
<td></td>
<td></td>
<td>4,637</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>18,000</td>
</tr>
</tbody>
</table>
PRIORITY 4: ADA ACCESSIBILITY
## Construction Consultants

**Project:** Tempe Municipal Comp. Renov.  
**Location:** Tempe, AZ.  
**Pricing Sheet:** 8 of 13  
**Estimate No:** Preliminary

### Quantities / Prices by: V. Notaro  
**Date:** Dec. 2, 2009

<table>
<thead>
<tr>
<th>Div.</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Cost</th>
<th>Sub-Contr</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Priority 4: ADA Accessibility</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Parking Lot Revisions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>(Subpriority 1)</td>
<td>Sawcut &amp; Remove Asphalt</td>
<td>3,706</td>
<td>SF</td>
<td>1.50</td>
<td>0</td>
<td>5,559</td>
</tr>
<tr>
<td></td>
<td>Raise West Parking Area</td>
<td>2,306</td>
<td>SF</td>
<td>0.60</td>
<td>0</td>
<td>1,384</td>
</tr>
<tr>
<td></td>
<td>Fine Grade Sidewalk &amp; Driveway</td>
<td>1,326</td>
<td>SF</td>
<td>0.30</td>
<td>0</td>
<td>388</td>
</tr>
<tr>
<td></td>
<td>Asphalt Paving</td>
<td>264</td>
<td>SY</td>
<td>25.00</td>
<td>0</td>
<td>6,600</td>
</tr>
<tr>
<td></td>
<td>Asphalt Paving Stamped</td>
<td>500</td>
<td>SF</td>
<td>4.50</td>
<td>0</td>
<td>2,250</td>
</tr>
<tr>
<td></td>
<td>Concrete Sidewalk</td>
<td>826</td>
<td>SF</td>
<td>8.00</td>
<td>0</td>
<td>6,608</td>
</tr>
<tr>
<td></td>
<td>Concrete Ramps</td>
<td>128</td>
<td>SF</td>
<td>12.00</td>
<td>0</td>
<td>1,536</td>
</tr>
<tr>
<td></td>
<td>Patch &amp; Seal Coat</td>
<td>13,363</td>
<td>SF</td>
<td>0.75</td>
<td>0</td>
<td>9,977</td>
</tr>
<tr>
<td></td>
<td>H/C Parking Signage</td>
<td>4</td>
<td>EA</td>
<td>165.00</td>
<td>0</td>
<td>660</td>
</tr>
<tr>
<td></td>
<td>Striping</td>
<td>914</td>
<td>SF</td>
<td>2.00</td>
<td>0</td>
<td>1,828</td>
</tr>
<tr>
<td></td>
<td>Miscellaneous</td>
<td>1</td>
<td>LS</td>
<td>2,000.00</td>
<td>0</td>
<td>2,000</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>38,800</td>
</tr>
<tr>
<td></td>
<td>General Conditions</td>
<td>10.0%</td>
<td></td>
<td></td>
<td>0</td>
<td>3,900</td>
</tr>
<tr>
<td></td>
<td>Bonds, Taxes, Ins.</td>
<td>8.3%</td>
<td></td>
<td></td>
<td>0</td>
<td>3,500</td>
</tr>
<tr>
<td></td>
<td>Contractors Fee</td>
<td>7.0%</td>
<td></td>
<td></td>
<td>0</td>
<td>3,200</td>
</tr>
<tr>
<td></td>
<td>Subtotal</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>49,400</td>
</tr>
<tr>
<td></td>
<td>Contingency</td>
<td>10.0%</td>
<td></td>
<td></td>
<td>0</td>
<td>4,900</td>
</tr>
<tr>
<td></td>
<td>Total Construction Cost</td>
<td>0</td>
<td></td>
<td></td>
<td>0</td>
<td>$54,300</td>
</tr>
<tr>
<td>DIV.</td>
<td>DESCRIPTION</td>
<td>QUANTITY</td>
<td>UNIT</td>
<td>COST</td>
<td>SUB-CONTR</td>
<td>TOTAL</td>
</tr>
<tr>
<td>------</td>
<td>--------------------------------------------------</td>
<td>----------</td>
<td>------</td>
<td>-------</td>
<td>-----------</td>
<td>--------</td>
</tr>
<tr>
<td></td>
<td>PRIORITY 4- ADA ACCESSIBILITY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>RAMP H/C SIGNAGE</td>
<td>1</td>
<td>LS</td>
<td>1,000.00</td>
<td>1,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td>350</td>
<td></td>
<td>1,500</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,500</td>
</tr>
<tr>
<td></td>
<td>SUBPRIORITY 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>DOOR CLOSURE PRESSURE TO GREAT</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>ADJUST CLOSURE</td>
<td>1</td>
<td>HR</td>
<td>45.00</td>
<td>45</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td>15</td>
<td></td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>2ND &amp; 3RD FLOOR BRIDGE LATCH SIDE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>CLEARANCE INADEQUATE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>MOVE PANIC HARDWARE</td>
<td>1</td>
<td>LS</td>
<td>100.00</td>
<td>100</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td>35</td>
<td></td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>MISSING SITE SIGNAGE N SIDE BLDG.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>ADDITIONAL SIGNAGE</td>
<td>1</td>
<td>LS</td>
<td>500.00</td>
<td>500</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td>175</td>
<td></td>
<td>675</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>675</td>
</tr>
<tr>
<td></td>
<td>MISSING SITE SIGNAGE AT GARDEN LEVEL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>ADDITIONAL SIGNAGE</td>
<td>1</td>
<td>LS</td>
<td>250.00</td>
<td>250</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td>88</td>
<td></td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>350</td>
</tr>
<tr>
<td></td>
<td>CONTROLS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>CONTROL HEIGHT TO HIGH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>LOWER THERMOSTAT</td>
<td>1</td>
<td>EA</td>
<td>50.00</td>
<td>50</td>
<td></td>
</tr>
<tr>
<td></td>
<td>FINishes</td>
<td>1</td>
<td>LS</td>
<td>25.00</td>
<td>25</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SUBTOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>75</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td>25</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>STAIRS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>PROVIDE COMMUNICATION</td>
<td>1</td>
<td>LS</td>
<td>3,000.00</td>
<td>3,000</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td>1,050</td>
<td></td>
<td>4,050</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4,050</td>
</tr>
<tr>
<td></td>
<td>ELEVATORS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>ALTER CALL BUTTON</td>
<td>1</td>
<td>LS</td>
<td>300.00</td>
<td>300</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35</td>
<td>%</td>
<td>105</td>
<td></td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>400</td>
</tr>
</tbody>
</table>
### Pricing Sheet: 10 of 13

**Project:** Tempe Municipal Comp. Renov.  
**Location:** Tempe, AZ.  
**Date:** Dec. 2, 2009  
**Estimate No:** Preliminary

#### Quantities / Prices by: V. Notaro

<table>
<thead>
<tr>
<th>Div.</th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
<th>Cost</th>
<th>Sub-Contr</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Priority 4: Ada Accessibility</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Subpriority 3</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Restroom Option 1 (West)</td>
<td>1</td>
<td>LS</td>
<td>300.00</td>
<td></td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>Preparation</td>
<td>248</td>
<td>SF</td>
<td>10.00</td>
<td></td>
<td>2,480</td>
</tr>
<tr>
<td></td>
<td>SCG</td>
<td>248</td>
<td>SF</td>
<td>8.00</td>
<td></td>
<td>1,984</td>
</tr>
<tr>
<td></td>
<td>Waterproof Lid</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Glass (Frosted)</td>
<td>38</td>
<td>LF</td>
<td>315.00</td>
<td></td>
<td>11,970</td>
</tr>
<tr>
<td></td>
<td>Door Single</td>
<td>2</td>
<td>EA</td>
<td>1,500.00</td>
<td></td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>Transom</td>
<td>2</td>
<td>EA</td>
<td>350.00</td>
<td></td>
<td>700</td>
</tr>
<tr>
<td></td>
<td>H/C Signage</td>
<td>2</td>
<td>EA</td>
<td>100.00</td>
<td></td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>Gypsum Board Partition</td>
<td></td>
<td></td>
<td>0</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>Chase</td>
<td>26</td>
<td>LF</td>
<td>38.00</td>
<td></td>
<td>938</td>
</tr>
<tr>
<td></td>
<td>Furred</td>
<td>13</td>
<td>LF</td>
<td>27.00</td>
<td></td>
<td>351</td>
</tr>
<tr>
<td></td>
<td>Ceramic Tile Floor</td>
<td>210</td>
<td>SF</td>
<td>12.00</td>
<td></td>
<td>2,520</td>
</tr>
<tr>
<td></td>
<td>Gypsum Board Ceilings</td>
<td>210</td>
<td>SF</td>
<td>6.00</td>
<td></td>
<td>1,260</td>
</tr>
<tr>
<td></td>
<td>Ceramic Tile Walls</td>
<td>312</td>
<td>SF</td>
<td>14.00</td>
<td></td>
<td>4,368</td>
</tr>
<tr>
<td></td>
<td>Paint Ceiling</td>
<td>210</td>
<td>SF</td>
<td>1.00</td>
<td></td>
<td>210</td>
</tr>
<tr>
<td></td>
<td>Paint Door</td>
<td>2</td>
<td>EA</td>
<td>75.00</td>
<td></td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>H/C Mirror (Angle)</td>
<td>2</td>
<td>EA</td>
<td>195.00</td>
<td></td>
<td>390</td>
</tr>
<tr>
<td></td>
<td>Toilet Tissue Disp.</td>
<td>2</td>
<td>EA</td>
<td>45.00</td>
<td></td>
<td>90</td>
</tr>
<tr>
<td></td>
<td>Paper Towel Disp. Combo</td>
<td>2</td>
<td>EA</td>
<td>560.00</td>
<td></td>
<td>1,120</td>
</tr>
<tr>
<td></td>
<td>Toilet Seat Cover Disp.</td>
<td>2</td>
<td>EA</td>
<td>75.00</td>
<td></td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>H/C Grab Bar</td>
<td>4</td>
<td>EA</td>
<td>80.00</td>
<td></td>
<td>320</td>
</tr>
<tr>
<td></td>
<td>Soap Dispenser</td>
<td>2</td>
<td>EA</td>
<td>40.00</td>
<td></td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>Utility Extension Incl. Patch</td>
<td>1</td>
<td>LS</td>
<td>10,000.00</td>
<td></td>
<td>10,000</td>
</tr>
<tr>
<td></td>
<td>Water Closet</td>
<td>2</td>
<td>EA</td>
<td>1,500.00</td>
<td></td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>Sink</td>
<td>2</td>
<td>EA</td>
<td>1,500.00</td>
<td></td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>Drinking Fountain (DBL)</td>
<td>1</td>
<td>EA</td>
<td>2,200.00</td>
<td></td>
<td>2,200</td>
</tr>
<tr>
<td></td>
<td>Fire Sprinklers</td>
<td>248</td>
<td>SF</td>
<td>3.00</td>
<td></td>
<td>744</td>
</tr>
<tr>
<td></td>
<td>HVAC Incl. Exhaust</td>
<td>1</td>
<td>LS</td>
<td>3,000.00</td>
<td></td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>Electric Power &amp; Light</td>
<td>1</td>
<td>LS</td>
<td>2,500.00</td>
<td></td>
<td>2,500</td>
</tr>
<tr>
<td></td>
<td>Automatic Door Opener</td>
<td>2</td>
<td>EA</td>
<td>2,500.00</td>
<td></td>
<td>5,000</td>
</tr>
</tbody>
</table>

**Subtotal:** 0  
**General Conditions:** 10.0%  
**Bonds, Taxes, Ins.:** 8.3%  
**Contractors Fee:** 7.0%  
**Subtotal:** 0  
**Contingency:** 10.0%  
**Total Construction Cost:** $87,000
# Construction Estimates

**Project:** Tempe Municipal Comp. RENOV.  
**Location:** Tempe, AZ.  
**Pricing Sheet:** 10A O 13  
**Estimate No:** Preliminary  
**Date:** Dec. 2, 2009

<table>
<thead>
<tr>
<th>DIV.</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>COST</th>
<th>SUB CONTR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRIORITY 4: ADA ACCESSIBILITY</td>
<td>SUBPRIORITY 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>RESTROOM OPTION 1A EXPANDED WEST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>PREPARATION</td>
<td>1</td>
<td>LS</td>
<td>300.00</td>
<td></td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>SOG</td>
<td>248</td>
<td>SF</td>
<td>10.00</td>
<td></td>
<td>2,480</td>
</tr>
<tr>
<td></td>
<td>WATERPROOF LID</td>
<td>248</td>
<td>SF</td>
<td>8.00</td>
<td></td>
<td>1,984</td>
</tr>
<tr>
<td></td>
<td>GLASS (FROSTED)</td>
<td>27</td>
<td>LF</td>
<td>315.00</td>
<td></td>
<td>8,505</td>
</tr>
<tr>
<td></td>
<td>DOOR SINGLE</td>
<td>2</td>
<td>EA</td>
<td>1,500.00</td>
<td></td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>TRANSOM</td>
<td>2</td>
<td>EA</td>
<td>350.00</td>
<td></td>
<td>700</td>
</tr>
<tr>
<td></td>
<td>H/C SIGNAGE</td>
<td>2</td>
<td>EA</td>
<td>100.00</td>
<td></td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>GYP BOARD PARTITION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>CHASE</td>
<td>14</td>
<td>LF</td>
<td>72.00</td>
<td></td>
<td>1,008</td>
</tr>
<tr>
<td></td>
<td>FURRED</td>
<td>14</td>
<td>LF</td>
<td>27.00</td>
<td></td>
<td>378</td>
</tr>
<tr>
<td></td>
<td>EXTERIOR</td>
<td>4</td>
<td>LF</td>
<td>150.00</td>
<td></td>
<td>600</td>
</tr>
<tr>
<td></td>
<td>CERAMIC TILE FLOOR</td>
<td>248</td>
<td>SF</td>
<td>12.00</td>
<td></td>
<td>2,976</td>
</tr>
<tr>
<td></td>
<td>GYP BOARD CEILINGS</td>
<td>248</td>
<td>SF</td>
<td>6.00</td>
<td></td>
<td>1,488</td>
</tr>
<tr>
<td></td>
<td>CERAMIC TILE WALLS</td>
<td>360</td>
<td>SF</td>
<td>14.00</td>
<td></td>
<td>5,040</td>
</tr>
<tr>
<td></td>
<td>PAINT CEILING</td>
<td>248</td>
<td>SF</td>
<td>1.00</td>
<td></td>
<td>248</td>
</tr>
<tr>
<td></td>
<td>PAINT DOOR</td>
<td>2</td>
<td>EA</td>
<td>75.00</td>
<td></td>
<td>150</td>
</tr>
<tr>
<td></td>
<td>VANITY</td>
<td>10</td>
<td>LF</td>
<td>125.00</td>
<td></td>
<td>1,250</td>
</tr>
<tr>
<td></td>
<td>H/C MIRROR (ANGLE)</td>
<td>2</td>
<td>EA</td>
<td>375.00</td>
<td></td>
<td>750</td>
</tr>
<tr>
<td></td>
<td>TOILET TISSUE DISP.</td>
<td>3</td>
<td>EA</td>
<td>45.00</td>
<td></td>
<td>135</td>
</tr>
<tr>
<td></td>
<td>PAPER TOWEL DISP. COMBO</td>
<td>2</td>
<td>EA</td>
<td>560.00</td>
<td></td>
<td>1,120</td>
</tr>
<tr>
<td></td>
<td>TOILET SEAT COVER DISP.</td>
<td>3</td>
<td>EA</td>
<td>75.00</td>
<td></td>
<td>225</td>
</tr>
<tr>
<td></td>
<td>H/C GRAB BAR</td>
<td>4</td>
<td>EA</td>
<td>80.00</td>
<td></td>
<td>320</td>
</tr>
<tr>
<td></td>
<td>SOAP DISPENSER</td>
<td>2</td>
<td>EA</td>
<td>40.00</td>
<td></td>
<td>80</td>
</tr>
<tr>
<td></td>
<td>UTILITY EXTENSION INCL. PATCH</td>
<td>1</td>
<td>LS</td>
<td>10,000.00</td>
<td></td>
<td>10,000</td>
</tr>
<tr>
<td></td>
<td>WATER CLOSET/URINAL</td>
<td>4</td>
<td>EA</td>
<td>1,500.00</td>
<td></td>
<td>6,000</td>
</tr>
<tr>
<td></td>
<td>SINK</td>
<td>2</td>
<td>EA</td>
<td>1,500.00</td>
<td></td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>DRINKING FOUNTAIN (DBL.)</td>
<td>0</td>
<td></td>
<td>0.00</td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>FIRE SPRINKLERS</td>
<td>243</td>
<td>SF</td>
<td>3.00</td>
<td></td>
<td>744</td>
</tr>
<tr>
<td></td>
<td>HVAC INCL. EXHAUST</td>
<td>1</td>
<td>LS</td>
<td>3,000.00</td>
<td></td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>ELECTRIC POWER &amp; LIGHT</td>
<td>1</td>
<td>LS</td>
<td>2,500.00</td>
<td></td>
<td>2,500</td>
</tr>
<tr>
<td></td>
<td>AUTOMATIC DOOR OPENER</td>
<td>2</td>
<td>EA</td>
<td>2,500.00</td>
<td></td>
<td>5,000</td>
</tr>
<tr>
<td></td>
<td>TOILET COMPARTMENT</td>
<td>3</td>
<td>EA</td>
<td>1,000.00</td>
<td></td>
<td>3,000</td>
</tr>
<tr>
<td></td>
<td>URINAL SCREEN</td>
<td>1</td>
<td>EA</td>
<td>400.00</td>
<td></td>
<td>400</td>
</tr>
<tr>
<td></td>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>66,581</strong></td>
</tr>
<tr>
<td></td>
<td><strong>GENERAL CONDITIONS</strong></td>
<td></td>
<td></td>
<td><strong>10.0%</strong></td>
<td></td>
<td><strong>6,700</strong></td>
</tr>
<tr>
<td></td>
<td><strong>BONDS, TAXES, INS.</strong></td>
<td></td>
<td></td>
<td><strong>8.3%</strong></td>
<td></td>
<td><strong>6,100</strong></td>
</tr>
<tr>
<td></td>
<td><strong>CONTRACTORS FEE</strong></td>
<td></td>
<td></td>
<td><strong>7.0%</strong></td>
<td></td>
<td><strong>5,500</strong></td>
</tr>
<tr>
<td></td>
<td><strong>SUBTOTAL</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>84,981</strong></td>
</tr>
<tr>
<td></td>
<td><strong>CONTINGENCY</strong></td>
<td></td>
<td></td>
<td><strong>10.9%</strong></td>
<td></td>
<td><strong>8,500</strong></td>
</tr>
<tr>
<td></td>
<td><strong>TOTAL CONSTRUCTION COST</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td><strong>$95,000</strong></td>
</tr>
</tbody>
</table>
## QUANTITIES / PRICES BY: V. NOTARO

<table>
<thead>
<tr>
<th>DIV.</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>COST</th>
<th>SUB-CONTR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>PRIORITY 4: ADA ACCESSIBILITY</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SUBPRIORITY 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>RESTROOM OPTION 2 (NORTH)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>PREPARATION/DEMOLITION</td>
<td>1</td>
<td>LS</td>
<td>400.00</td>
<td></td>
<td>400.00</td>
</tr>
<tr>
<td></td>
<td>SOG PREPARATION</td>
<td>110</td>
<td>SF</td>
<td>1.00</td>
<td></td>
<td>110.00</td>
</tr>
<tr>
<td></td>
<td>GLASS SIDELIGHT</td>
<td>2</td>
<td>EA</td>
<td>350.00</td>
<td></td>
<td>700.00</td>
</tr>
<tr>
<td></td>
<td>DOOR SINGLE</td>
<td>3</td>
<td>EA</td>
<td>1,500.00</td>
<td></td>
<td>4,500.00</td>
</tr>
<tr>
<td></td>
<td>TRANSOM</td>
<td>2</td>
<td>EA</td>
<td>350.00</td>
<td></td>
<td>700.00</td>
</tr>
<tr>
<td></td>
<td>H/C SIGNAGE</td>
<td>2</td>
<td>EA</td>
<td>100.00</td>
<td></td>
<td>200.00</td>
</tr>
<tr>
<td></td>
<td>GYP BOARD PARTITION</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0</td>
</tr>
<tr>
<td></td>
<td>CHASE</td>
<td>12</td>
<td>LF</td>
<td>36.00</td>
<td></td>
<td>432.00</td>
</tr>
<tr>
<td></td>
<td>FURRED</td>
<td>8</td>
<td>LF</td>
<td>27.00</td>
<td></td>
<td>216.00</td>
</tr>
<tr>
<td></td>
<td>STANDARD</td>
<td>30</td>
<td>LF</td>
<td>54.00</td>
<td></td>
<td>1,620.00</td>
</tr>
<tr>
<td></td>
<td>CERAMIC TILE FLOOR</td>
<td>110</td>
<td>SF</td>
<td>12.00</td>
<td></td>
<td>1,320.00</td>
</tr>
<tr>
<td></td>
<td>GYP BOARD CEILINGS</td>
<td>110</td>
<td>SF</td>
<td>6.00</td>
<td></td>
<td>660.00</td>
</tr>
<tr>
<td></td>
<td>CERAMIC TILE WALLS</td>
<td>392</td>
<td>SF</td>
<td>14.00</td>
<td></td>
<td>5,488.00</td>
</tr>
<tr>
<td></td>
<td>PAINT CEILING</td>
<td>110</td>
<td>SF</td>
<td>1.00</td>
<td></td>
<td>110.00</td>
</tr>
<tr>
<td></td>
<td>PAINT DOOR</td>
<td>3</td>
<td>EA</td>
<td>75.00</td>
<td></td>
<td>225.00</td>
</tr>
<tr>
<td></td>
<td>PAINT WALLS</td>
<td>184</td>
<td>SF</td>
<td>0.75</td>
<td></td>
<td>138.00</td>
</tr>
<tr>
<td></td>
<td>H/C MIRROR (ANGLE)</td>
<td>2</td>
<td>EA</td>
<td>195.00</td>
<td></td>
<td>390.00</td>
</tr>
<tr>
<td></td>
<td>TOILET TISSUE DISP.</td>
<td>2</td>
<td>EA</td>
<td>45.00</td>
<td></td>
<td>90.00</td>
</tr>
<tr>
<td></td>
<td>PAPER TOWEL DISP. COMBO</td>
<td>2</td>
<td>EA</td>
<td>560.00</td>
<td></td>
<td>1,120.00</td>
</tr>
<tr>
<td></td>
<td>TOILET SEAT COVER DISP.</td>
<td>2</td>
<td>EA</td>
<td>75.00</td>
<td></td>
<td>150.00</td>
</tr>
<tr>
<td></td>
<td>H/C GRAB BAR</td>
<td>4</td>
<td>EA</td>
<td>80.00</td>
<td></td>
<td>320.00</td>
</tr>
<tr>
<td></td>
<td>SOAP DISPENSER</td>
<td>2</td>
<td>EA</td>
<td>40.00</td>
<td></td>
<td>80.00</td>
</tr>
<tr>
<td></td>
<td>UTILITY EXTENSION INCL., PATCH</td>
<td>1</td>
<td>LS</td>
<td>4,000.00</td>
<td></td>
<td>4,000.00</td>
</tr>
<tr>
<td></td>
<td>WATER CLOSET</td>
<td>2</td>
<td>EA</td>
<td>1,500.00</td>
<td></td>
<td>3,000.00</td>
</tr>
<tr>
<td></td>
<td>SINK</td>
<td>2</td>
<td>EA</td>
<td>1,500.00</td>
<td></td>
<td>3,000.00</td>
</tr>
<tr>
<td></td>
<td>DRINKING FOUNTAIN (DBL.)</td>
<td>1</td>
<td>EA</td>
<td>2,200.00</td>
<td></td>
<td>2,200.00</td>
</tr>
<tr>
<td></td>
<td>FIRE SPRINKLERS</td>
<td>144</td>
<td>SF</td>
<td>4.50</td>
<td></td>
<td>648.00</td>
</tr>
<tr>
<td></td>
<td>HVAC INCL. EXHAUST</td>
<td>1</td>
<td>LS</td>
<td>3,500.00</td>
<td></td>
<td>3,500.00</td>
</tr>
<tr>
<td></td>
<td>ELECTRIC POWER &amp; LIGHT</td>
<td>1</td>
<td>LS</td>
<td>3,000.00</td>
<td></td>
<td>3,000.00</td>
</tr>
<tr>
<td></td>
<td>AUTOMATIC DOOR OPENER</td>
<td>2</td>
<td>EA</td>
<td>2,500.00</td>
<td></td>
<td>5,000.00</td>
</tr>
</tbody>
</table>

**Subtotal:**

**Total Construction Cost:** $60,700
### CONSTRUCTION CONSULTANTS

**PROJECT:** TEMPE MUNICIPAL COMP. RENOV.  
**LOCATION:** TEMPE, AZ.  
**PRICING SHEET:** 12 OF 13  
**ESTIMATE NO:** PRELIMINARY  
**DATE:** DEC. 2, 2009

<table>
<thead>
<tr>
<th>DIV.</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>COST</th>
<th>SUB-CONTR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRIORITY 4: ADA ACCESSIBILITY</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SUBPRIORITY 3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LAVATORIES</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>PIPES NOT WRAPPED</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WRAP PIPES</td>
<td>2</td>
<td>EA</td>
<td>125.00</td>
<td></td>
<td>250</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>88</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST EACH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>DRAWER OBSTRUCT KNEE CLEARANCE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REMOVE DRAWER</td>
<td>1</td>
<td>LS</td>
<td>200.00</td>
<td></td>
<td>200</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>70</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>SUBPRIORITY 4</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>TELEPHONE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LOWER PHONES</td>
<td>2</td>
<td>EA</td>
<td>150.00</td>
<td></td>
<td>300</td>
</tr>
<tr>
<td></td>
<td>FINISHES</td>
<td>2</td>
<td>EA</td>
<td>50.00</td>
<td></td>
<td>100</td>
</tr>
<tr>
<td></td>
<td>SUBTOTAL</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>400</td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>35%</td>
<td></td>
<td></td>
<td></td>
<td>140</td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>500</td>
</tr>
</tbody>
</table>
PRIORITY 5: LIGHTING
CONSTRUCTION CONSULTANTS

PROJECT: TEMPE MUNICIPAL COMP. RENOV.
LOCATION: TEMPE, AZ.

PRICING SHEET: 13 OF 13
ESTIMATE NO: PRELIMINARY

QUANTITIES / PRICES BY: V. NOTARO
DATE: DEC. 2, 2009

<table>
<thead>
<tr>
<th>DIV.</th>
<th>DESCRIPTION</th>
<th>QUANTITY</th>
<th>UNIT</th>
<th>COST</th>
<th>SUB-CONTR</th>
<th>TOTAL</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PRIORITY 5: EXTERIOR LIGHTING</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>CONVENTIONAL APPROACH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIGHTING</td>
<td>1</td>
<td>LS</td>
<td>148,913.00</td>
<td>148,913</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>34</td>
<td>%</td>
<td></td>
<td>50,630</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>200,000</td>
</tr>
<tr>
<td></td>
<td>PROGRESSIVE APPROACH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>LIGHTING (EXCLUDES FIXTURE Z)</td>
<td>1</td>
<td>LS</td>
<td>213,191.00</td>
<td>213,191</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>34</td>
<td>%</td>
<td></td>
<td>72,484</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL COST</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>285,000</td>
</tr>
<tr>
<td></td>
<td>OPTION NO. 1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FIXTURE Z (LED)</td>
<td>1</td>
<td>LS</td>
<td>101,126.00</td>
<td>101,126</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>34</td>
<td>%</td>
<td></td>
<td>34,383</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL ADDITIONAL COST</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>135,000</td>
</tr>
<tr>
<td></td>
<td>OPTION NO. 2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>FIXTURE Z (FLUORESCENT)</td>
<td>1</td>
<td>LS</td>
<td>76,321.00</td>
<td>76,321</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>34</td>
<td>%</td>
<td></td>
<td>26,941</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL ADDITIONAL COST</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>102,000</td>
</tr>
<tr>
<td></td>
<td>ALTERNATE</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>REPLACE FIXTURES AT WEST</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>ADA RAMP</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>H-2 FIXTURE</td>
<td>3</td>
<td>EA</td>
<td>2,201.00</td>
<td>6,603</td>
<td></td>
</tr>
<tr>
<td></td>
<td>INDIRECT COSTS</td>
<td>34</td>
<td>%</td>
<td></td>
<td>2,245</td>
<td></td>
</tr>
<tr>
<td></td>
<td>TOTAL ADDITIONAL COST</td>
<td></td>
<td></td>
<td></td>
<td>0</td>
<td>10,000</td>
</tr>
</tbody>
</table>

* = REFER TO DETAIL SHEETS FOR BACK-UP DATA
ELECTRICAL DETAIL
## Tempe Municipal Complex Renovation
### SD Estimate
#### Conventional Scheme
**November 23, 2009**

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Extended Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>3/4 EMT RUN COMP</td>
<td>26</td>
<td>EA</td>
<td>12.06</td>
<td>313.59</td>
</tr>
<tr>
<td>2#6, 1&quot; PVC</td>
<td>850</td>
<td>LF</td>
<td>8.03</td>
<td>6,822.59</td>
</tr>
<tr>
<td>1&quot; PVC RISER</td>
<td>2</td>
<td>EA</td>
<td>69.34</td>
<td>138.67</td>
</tr>
<tr>
<td>1&quot; Pole Riser w/BB</td>
<td>14</td>
<td>EA</td>
<td>71.79</td>
<td>1,005.02</td>
</tr>
<tr>
<td>2 #6, 3/4&quot; EMT COMP</td>
<td>1000</td>
<td>LF</td>
<td>6.20</td>
<td>6,203.83</td>
</tr>
<tr>
<td>Fixture A</td>
<td>40</td>
<td>EA</td>
<td>1,170.49</td>
<td>46,819.43</td>
</tr>
<tr>
<td>Fixture F</td>
<td>4</td>
<td>EA</td>
<td>2,987.68</td>
<td>11,950.71</td>
</tr>
<tr>
<td>Fixture F2</td>
<td>5</td>
<td>EA</td>
<td>3,694.53</td>
<td>18,472.63</td>
</tr>
<tr>
<td>Fixture H2</td>
<td>11</td>
<td>EA</td>
<td>2,201.18</td>
<td>24,212.95</td>
</tr>
<tr>
<td>Fixture M (LF)</td>
<td>20</td>
<td>LF</td>
<td>230.35</td>
<td>4,607.08</td>
</tr>
<tr>
<td>Fixture W</td>
<td>26</td>
<td>EA</td>
<td>397.78</td>
<td>10,342.40</td>
</tr>
<tr>
<td>Remove Exist. G Fixture</td>
<td>13</td>
<td>EA</td>
<td>248.05</td>
<td>3,224.65</td>
</tr>
<tr>
<td>Remove Exist Type N Fixture</td>
<td>10</td>
<td>EA</td>
<td>55.27</td>
<td>552.73</td>
</tr>
<tr>
<td>RemoveExist Wall Pack</td>
<td>1</td>
<td>EA</td>
<td>46.51</td>
<td>46.51</td>
</tr>
<tr>
<td>Misc. Remove Exist</td>
<td>1</td>
<td>EA</td>
<td>248.05</td>
<td>248.05</td>
</tr>
<tr>
<td>Remove Exist Pole Fixture</td>
<td>5</td>
<td>EA</td>
<td>248.05</td>
<td>1,240.25</td>
</tr>
<tr>
<td>Replace Burned Out Downlight</td>
<td>60</td>
<td>EA</td>
<td>80.39</td>
<td>4,823.36</td>
</tr>
<tr>
<td>Reconnect Exist Fixture</td>
<td>1</td>
<td>EA</td>
<td>136.13</td>
<td>136.13</td>
</tr>
<tr>
<td>Misc. Work</td>
<td>1</td>
<td>EA</td>
<td>6,171.00</td>
<td>6,171.00</td>
</tr>
<tr>
<td>Modify Ltg Control</td>
<td>1</td>
<td>EA</td>
<td>1,582.07</td>
<td>1,582.07</td>
</tr>
</tbody>
</table>

**Total**  

148,913.85
Tempe Municipal Complex Renovation
SD Estimate
Progressive Scheme
November 23, 2009

<table>
<thead>
<tr>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Unit Price</th>
<th>Extended Units</th>
</tr>
</thead>
<tbody>
<tr>
<td>2#6, 1&quot; PVC</td>
<td>850</td>
<td>LF</td>
<td>8.03</td>
<td>6,822.59</td>
</tr>
<tr>
<td>1&quot; PVC RISER</td>
<td>2</td>
<td></td>
<td>69.34</td>
<td>138.67</td>
</tr>
<tr>
<td>1&quot; Pole Riser w/BB</td>
<td>14</td>
<td></td>
<td>71.79</td>
<td>1,005.02</td>
</tr>
<tr>
<td>Fixture L</td>
<td>96</td>
<td></td>
<td>870.92</td>
<td>83,008.73</td>
</tr>
<tr>
<td>Fixture A</td>
<td>39</td>
<td>LF</td>
<td>1,170.49</td>
<td>45,648.95</td>
</tr>
<tr>
<td>Fixture Z (LF)</td>
<td>0</td>
<td>LF</td>
<td>493.30</td>
<td></td>
</tr>
<tr>
<td>Fixture F</td>
<td>4</td>
<td></td>
<td>2,987.68</td>
<td>11,950.71</td>
</tr>
<tr>
<td>Fixture F2</td>
<td>4</td>
<td></td>
<td>3,694.53</td>
<td>14,778.10</td>
</tr>
<tr>
<td>Fixture H2</td>
<td>12</td>
<td></td>
<td>2,201.18</td>
<td>26,414.12</td>
</tr>
<tr>
<td>Fixture M (LF)</td>
<td>20</td>
<td>LF</td>
<td>230.35</td>
<td>4,607.08</td>
</tr>
<tr>
<td>Fixture W</td>
<td>3</td>
<td></td>
<td>397.78</td>
<td>1,193.35</td>
</tr>
<tr>
<td>Remove Exist. G Fixture</td>
<td>14</td>
<td></td>
<td>248.05</td>
<td>3,472.70</td>
</tr>
<tr>
<td>Remove Exist. Type N Fixture</td>
<td>9</td>
<td></td>
<td>55.27</td>
<td>497.46</td>
</tr>
<tr>
<td>Remove Exist. Wall Pack</td>
<td>2</td>
<td></td>
<td>46.51</td>
<td>93.02</td>
</tr>
<tr>
<td>Misc. Remove Exist</td>
<td>1</td>
<td></td>
<td>248.05</td>
<td>248.05</td>
</tr>
<tr>
<td>Replace Burned Out Downlight</td>
<td>60</td>
<td></td>
<td>80.39</td>
<td>4,823.36</td>
</tr>
<tr>
<td>Reconnect Exist Fixture</td>
<td>1</td>
<td></td>
<td>136.13</td>
<td>136.13</td>
</tr>
<tr>
<td>Misc. Work</td>
<td>1</td>
<td></td>
<td>6,171.00</td>
<td>6,171.00</td>
</tr>
<tr>
<td>Modify Ligt Control</td>
<td>1</td>
<td></td>
<td>1,582.07</td>
<td>1,582.07</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td></td>
<td></td>
<td></td>
<td><strong>213,191.12</strong></td>
</tr>
</tbody>
</table>

OPTION NO 1
Fixture Z (led) 205 LF 493.3 101,126

OPTION NO 2
Fixture Z (fluorescent) 205 LF 372.3 76,321