AECOM Magellan CONSULTING

Facilities Condition Assessment

Qualcomm Stadium

Facilities Condition Assessment
AECOM
San Diego, California

April 2011

Qualcomm Stadium Facilities Condition Assessment

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The Qualcomm Stadium Condition Assessment was conducted from December 6, 2010 through December 10, 2010. The assessment was conducted with architectural, mechanical, electrical, technology and structural engineering disciplines represented. This document contains the results of the assessment and includes the following:

Facilities Condition Assessment

Qualcomm Stadium

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Qualcomm Stadium Facilities Condition Assessment

Introduction and Methodology

This report contains the results of a Facility Condition Assessment (FCA) of the buildings and structures that encompass Qualcomm Stadium.

Comprehensive Analysis

As part of a comprehensive facility condition assessment, specific site and building related requirements were identified, categorized by type, and grouped into one of thirteen major building systems. Subsequently, a detailed cost estimate for each correction was prepared including construction costs as well as San Diego, California related "soft costs" that account for design and engineering professional fees, contingencies, escalation, and administrative expense (for a detailed analysis of soft cost factors refer to the appendix.) Additionally, all requirements were prioritized to assign a relative level of importance and assist in determining an appropriate level of annual funding across all buildings. For the assessment, the following priority definitions were used:

- **Priority One**: Mission Critical Concerns - Requirements or conditions directly affect the facility's ability to remain operational.
- **Priority Two**: Issues that directly impact the operation of the facility - Items assessed that, if not addressed in the near term, may progress to a priority one item.
- **Priority Three**: Short Term Conditions - These items are needs that are necessary to the function of the facility, but may not require immediate attention.
- **Priority Four**: Long Term Requirements - Items or systems observed which are likely to require attention within the next five years, or would be considered an enhancement to the facility.

A Facilities Condition Assessment (FCA) can be used for:

- Identification of immediate facilities needs or mission critical facility items;
- Prioritization of short and long term needs across a range of facility types;
- Justification for major renovations and in some cases building replacement;
- Determination of capital renewal or replacement needs for building systems that are projected to reach the end of their useful life in the next ten years; and
- Supporting capital planning and annual budgets

The total current requirements for all assessment site and building locations, in 2011 construction cost dollars, are estimated at **$79,786,725**.

The assessment effort employed professionals from several disciplines. These included:

- **Structural** - Assessed structural integrity, seismic compliance, aesthetic issues
- **Information Technology** - Assessed telephones, main point of entry, cable riser system, network truck bays, field communication boxes, E-TV room, TV monitors, audio system, video display systems, CCTV head-end system, CCTV cameras
- **Architectural** – Assessed finishes, doors, paving, concrete walks, windows, seating, roofing, conveyances (stairs and elevators), accessories (railings, signage)
- **Electrical** – Assessed lighting, distribution, generators, electrical service
- **Mechanical** – Assessed heating, ventilation and air conditioning, plumbing service, plumbing fixtures

Qualcomm Stadium Facilities Condition Assessment

Summary of Findings

Discipline Summary

The following list depicts the most significant requirements by assessment discipline. Where possible, costs have been associated within the assessment data to account for correcting these conditions.

- **Structural**
  - Spalled concrete
  - Concrete patching
  - Resurfacing and bracing of steel field bleachers
  - Main stadium seating column shear and axial load limitations for the 6'-1" long walls/columns
  - Inadequate moment capacity for weak axis bending in the stadium lighting ring support
  - Column steel lap length and tie spacing limitations for the main stadium support columns
- **Information Technology**
  - Congested cable riser system
  - Inoperable connection points in truck bays
  - Approaching capacity of bandwidth of E-TV system required for new technology
  - Congested wiring in E-TV room
  - Out of date Jumbo-Tron video display
  - Limited, dated CCTV head-end system
  - Inoperable analog CCTV cameras
- **Architectural**
  - Concrete paving at Plaza Level
  - "Outer-ring" roofing
  - Parking lot paving
  - Expansion joints
  - Site drainage
- **Electrical**
  - Lighting replacement
  - Power centers
  - Additional circuitry and receptacles
- **Mechanical**
  - Sewer piping replacement
  - Grease trap flow control
  - Hot water storage
  - HVAC controls

Cross Tab of Current Requirements

The following chart summarizes the current requirements for all the buildings on the site in a cross tab that shows the buildings systems on the left, and the priority of the requirements across the top, with Priority 1 accounting for the most urgent items.

Crosstab by Priority by System

Building System	Facility Condition Assessment Priority 1	2	3	4	Total
Site	$ -	$ 124	$ 13,848,630	$ 3,249,908	$ 17,098,662
Roofing	$ -	$ 284,147	$ -	$ -	$ 284,147
Structural	$ -	$ 42,166	$ 2,219,299	$ -	$ 2,261,465
Exterior	$ -	$ 632,460	$ 13,398	$ 28,873	$ 674,731
Interior	$ -	$ 2,248,637	$ 239,824	$ 1,409,856	$ 3,898,317
Mechanical	$ -	$ 14,962,856	$ 2,918,247	$ 275,413	$ 18,156,516
Electrical	$ 1,546	$ 8,775,883	$ 124,521	$ 25,000	$ 8,926,949
Plumbing	$ -	$ 12,495,350	$ 3,076	$ 459,417	$ 12,957,843
Fire and Life Safety	$ -	$ 2,800,000	$ -	$ -	$ 2,800,000
Technology	$ -	$ -	$ 9,860,000	$ 200,000	$ 10,060,000
Conveyances	$ -	$ 171,001	$ -	$ -	$ 171,001
Specialties	$ -	$ 49,307	$ 994,111	$ 8,676	$ 1,052,094
Equipment	$ -	$ 1,445,000	$ -	$ -	$ 1,445,000
Total (Present Value)	$ 1,546	$ 43,906,930	$ 30,221,106	$ 5,657,144	$ 79,786,725

All requirements have been further categorized according to the type of condition observed. Required Maintenance items are those items that have broken or are in need of repair prior to reaching the end of life term. Capital Renewal items are those current requirements that have reached or exceeded their useful or serviceable life. Code Compliance issues are those requirements that are building code related. A Functional Requirement relates to an item that is presently not in place, or may not be functioning correctly and should be added to the building.

Crosstab by Priority by Category

Category	Facility Condition Assessment Priority 1	2	3	4	Total
Maintenance	$ -	$ 5,578,673	$ 4,005,697	$ 4,464,624	$ 14,048,993
Code Compliance	$ 1,546	$ -	$ -	$ -	$ 1,546
Capital Renewal	$ -	$ 29,397,726	$ 16,355,409	$ 992,520	$ 46,745,655
Functional Requirement	$ -	$ 8,930,532	$ 9,860,000	$ 200,000	$ 18,990,532
Total (Present Value)	$ 1,546	$ 43,906,930	$ 30,221,106	$ 5,657,144	$ 79,786,725

Qualcomm Stadium Facilities Condition Assessment

Overview of Facilities Condition Assessment

Overview

The assessment of the stadium provides a comprehensive view of the stadium, its condition, and the prognosis for continued use. These assessments were; however, limited to a visual inspection, without the benefit of destructive material testing and analysis. In some cases available drawings were limited or not available, so quantities in many cases are estimates. While our estimates do carry contingency, it is likely that as the stadium is remodeled and internal aspects of the stadium are uncovered and removed, additional costs could be incurred.

In order to conduct a cursory review the basic structural systems we utilized ASCE Standard 31-03 "Seismic Evaluation of Existing Buildings". These provisions allow for a rapid evaluation of the structure for one of two building performance levels, IO (Immediate Occupancy) or LS (Life Safety). We utilized the LS provisions understanding that the IO level of performance is typically used for Fire Stations, and other emergency response type facilities, and LS is used for all others. We limited our review to a Tier 1 evaluation. This level of evaluation involves reviewing a set of system check lists and determining whether the facility is compliant [C] or non-compliant [NC]. Tier 2 evaluations involve less conservative but more detailed calculations for elements that were found to be NC in the initial review. We did not proceed with Tier 2 calculations.

ASCE31-03 establishes review requirements based on the age of a building and what building code was originally used during its design. Because all of the new stadium construction areas designed by Leo A Daly in 1996 fall within the Benchmark Building category and satisfy the LS provisions, these facilities were excluded from our review. All of the building elements constructed in 1966, and not subsequently modified during one of the stadium modifications required a Tier 1 review. These include the main stadium seating sections between grid lines 42 and 59, the elevator tower structures, the escalator tower structures, the spiral ramp structures and the exterior ring structures.

For more detailed analysis of the conditions, specific requirements, projects cost, and photographs from the assessment team, refer to the facility assessment report contained in the next section.

Qualcomm Stadium Facilities Condition Assessment

Assessment Findings

Facility Condition Assessment Detail Report

Included on the following pages is the Facility Assessment Report comprised of requirements that have been grouped into Projects whose costs are forecasted over the next 10 years. These reports are the result of a visual, non-destructive assessment and include line item corrections for all observed requirements. The scope of work excluded hazardous materials. The costs associated with each requirement area all-inclusive costs including labor and materials as well as associated soft costs for professional fees, permitting and administrative costs, contingencies, and escalation to mid point of construction assumed to be the year 2011. These costs are based on line item unit costs from **RS**Means Cost Works®.

Qualcomm Stadium Condition Assessment

Summary of Findings

The Qualcomm Stadium Facility located at 9449 Friars Road in San Diego, California, was built in 1967. It comprises approximately 1,351,200 gross square feet.

The total current requirements for this site, in 2011 construction cost dollars, are estimated at $79,786,725.

Facility Condition by Building

Number	Building Name	Gross Sq Ft	Built Date	Facility Condition Cost	Cost Per Square Foot
	Qualcomm Stadium	1,351,200	1967	$79,786,725	$59.05
Totals		**1,351,200**		**$79,786,725**	**$59.05**

Cross Tab of Current Requirements

The following chart summarizes the current requirements for this site in a cross tab that shows the buildings systems down the left and the priority of the requirement across the top. This listing includes current requirements including maintenance, functional requirements, code compliance, and Life Cycle Capital Renewal categories.

Facility Condition - System by Priority

	Priority				
System	1	2	3	4	Total
Site	-	$124	$13,848,630	$3,249,908	$17,098,662
Roofing	-	$284,147	-	-	$284,147
Structural	-	$42,166	$2,219,299	-	$2,261,465
Exterior	-	$632,460	$13,398	$28,873	$674,731
Interior	-	$2,248,637	$239,824	$1,409,856	$3,898,317
Mechanical	-	$14,962,856	$2,918,247	$275,413	$18,156,516
Electrical	$1,546	$8,775,883	$124,521	$25,000	$8,926,949
Plumbing	-	$12,495,350	$3,076	$459,417	$12,957,843
Fire and Life Safety	-	$2,800,000	-	-	$2,800,000
Technology	-	-	$9,860,000	$200,000	$10,060,000
Conveyances	-	$171,001	-	-	$171,001
Specialties	-	$49,307	$994,111	$8,676	$1,052,094
Equipment	-	$1,445,000	-	-	$1,445,000
Total	$1,546	$43,906,930	$30,221,106	$5,657,144	$79,786,725

All requirements have been further categorized according to the type of condition observed. Maintenance requirements are those items that have broken or are in need of repair prior to reaching the end of life term. Capital Renewal items are those current requirements that have reached or exceeded their useful or serviceable life. Code Compliance issues are those requirements that are building code related. A Functional Requirement relates to an item that is presently not in place, or is not functioning correctly and should be added to the building.

Facility Condition - Category by Priority

	Priority				
Category	1	2	3	4	Total
Capital Renewal	-	$29,397,726	$16,355,409	$992,520	$46,745,655
Code Compliance	$1,546	-	-	-	$1,546
Functional Requirement	-	$8,930,532	$9,860,000	$200,000	$18,990,532
Maintenance	-	$5,578,673	$4,005,697	$4,464,624	$14,048,993
Total	$1,546	$43,906,930	$30,221,106	$5,657,144	$79,786,725

Capital Project Forecast

As part of the assessment process, this facility was analyzed according to thirteen major building systems. All the requirements were categorized by these systems as their data was entered. These requirements were then sorted by their system and/or their location to create projects to be completed throughout the facility. Each project was prioritized, from high to low, according to the replacement time-frame identified by the field assessors. After the requirements for each project were identified, a cost to complete the project was estimated by totaling project requirements and multiplying by an escalation rate where applicable.

Once each project was analyzed, they were combined to provide a 10 year capital forecast for the facility. The following chart shows all systems and the subsequent year's capital projections based on the time-frames and requirements specified by the field assessors. The charts on the following pages show the forecast in thousands ($000s) for the next ten years.

Capital Project Forecast

	Capital Project Forecast ($000s)										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
System	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Site	0	5,270	2,893,609	10,140,176	3,509,807	0	550,000	0	0	0	$17,098,862
Roofing	0	263,280	20,867	0	0	0	0	0	0	0	$284,147
Structural	0	2,261,465	0	0	0	0	0	0	0	0	$2,261,465
Exterior	0	616,065	34,567	0	24,099	0	0	0	0	0	$674,731
Interior	0	3,830,819	67,498	0	0	0	0	0	0	0	$3,898,317
Mechanical	0	197,791	1,254,688	495,000	0	0	5,217,036	10,992,000	0	0	$18,156,516
Electrical	1,546	1,877,356	0	0	7,048,048	0	0	0	0	0	$8,926,949
Plumbing	0	395,474	39,144	0	0	12,076,350	446,875	0	0	0	$12,957,843
Fire and Life Safety	0	2,800,000	0	0	0	0	0	0	0	0	$2,800,000
Technology	0	460,000	9,600,000	0	0	0	0	0	0	0	$10,060,000
Conveyances	0	171,001	0	0	0	0	0	0	0	0	$171,001
Specialties	0	1,052,036	0	57	0	0	0	0	0	0	$1,052,094
Equipment	0	706,000	0	645,000	24,000	60,000	0	10,000	0	0	$1,445,000
Total	**1,546**	**14,636,556**	**13,910,372**	**11,280,234**	**10,605,754**	**12,136,350**	**6,213,913**	**11,002,000**	**0**	**0**	**$79,788,725**

Qualcomm Stadium Projects

	Qualcomm Stadium Projects ($000s)										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
Project Name	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Replace Exposed Wiring - 2011	1,546	0	0	0	0	0	0	0	0	0	$1,546
Install Cooler Insulation - 2012	0	189,090	0	0	0	0	0	0	0	0	$189,090
Renovate Concessions/Mech/RR - 2012	0	915,020	0	0	0	0	0	0	0	0	$915,020
Renovate Locker Rooms - 2012	0	76,459	0	0	0	0	0	0	0	0	$76,459
Renovate Offices and Suites - 2012	0	111,520	0	0	0	0	0	0	0	0	$111,520
Renovate Outer Circle Boiler Room - 2012	0	56,719	0	0	0	0	0	0	0	0	$56,719
Renovate Outer Circle Chiller Compund - 2012	0	14,596	0	0	0	0	0	0	0	0	$14,596
Renovate Outer Ring Buildings - 2012	0	462,620	0	0	0	0	0	0	0	0	$462,620
Renovate Press Boxes - 2012	0	348,249	0	0	0	0	0	0	0	0	$348,249
Repair Basement Plumbing - 2012	0	106,563	0	0	0	0	0	0	0	0	$106,563
Repair Communication Systems - 2012	0	175,000	0	0	0	0	0	0	0	0	$175,000
Repair Concourses - 2012	0	1,135,672	0	0	0	0	0	0	0	0	$1,135,672
Repair Conveyances - 2012	0	340,112	0	0	0	0	0	0	0	0	$340,112
Repair Electrical Systems - 2012	0	1,792,803	0	0	0	0	0	0	0	0	$1,792,803
Repair Grease Traps - 2012	0	11,344	0	0	0	0	0	0	0	0	$11,344
Repair Stadium Seats - 2012	0	49,106	0	0	0	0	0	0	0	0	$49,106
Repalace Stadium Seats - 2012	0	729,334	0	0	0	0	0	0	0	0	$729,334
Replace Basement Cold Water Isolation Valves - 2012	0	60,328	0	0	0	0	0	0	0	0	$60,328

	Qualcomm Stadium Projects ($000s)										
	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6	Year 7	Year 8	Year 9	Year 10	
Project Name	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Total
Replace Basement Hot Water Expansion Bellows - 2012	0	23,203	0	0	0	0	0	0	0	0	$23,203
Replace CCTV System - 2012	0	2,800,000	0	0	0	0	0	0	0	0	$2,800,000
Replace Expansion Joint - 2012	0	2,093,698	0	0	0	0	0	0	0	0	$2,093,698
Replace Field Bleachers - 2012	0	1,933,183	0	0	0	0	0	0	0	0	$1,933,183
Replace Pipework in Plumbing Warehouse - 2012	0	65,313	0	0	0	0	0	0	0	0	$65,313
Replace Pipework in Press/Loge Suites - 2012	0	130,625	0	0	0	0	0	0	0	0	$130,625
Replace Stadium Equipment - 2012	0	706,000	0	0	0	0	0	0	0	0	$706,000
Survey Audio System - 2012	0	35,000	0	0	0	0	0	0	0	0	$35,000
Survey Cable Plant - 2012	0	75,000	0	0	0	0	0	0	0	0	$75,000
Upgrade Video Cabling - 2012	0	200,000	0	0	0	0	0	0	0	0	$200,000
Renovate Clubs - 2013	0	0	136,881	0	0	0	0	0	0	0	$136,881
Repair Northeast Parking Area - 2013	0	0	2,918,803	0	0	0	0	0	0	0	$2,918,803
Replace Building Controls - 2013	0	0	1,254,688	0	0	0	0	0	0	0	$1,254,688
Replace Video Display System - 2013	0	0	9,600,000	0	0	0	0	0	0	0	$9,600,000
Repair Northwest Parking Area - 2014	0	0	0	3,936,340	0	0	0	0	0	0	$3,936,340
Repair Southwest Parking Area - 2014	0	0	0	6,203,894	0	0	0	0	0	0	$6,203,894
Repair Ventilation Systems - 2014	0	0	0	495,000	0	0	0	0	0	0	$495,000
Replace Stadium Equipment - 2014	0	0	0	645,000	0	0	0	0	0	0	$645,000
Repair Southeast Parking Area - 2015	0	0	0	0	3,533,707	0	0	0	0	0	$3,533,707
Replace Electrical Systems - 2015	0	0	0	0	7,048,048	0	0	0	0	0	$7,048,048
Replace Stadium Equipment - 2015	0	0	0	0	24,000	0	0	0	0	0	$24,000
Replace Plumbing System - 2016	0	0	0	0	0	12,076,350	0	0	0	0	$12,076,350
Replace Stadium Equipment - 2016	0	0	0	0	0	60,000	0	0	0	0	$60,000
HVAC Control Replacement - 2017	0	0	0	0	0	0	111,404	0	0	0	$111,404
Repair Basement Domestic Hot Water Storage Room - 2017	0	0	0	0	0	0	61,188	0	0	0	$61,188
Replace Marquee Sign - 2017	0	0	0	0	0	0	550,000	0	0	0	$550,000
Replace Outer Circle Boiler Room - 2017	0	0	0	0	0	0	3,642,244	0	0	0	$3,642,244
Replace Outer Circle Chiller Compound - 2017	0	0	0	0	0	0	1,849,077	0	0	0	$1,849,077
Replace HVAC System - 2018	0	0	0	0	0	0	0	10,992,000	0	0	$10,992,000
Replace Stadium Equipment - 2018	0	0	0	0	0	0	0	10,000	0	0	$10,000
Total	**1,548**	**14,836,556**	**13,910,372**	**11,280,234**	**10,805,754**	**12,136,350**	**6,213,913**	**11,002,000**	**0**	**0**	**$79,786,725**

Replace Exposed Wiring - 2011

Electrical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
External wiring poses safety issue	Site Level	4690	3	LF	1	$309	No
Requirement Note:	Remove abandoned wire from pole per assessors notes - pole A3						
External wiring poses safety issue	Site Level	4691	3	LF	1	$309	No
Requirement Note:	Remove abandoned wires from pole per assessors notes - pole XH3						
External wiring poses safety issue	Site Level	4693	3	LF	1	$309	No
Requirement Note:	Remove abandoned wiring clump from pole per assessors notes - pole XA3						
External wiring poses safety issue	Site Level	4694	3	LF	1	$309	No
Requirement Note:	Remove abandoned wire from pole - per assessors notes - XB4						
External wiring poses safety issue	Site Level	4695	3	LF	1	$309	No
Requirement Note:	remove abandoned wires from pole - per assessors notes - pole XQ3						
	Sub Total for System		**5**			**$1,546**	
	Sub Total for Replace Exposed Wiring - 2011		**5**			**$1,546**	

Install Cooler Insulation - 2012

Specialties

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
False floor for coolers is required	Stadium	4856	66	Ea.	3	$189,090	No
Requirement Note:	Coolers are creating moisture problems. False floors are needed, similar to the two existing insulated floors, to solve this problem.						
	Sub Total for System		**1**			**$189,090**	
	Sub Total for Install Cooler Insulation - 2012		**1**			**$189,090**	

Renovate Concessions/Mech/RR - 2012

Exterior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Exterior door hardware is damaged and should be replaced	Stadium / Plaza Level	4186	4	Ea.	2	$9,828	No
Location Note:	Sections 16-30						
Exterior Metal Door Requires Repainting	Stadium / Plaza Level	4185	4	Door	2	$3,059	No
Location Note:	Sections 16-30						
Exterior Metal Door Requires Repainting	Stadium / Plaza Level	4194	6	Door	2	$4,588	No
Location Note:	Sections 31-45						
Exterior Metal Door Requires Repainting	Stadium / Plaza Level	4199	7	Door	2	$5,353	No
Location Note:	Sections 46-61						
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Plaza Level	4184	5	Door	2	$18,837	No
Location Note:	Sections 16-30						
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Plaza Level	4193	3	Door	2	$11,302	No
Location Note:	Sections 31-45						
Exterior Metal Door Requires Repainting	Stadium / Club Level	4217	5	Door	2	$3,823	No
Location Note:	Sections 31-45						
Exterior Metal Door Requires Repainting	Stadium / Club Level	4226	5	Door	2	$3,823	No
Location Note:	Sections 46-61						
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Club Level	4210	3	Door	2	$11,302	No
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Loge Level	4235	1	Door	2	$3,767	No
Exterior Metal Door Requires Repainting	Stadium / Press Level	4249	4	Door	2	$3,059	No
Location Note:	Sections 46-61						
Exterior Metal Door Requires Repainting	Stadium / View Level	4251	4	Door	2	$3,059	No
Location Note:	Sections 1-15						
Exterior Metal Door Requires Repainting	Stadium / View Level	4253	4	Door	2	$3,059	No
Location Note:	Sections 16-30						
Exterior Metal Door Requires Repainting	Stadium / View Level	4258	4	Door	2	$3,059	No
Location Note:	Sections 46-61						
The Exterior Requires Painting	Stadium / Field Level	4155	200	SF Wall	4	$438	No
Location Note:	Sections 0-14						

Exterior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Exterior Requires Painting	Stadium / Field Level	4166	200	SF Wall	4	$438	No
Location Note:	Sections 31-45						
The Exterior Requires Painting	Stadium / Field Level	4170	500	SF Wall	4	$1,095	No
Location Note:	Sections 15-19						
	Sub Total for System	**17**				**$89,891**	

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Interior Doors Require Replacement	Stadium / Field Level	4154	2	Door	2	$2,750	No
Location Note:	Sections 0-14						
Interior Doors Require Replacement	Stadium / Field Level	4165	2	Door	2	$2,750	No
Location Note:	Sections 31-45						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Field Level	4153	2,400	SF	2	$66,143	No
Location Note:	Sections 0-14						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Field Level	4163	1,200	SF	2	$33,072	No
Location Note:	Sections 31-45						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Field Level	4169	1,200	SF	2	$33,072	No
Location Note:	Sections 15-19						
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Field Level	4150	1,000	SF	2	$9,562	No
Location Note:	Sections 0-14						
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Field Level	4160	1,000	SF	2	$9,562	No
Location Note:	Sections 31-45						
Interior Doors Require Replacement	Stadium / Plaza Level	4183	4	Door	2	$5,500	No
Location Note:	Sections 16-30						
Interior Doors Require Replacement	Stadium / Plaza Level	4192	6	Door	2	$8,249	No
Location Note:	Sections 31-45						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Plaza Level	4175	300	SF	2	$8,268	No
Location Note:	Sections 1-15						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Plaza Level	4181	1,800	SF	2	$49,607	No
Location Note:	Sections 16-30						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Plaza Level	4190	2,000	SF	2	$55,119	No
Location Note:	Sections 31-45						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Plaza Level	4198	2,200	SF	2	$60,631	No
Location Note:	Sections 46-61						
The Interior Door Hardware is Damaged and Requires Replacement	Stadium / Plaza Level	4177	1	Ea.	2	$1,862	No
Location Note:	Sections 1-15						
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Plaza Level	4171	1,200	SF	2	$11,474	No
Location Note:	Sections 1-15						
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Plaza Level	4178	1,000	SF	2	$9,562	No
Location Note:	Sections 16-30						
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Plaza Level	4187	800	SF	2	$7,650	No
Location Note:	Sections 31-45						
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Plaza Level	4195	400	SF	2	$3,825	No
Location Note:	Sections 46-61						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Club Level	4207	800	SF	2	$22,048	No
Location Note:	Sections 16-30						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Club Level	4215	1,000	SF	2	$27,560	No
Location Note:	Sections 31-45						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Club Level	4222	1,000	SF	2	$27,560	No
Location Note:	Sections 46-61						

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Club Level	4203	1,200	SF	2	$11,474	No
Location Note:	Sections 16-30						
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Club Level	4211	900	SF	2	$8,606	No
Location Note:	Sections 31-45						
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Club Level	4218	900	SF	2	$8,606	No
Location Note:	Sections 46-61						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Loge Level	4232	2,280	SF	2	$62,836	No
Location Note:	Sections 15-27						
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Loge Level	4227	300	SF	2	$2,869	No
Location Note:	Sections 15-27						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Press Level	4239	400	SF	2	$11,024	No
Location Note:	Sections 1-15						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Press Level	4244	400	SF	2	$11,024	No
Location Note:	Sections 16-30						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Press Level	4247	200	SF	2	$5,512	No
Location Note:	Sections 31-45						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Press Level	4248	400	SF	2	$11,024	No
Location Note:	Sections 46-61						
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level	4236	630	SF	2	$6,024	No
Location Note:	Sections 1-15						
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level	4242	200	SF	2	$1,912	No
Location Note:	Sections 16-30						
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level	4246	200	SF	2	$1,912	No
Location Note:	Sections 31-45						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / View Level	4252	600	SF	2	$16,536	No
Location Note:	Sections 16-30						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / View Level	4255	400	SF	2	$11,024	No
Location Note:	Sections 31-45						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / View Level	4257	400	SF	2	$11,024	No
Location Note:	Sections 46-61						
Interior Gypboard Walls Require Repair	Stadium / Field Level	4152	1,600	SF Wall	3	$15,242	No
Location Note:	Sections 0-14						
Interior Gypboard Walls Require Repair	Stadium / Field Level	4162	1,600	SF Wall	3	$15,242	No
Location Note:	Sections 31-45						
Interior Gypboard Walls Require Repair	Stadium / Field Level	4168	1,600	SF Wall	3	$15,242	No
Location Note:	Sections 15-19						
The Gypboard Ceilings Are Damaged And Requires Repair	Stadium / Field Level	4151	2,400	SF	3	$9,238	No
Location Note:	Sections 0-14						
The Gypboard Ceilings Are Damaged And Requires Repair	Stadium / Field Level	4161	1,200	SF	3	$4,619	No
Location Note:	Sections 31-45						
The Gypboard Ceilings Are Damaged And Requires Repair	Stadium / Field Level	4167	600	SF	3	$2,310	No
Location Note:	Sections 15-19						
Interior Ceramic Walls Require Repair Or Replacement	Stadium / Plaza Level	4174	300	SF Wall	3	$5,215	No
Location Note:	Sections 1-15						
The Stone/Quarry Flooring Is Damaged And Requires Replacement	Stadium / Plaza Level	4191	400	SF	3	$16,779	No
Location Note:	Sections 31-45						
The Concrete Flooring Requires Repair or Repainting	Stadium / Field Level	4164	500	SF	4	$1,310	No
Location Note:	Sections 31-45						
Interior Ceramic Walls Require Repainting	Stadium / Plaza Level	4180	900	SF Wall	4	$2,359	No
Location Note:	Sections 16-30						
Interior Ceramic Walls Require Repainting	Stadium / Plaza Level	4189	1,000	SF Wall	4	$2,621	No
Location Note:	Sections 31-45						

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Interior Ceramic Walls Require Repainting	Stadium / Plaza Level	4197	600	SF Wall	4	$1,573	No
Location Note:	Sections 46-61						
Interior Doors Require Repainting	Stadium / Plaza Level	4176	4	Door	4	$1,014	No
Location Note:	Sections 1-15						
Interior Fiberglass Panels Require Repainting	Stadium / Plaza Level	4196	300	SF Wall	4	$786	No
Location Note:	Sections 46-61						
Interior Gypboard Walls Require Repainting	Stadium / Plaza Level	4172	1,500	SF Wall	4	$1,891	No
Location Note:	Sections 1-15						
Interior Toilet Partition Require Repainting	Stadium / Plaza Level	4173	6	Ea.	4	$1,426	No
Location Note:	Sections 1-15						
Interior Toilet Partition Require Repainting	Stadium / Plaza Level	4179	15	Ea.	4	$3,566	No
Location Note:	Sections 16-30						
Interior Toilet Partition Require Repainting	Stadium / Plaza Level	4188	17	Ea.	4	$4,041	No
Location Note:	Sections 31-45						
The Concrete Flooring Requires Repair or Repainting	Stadium / Plaza Level	4182	4,000	SF	4	$10,483	No
Location Note:	Sections 16-30						
Interior Doors Require Repainting	Stadium / Club Level	4202	5	Door	4	$1,267	No
Location Note:	Sections 1-15						
Interior Doors Require Repainting	Stadium / Club Level	4209	3	Door	4	$760	No
Location Note:	Sections 16-30						
Interior Doors Require Repainting	Stadium / Club Level	4216	8	Door	4	$2,028	No
Location Note:	Sections 31-45						
Interior Doors Require Repainting	Stadium / Club Level	4224	8	Door	4	$2,028	No
Location Note:	Sections 46-61						
Interior Fiberglass Panels Require Repainting	Stadium / Club Level	4201	300	SF Wall	4	$786	No
Location Note:	Sections 1-15						
Interior Fiberglass Panels Require Repainting	Stadium / Club Level	4206	600	SF Wall	4	$1,573	No
Location Note:	Sections 16-30						
Interior Fiberglass Panels Require Repainting	Stadium / Club Level	4214	400	SF Wall	4	$1,048	No
Location Note:	Sections 31-45						
Interior Fiberglass Panels Require Repainting	Stadium / Club Level	4221	400	SF Wall	4	$1,048	No
Location Note:	Sections 46-61						
Interior Gypboard Walls Require Repainting	Stadium / Club Level	4204	900	SF Wall	4	$1,135	No
Location Note:	Sections 16-30						
Interior Gypboard Walls Require Repainting	Stadium / Club Level	4212	700	SF Wall	4	$882	No
Location Note:	Sections 31-45						
Interior Gypboard Walls Require Repainting	Stadium / Club Level	4219	700	SF Wall	4	$882	No
Location Note:	Sections 46-61						
Interior Toilet Partition Require Repainting	Stadium / Club Level	4200	10	Ea.	4	$2,377	No
Location Note:	Sections 1-15						
Interior Toilet Partition Require Repainting	Stadium / Club Level	4205	15	Ea.	4	$3,566	No
Location Note:	Sections 16-30						
Interior Toilet Partition Require Repainting	Stadium / Club Level	4213	20	Ea.	4	$4,754	No
Location Note:	Sections 31-45						
Interior Toilet Partition Require Repainting	Stadium / Club Level	4220	20	Ea.	4	$4,754	No
Location Note:	Sections 46-61						
The Concrete Flooring Requires Repair or Repainting	Stadium / Club Level	4208	1,000	SF	4	$2,621	No
Location Note:	Sections 16-30						
The Concrete Flooring Requires Repair or Repainting	Stadium / Club Level	4223	1,000	SF	4	$2,621	No
Location Note:	Sections 46-61						
Interior Doors Require Repainting	Stadium / Loge Level	4234	1	Door	4	$253	No
Location Note:	Sections 15-27						
Interior Gypboard Walls Require Repainting	Stadium / Loge Level	4229	500	SF Wall	4	$630	No
Location Note:	Sections 15-27						
Interior Toilet Partition Require Repainting	Stadium / Loge Level	4230	3	Ea.	4	$713	No
Location Note:	Sections 15-27						
Interior Walls Require Repainting	Stadium / Loge Level	4231	500	SF	4	$1,618	No
Location Note:	Sections 15-27						
The Concrete Flooring Requires Repair or Repainting	Stadium / Loge Level	4233	600	SF	4	$1,573	No
Location Note:	Sections 15-27						
The Gypboard Ceilings Are Damaged And Requires Repainting	Stadium / Loge Level	4228	500	SF	4	$1,449	No
Location Note:	Sections 15-27						

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Interior Doors Require Repainting	Stadium / Press Level	4240	2	Door	4	$507	No
Location Note:	Sections 1-15						
Interior Doors Require Repainting	Stadium / Press Level	4245	4	Door	4	$1,014	No
Location Note:	Sections 16-30						
Interior Gypboard Walls Require Repainting	Stadium / Press Level	4238	800	SF Wall	4	$1,008	No
Location Note:	Sections 1-15						
Interior Gypboard Walls Require Repainting	Stadium / Press Level	4243	250	SF Wall	4	$315	No
Location Note:	Sections 16-30						
The Gypboard Ceilings Are Damaged And Requires Repainting	Stadium / Press Level	4237	150	SF	4	$435	No
Location Note:	Sections 1-15						
Interior Gypboard Walls Require Repainting	Stadium / View Level	4256	200	SF Wall	4	$252	No
Location Note:	Sections 46-61						
Interior Toilet Partition Require Repainting	Stadium / View Level	4254	4	Ea.	4	$951	No
Location Note:	Sections 31-45						
The Concrete Flooring Requires Repair or Repainting	Stadium / View Level	4250	200	SF	4	$524	No
Location Note:	Sections 1-15						
	Sub Total for System		**86**			**$797,559**	

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Duct Grill is Damaged And Should Be Replaced	Stadium / Field Level	4156	1	Ea.	4	$413	No
Location Note:	Sections 0-14						
	Sub Total for System		**1**			**$413**	

Electrical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Electrical Receptacles Are Inadequate And Require Replacement	Stadium / Field Level	4159	1	Ea.	2	$239	No
Location Note:	Sections 0-14						
The Panelboard Is Damaged And Should Be Replaced	Stadium / Field Level	4158	1	Ea.	2	$7,914	No
Location Note:	Sections 0-14						
The 1 X 4 Interior Fluorescent Lighting Is Damaged And Should Be Replaced	Stadium / Field Level	4157	22	Ea.	3	$8,987	No
Location Note:	Sections 0-14						
	Sub Total for System		**3**			**$17,139**	

Specialties

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Base Storage Cabinets Require Replacement	Stadium / Club Level	4225	30	LF	3	$9,031	No
Location Note:	Sections 46-61						
The Base Storage Cabinets Require Repainting	Stadium / Press Level	4241	30	LF	4	$987	No
Location Note:	Sections 1-15						
	Sub Total for System		**2**			**$10,018**	
	Sub Total for Renovate Concessions/Mech/RR - 2012		**109**			**$915,020**	

Renovate Locker Rooms - 2012

Exterior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Field Level / 071* - Visitors Locker Room	3833	2	Door	2	$7,535	No
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Field Level / 075* - Locker Room C	3844	2	Door	2	$7,029	No
	Sub Total for System		**2**			**$14,564**	

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Interior Doors Require Replacement	Stadium / Field Level / 071* - Visitors Locker Room	3836	1	Door	2	$1,375	No
Interior Doors Require Replacement	Stadium / Field Level / 072* - Chargers Locker Room	3850	5	Door	2	$7,182	No
The Ceramic Tile Flooring Is Damaged And Requires Replacement	Stadium / Field Level / 072* - Chargers Locker Room	3848	20	SF	2	$369	No
Interior Doors Require Replacement	Stadium / Field Level / 075* - Locker Room C	3841	1	Door	2	$1,283	No
Interior Toilet Partition Require Repair Or Replacement	Stadium / Field Level / 071* - Visitors Locker Room	3834	3	Ea.	3	$7,552	No
The Stone/Quarry Flooring Is Damaged And Requires Replacement	Stadium / Field Level / 071* - Visitors Locker Room	3835	130	SF	3	$5,453	No

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Interior Gypboard Walls Require Repair	Stadium / Field Level / 072* - Chargers Locker Room	3847	20	SF Wall	3	$191	No
The Plaster Ceilings Are Damaged And Requires Repair	Stadium / Field Level / 072* - Chargers Locker Room	3846	40	SF	3	$714	No
Interior Toilet Partition Require Repair Or Replacement	Stadium / Field Level / 075* - Locker Room C	3843	3	Ea.	3	$7,045	No
The Stone/Quarry Flooring Is Damaged And Requires Replacement	Stadium / Field Level / 075* - Locker Room C	3842	130	SF	3	$5,087	No
Interior Doors Require Repainting	Stadium / Field Level / 072* - Chargers Locker Room	3849	2	Door	4	$507	No
	Sub Total for System		**11**			**$36,757**	

Specialties

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Base Storage Cabinets Require Replacement	Stadium / Field Level / 071* - Visitors Locker Room	3837	8	LF	3	$2,408	No
The Base Storage Cabinets Require Replacement	Stadium / Field Level / 072* - Chargers Locker Room	3851	42	LF	3	$12,644	No
Requirement Note:	Replace training room cabinets						
The Base Storage Cabinets Require Replacement	Stadium / Field Level / 075* - Locker Room C	3840	8	LF	3	$2,396	No
The Wardrobe Storage Cabinets Require Repainting	Stadium / Field Level / 071* - Visitors Locker Room	3838	150	LF	4	$3,820	No
Requirement Note:	Repaint lockers.						
The Wardrobe Storage Cabinets Require Repainting	Stadium / Field Level / 072* - Chargers Locker Room	3852	12	LF	4	$306	No
The Wardrobe Storage Cabinets Require Repainting	Stadium / Field Level / 075* - Locker Room C	3839	150	LF	4	$3,564	No
Requirement Note:	Repaint lockers.						
	Sub Total for System		**6**			**$25,138**	
	Sub Total for Renovate Locker Rooms - 2012		**19**			**$76,459**	

Renovate Offices and Suites - 2012

Exterior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 260* - 58B/12	4092	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 261* - 59A/14	4050	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 262* - 59B/14	4049	1	Door	2	$765	No
The Metal Exterior Door Is Damaged And Requires Repair	Stadium / Loge Level / 265* - 1A/14	4043	1	Door	2	$1,137	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 266* - 1B/12	4041	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 267* - 3A/12	4038	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 268* - 3B/12	4037	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 269* - 4A/12	4034	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 270* - 4B/12	4033	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 271* - 5A/12	4031	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 272* - 5B/12	4028	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 273* - 6A/12	4025	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 274* - 6B/12	4023	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 275* - 8A/12	4021	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 276* - 8B/12	4018	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 278* - 9B/12	4017	2	Door	2	$1,529	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 279* - 11A/14	4091	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 281* - 12A/12	4090	1	Door	2	$765	No
Exterior door hardware is damaged and should be replaced	Stadium / Loge Level / 282* - 12B/12	4088	1	Ea.	2	$2,457	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 282* - 12B/12	4087	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 283* - 13A/12	4086	1	Door	2	$765	No
Exterior door hardware is damaged and should be replaced	Stadium / Loge Level / 284* - 13B/12	4085	1	Ea.	2	$2,457	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 284* - 13B/12	4084	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 285* - 15A/12	4082	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 286* - 15B/12	4081	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 288* - 16B/14	4079	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 295* - 26A/14	4077	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 296* - 26B/14	4076	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 300* - 29B/12	4074	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 302* - 30B/12	4072	1	Door	2	$765	No
Exterior door hardware is damaged and should be replaced	Stadium / Loge Level / 315* - 38B/12	4064	1	Ea.	2	$2,457	No

Exterior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 315* - 38B/12	4063	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 316* - 39A/12	4062	1	Door	2	$765	No
Exterior door hardware is damaged and should be replaced	Stadium / Loge Level / 317* - 39B/12	4060	1	Ea.	2	$2,457	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 317* - 39B/12	4059	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 318* - 41A/12	4057	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 322* - 44A/12	4052	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 323* - 44B/12	4045	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 324* - 45A/12	4046	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Loge Level / 326* - Holiday Bowl Offices	3882	1	Door	2	$765	No
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Press Level / *583 - 43A-Lounge Area	4259	1	Door	2	$3,767	No
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Press Level / 346* - 59/30	4269	1	Door	2	$3,767	No
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Press Level / 347* - 60/30	4271	1	Door	2	$3,767	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 348* - 61/30	4276	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 349* - 1A/12	4147	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 351* - 2A/9	4144	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 352* - 2B/8	4143	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 353* - 3A/17	4140	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 354* - 3B/17	4138	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 358* - 5B/10	4134	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 359* - 6A/10	4133	1	Door	2	$765	No
The Metal Exterior Door Is Damaged And Requires Repair	Stadium / Press Level / 360* - 6B/10	4131	1	Door	2	$1,137	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 362* - 8B/18	4128	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 363* - 9A/17	4127	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 364* - 9B/17	4125	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 366* - 10B/8	4121	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 370* - 12B/21	4118	1	Door	2	$765	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 377* - 17A/9	4113	1	Door	2	$765	No
Exterior door hardware is damaged and should be replaced	Stadium / Press Level / 414* - Suite 39B	3965	1	Ea.	2	$2,457	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 414* - Suite 39B	3964	1	Door	2	$765	No
Handrails require minor repairs	Stadium / Press Level / 414* - Suite 39B	3968	12	LF	2	$35	No
The Exterior Requires Painting	Stadium / Loge Level / 326* - Holiday Bowl Offices	3881	200	SF Wall	4	$438	No
	Sub Total for System	**62**				**$65,336**	

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Loge Level / 260* - 58B/12	4093	100	SF	2	$2,756	No
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Loge Level / 275* - 8A/12	4022	50	SF	2	$1,378	No
Interior Doors Require Replacement	Stadium / Loge Level / 304* - 31B/12	4070	1	Door	2	$1,375	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Loge Level / 320* - 43A/14	4055	200	SF	2	$1,912	No
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Loge Level / 324* - 45A/12	4047	75	SF	2	$2,067	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Loge Level / 325* - Stadium Offices	3884	50	SF	2	$478	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Loge Level / 326* - Holiday Bowl Offices	3883	60	SF	2	$574	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 357* - 5A/10	4137	144	SF	2	$1,377	No
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Press Level / 414* - Suite 39B	3966	40	SF	2	$1,102	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 414* - Suite 39B	3967	20	SF	2	$191	No
Interior Gypboard Walls Require Repair	Stadium / Loge Level / 267* - 3A/12	4039	20	SF Wall	3	$191	No
Interior Gypboard Walls Require Repair	Stadium / Loge Level / 272* - 5B/12	4030	4	SF Wall	3	$38	No
Interior Gypboard Walls Require Repair	Stadium / Loge Level / 273* - 6A/12	4026	20	SF Wall	3	$191	No
Requirement Note:	Staples in Restroom						
Interior Walls Require Repainting	Stadium / Loge Level / 295* - 26A/14	4078	80	SF	4	$259	No
	Sub Total for System	**14**				**$13,889**	

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Complete HVAC Systemwide Replacement	Stadium / Press Level / 414* - Suite 39B	3969	200	SF	2	$3,014	No
	Sub Total for System		**1**			**$3,014**	

Electrical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Panelboard Is Damaged And Should Be Replaced	Stadium / Press Level / 335* - 44/30	4267	60	Amps	2	$5,319	No
The GFCI Electrical Receptacles Are Inadequate And More Are Needed	Stadium / Press Level / 347* - 60/30	4275	1	Ea.	2	$514	No
The Panelboard Is Damaged And Should Be Replaced	Stadium / Press Level / 348* - 61/30	4281	60	Amps	2	$5,319	No
The GFCI Electrical Receptacles Are Inadequate And More Are Needed	Stadium / Press Level / 349* - 1A/12	4149	2	Ea.	2	$1,028	No
The Electrical Receptacles Are Inadequate And Require Repair	Stadium / Press Level / 354* - 3B/17	4139	1	Ea.	2	$169	No
The Electrical Receptacles Are Inadequate And Require Replacement	Stadium / Press Level / 365* - 10A/8	4124	1	Ea.	2	$239	No
The Electrical Receptacles Are Inadequate And Require Repair	Stadium / Press Level / 375* - 15B/14	4115	1	Ea.	2	$169	No
The GFCI Electrical Receptacles Are Inadequate And More Are Needed	Stadium / Press Level / 394* - 25A/45	4104	2	Ea.	2	$1,028	No
The Panelboard Is Damaged And Should Be Replaced	Stadium / Press Level / 394* - 25A/45	4103	60	Amps	2	$5,319	No
The Incandescent Lighting Is Damaged And Should Be Replaced	Stadium / Press Level / 335* - 44/30	4266	1	Ea.	3	$385	No
The Incandescent Lighting Is Damaged And Should Be Replaced	Stadium / Press Level / 348* - 61/30	4280	1	Ea.	3	$385	No
The Halogen Lighting is Damaged and should be Replaced	Stadium / Press Level / 388* - 22B/14	4107	1	Ea.	3	$386	No
	Sub Total for System		**12**			**$20,263**	

Plumbing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Water Heater Plumbing Fixtures Are Damaged And Should Be Repaired	Stadium / Press Level / 331* - 41B/12	4095	1	Ea.	2	$3,190	No
The Water Heater Plumbing Fixtures Are Damaged And Should Be Repaired	Stadium / Press Level / 381* - 19A/14	4112	1	Ea.	2	$2,095	No
The Rest Room Lavatories Plumbing Fixtures Are Damaged And Should Be Cleaned	Stadium / Press Level / 334* - 43/30	4263	1	Ea.	4	$743	No
The Rest Room Lavatories Plumbing Fixtures Are Damaged And Should Be Cleaned	Stadium / Press Level / 335* - 44/30	4268	1	Ea.	4	$743	No
The Rest Room Lavatories Plumbing Fixtures Are Damaged And Should Be Cleaned	Stadium / Press Level / 348* - 61/30	4279	1	Ea.	4	$743	No
	Sub Total for System		**5**			**$7,514**	

Specialties

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Base Storage Cabinets Require Replacement	Stadium / Loge Level / 267* - 3A/12	4040	5	LF	3	$1,505	No
	Sub Total for System		**1**			**$1,505**	
	Sub Total for Renovate Offices and Suites - 2012		**95**			**$111,520**	

Renovate Outer Circle Boiler Room - 2012

Mechanical

Requirement		Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Mechanical Insulation requires replacement		Stadium	4710	280	LF	2	$8,388	No
	Location Note:	Boiler Room (Outer Circle)						
	Requirement Note:	5 year replacement projection.						
Controls are at end of life		Stadium	4717	15	Ea.	3	$41,250	No
	Location Note:	Boiler Room (Outer Circle)						
	Requirement Note:	5 year projection						
		Sub Total for System		**2**			**$49,638**	

Plumbing

Requirement		Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The HVAC Piping is damaged and needs repairs		Stadium	4714	60	LF	2	$206	No
	Location Note:	Boiler Room (Outer Circle)						
	Requirement Note:	5 year projection						
Selective Mechanical Demolition is needed		Stadium	4718	1	LS	4	$6,875	No
	Location Note:	Boiler Room (Outer Circle)						
	Requirement Note:	5 year projection						
		Sub Total for System		**2**			**$7,081**	
		Sub Total for Renovate Outer Circle Boiler Room - 2012		**4**			**$56,719**	

Renovate Outer Circle Chiller Compund - 2012

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Mechanical Insulation requires replacement	Stadium	4736	80	LF	2	$5,809	No
Location Note:	Chiller Compound (Outer Circle)						
Requirement Note:	5 year projection						
	Sub Total for System		**1**			**$5,809**	

Electrical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Electrical Receptacles Are Inadequate And Require Replacement	Stadium	4738	3	Ea.	2	$5,156	No
Location Note:	Chiller Compound (Outer Circle)						
Requirement Note:	5 year projection						
	Sub Total for System		**1**			**$5,156**	

Plumbing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The HVAC Piping is damaged and needs repairs	Stadium	4737	40	LF	2	$193	No
Location Note:	Chiller Compound (Outer Circle)						
Requirement Note:	5 year projection						
Selective Mechanical Demolition is needed	Stadium	4739	1	LS	4	$3,438	No
Location Note:	Chiller Compound (Outer Circle)						
Requirement Note:	5 year projection						
	Sub Total for System		**2**			**$3,630**	
	Sub Total for Renovate Outer Circle Chiller Compund - 2012		**4**			**$14,596**	

Renovate Outer Ring Buildings - 2012

Roofing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Roll Roofing requires replacement	Security Office	4620	1,677	SF	2	$10,473	No
Location Note:	Security Office						
Roll Roofing requires replacement	Chargers Field Club Office	4622	1,918	SF	2	$11,978	No
Location Note:	Chargers Field Clubhouse						
Roll Roofing requires replacement	Ticket Window B	4624	1,372	SF	2	$8,568	No
Location Note:	Ticket Window B						
Roll Roofing requires replacement	Centerplate	4633	2,932	SF	2	$18,310	No
Location Note:	Centerplate						
Roll Roofing requires replacement	Ticket Window F	4648	2,124	SF	2	$13,264	No
Location Note:	Ticket Window F						
Roll Roofing requires replacement	Aztec Offices	4629	2,112	SF	2	$13,189	No
Location Note:	Aztec Office						
Roll Roofing requires replacement	Ticket Window H	4650	1,351	SF	2	$8,437	No
Location Note:	Ticket Window H						
Roll Roofing requires replacement	Janitor's Office	4662	1,895	SF	2	$11,834	No
Location Note:	Janitor's Office						
Roll Roofing requires replacement	Ticket Office	4627	2,386	SF	2	$14,900	No
Location Note:	Ticket Office						
Roll Roofing requires replacement	Auto Connection Office	4655	2,509	SF	2	$15,669	No
Location Note:	Auto Connection Office						
Roll Roofing requires replacement	Gates	4621	1,804	SF	2	$11,266	No
Location Note:	Gate P						
Roll Roofing requires replacement	Gates	4623	1,852	SF	2	$11,566	No
Location Note:	Gate A						
Roll Roofing requires replacement	Gates	4625	1,853	SF	2	$11,572	No
Location Note:	Gate B						
Roll Roofing requires replacement	Gates	4626	1,836	SF	2	$11,466	No
Location Note:	Gate C						
Roll Roofing requires replacement	Gates	4628	1,813	SF	2	$11,322	No
Location Note:	Gate D						
Roll Roofing requires replacement	Gates	4631	1,846	SF	2	$11,528	No
Location Note:	Gate E						
Roll Roofing requires replacement	Gates	4647	1,866	SF	2	$11,653	No
Location Note:	Gate F						

Roofing

Requirement		Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Roll Roofing requires replacement		Gates	4649	1,853	SF	2	$11,572	No
	Location Note:	Gate H						
Roll Roofing requires replacement		Gates	4654	1,678	SF	2	$10,479	No
	Location Note:	Gate G						
Roll Roofing requires replacement		Gates	4661	1,802	SF	2	$11,253	No
	Location Note:	Gate J						
Roll Roofing requires replacement		Gates	4666	1,894	SF	2	$11,828	No
	Location Note:	Gate K						
Roll Roofing requires replacement		Gates	4667	1,786	SF	2	$11,153	No
	Location Note:	Gate L						
		Sub Total for System	**22**				**$263,280**	

Exterior

Requirement		Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Exterior Requires Cleaning		Ticket Window B	3866	3,000	SF Wall	4	$6,991	No
	Requirement Note:	Clean exterior walls and concrete flooring around the building.						
Exterior door hardware is damaged and should be replaced		Ticket Window F	3858	1	Ea.	2	$2,457	No
The Concrete / CMU Exterior Is Damaged And Requires Repair		Ticket Window F	3861	30	SF Wall	3	$941	No
The Exterior Requires Cleaning		Ticket Window F	3857	2,000	SF	4	$4,660	No
	Requirement Note:	Clean exterior walls and concrete flooring around the building.						
The Exterior Requires Cleaning		Ticket Window H	3853	2,000	SF	4	$4,996	No
	Requirement Note:	Clean exterior walls and concrete flooring around the building.						
Exterior Metal Door Requires Repainting		Janitor's Office	3871	4	Door	2	$3,059	No
The Exterior Requires Cleaning		Janitor's Office	3870	500	SF Wall	4	$1,249	No
The Exterior Requires Cleaning		Ticket Office	3865	3,000	SF Wall	4	$7,494	No
	Requirement Note:	Clean exterior walls and concrete flooring around the building.						
Concrete require cleaning		Gates	3885	1,000	SF	2	$3,337	No
	Location Note:	Gate A						
Concrete require cleaning		Gates	3888	1,000	SF	2	$3,337	No
	Location Note:	Gate B						
Concrete require cleaning		Gates	3892	1,000	SF	2	$3,337	No
	Location Note:	Gate C						
Concrete require cleaning		Gates	3894	1,000	SF	2	$3,337	No
	Location Note:	Gate D						
Concrete require cleaning		Gates	3896	1,000	SF	2	$3,337	No
	Location Note:	Gate E						
Concrete require cleaning		Gates	3899	1,000	SF	2	$3,337	No
	Location Note:	Gate F						
Concrete require cleaning		Gates	3903	1,000	SF	2	$3,337	No
	Location Note:	Gate G						
Concrete require cleaning		Gates	3905	1,000	SF	2	$3,337	No
	Location Note:	Gate H						
Concrete require cleaning		Gates	3908	1,000	SF	2	$3,337	No
	Location Note:	Gate J						
Concrete require cleaning		Gates	3911	1,000	SF	2	$3,337	No
	Location Note:	Gate K						
Concrete require cleaning		Gates	3914	1,000	SF	2	$3,337	No
	Location Note:	Gate L						
Concrete require cleaning		Gates	3917	1,000	SF	2	$3,337	No
	Location Note:	Gate M						
Concrete require cleaning		Gates	3918	1,000	SF	2	$3,337	No
	Location Note:	Gate O1						
Concrete require cleaning		Gates	3919	1,000	SF	2	$3,337	No
	Location Note:	Gate O2						
Concrete require cleaning		Gates	3920	1,000	SF	2	$3,337	No
	Location Note:	Gate N						
Concrete require cleaning		Gates	3922	1,000	SF	2	$3,337	No
	Location Note:	Gate P						
Handrails require minor repairs		Gates	3887	40	LF	2	$117	No
	Location Note:	Gate A						
Handrails require minor repairs		Gates	3891	30	LF	2	$88	No
	Location Note:	Gate B						

Exterior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Handrails require replacement	Gates	3886	10	LF	2	$1,095	No
Location Note:	Gate A						
Handrails require replacement	Gates	3890	8	LF	2	$876	No
Location Note:	Gate B						
Handrails require replacement	Gates	3893	16	LF	2	$1,753	No
Location Note:	Gate C						
Handrails require replacement	Gates	3895	16	LF	2	$1,753	No
Location Note:	Gate D						
Handrails require replacement	Gates	3898	8	LF	2	$876	No
Location Note:	Gate E						
Handrails require replacement	Gates	3901	10	LF	2	$1,095	No
Location Note:	Gate F						
Handrails require replacement	Gates	3904	12	LF	2	$1,315	No
Location Note:	Gate G						
Handrails require replacement	Gates	3906	6	LF	2	$657	No
Location Note:	Gate H						
Handrails require replacement	Gates	3909	12	LF	2	$1,315	No
Location Note:	Gate J						
Handrails require replacement	Gates	3913	8	LF	2	$876	No
Location Note:	Gate K						
Handrails require replacement	Gates	3915	6	LF	2	$657	No
Location Note:	Gate L						
Handrails require replacement	Gates	3923	8	LF	2	$876	No
Location Note:	Gate P						
Metal Gate is damaged and requires replacement	Gates	3902	2	Ea.	3	$11,384	No
Location Note:	Gate F						
	Sub Total for System	**39**				**$109,980**	

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Suspended Ceiling Grid is Damaged And Require Replacement	Security Office	3879	24	SF	2	$229	No
Interior Gypboard Walls Require Repainting	Security Office	3880	300	SF Wall	4	$378	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Chargers Field Club Office	3877	40	SF	2	$382	No
Interior Gypboard Walls Require Repair	Chargers Field Club Office	3878	2,000	SF Wall	3	$19,052	No
The Carpet Flooring Is Damaged And Requires Replacement	Ticket Window B	3869	400	SF	2	$4,294	No
The Plaster Ceilings Are Damaged And Requires Repair	Ticket Window B	3867	40	SF	3	$714	No
Interior Brick/CMU Walls Require Repainting	Ticket Window B	3868	200	SF	4	$631	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Centerplate	3863	40	SF	2	$382	No
The Ceramic Tile Flooring Is Damaged And Requires Replacement	Ticket Window F	3862	10	SF	2	$185	No
Interior Brick/CMU Walls Require Repainting	Ticket Window F	3860	100	SF	4	$315	No
Interior Gypboard Walls Require Repainting	Ticket Window F	3859	300	SF Wall	4	$378	No
The Carpet Flooring Is Damaged And Requires Replacement	Ticket Window H	3855	500	SF	2	$5,367	No
Interior Brick/CMU Walls Require Repainting	Ticket Window H	3854	400	SF	4	$1,261	No
The Interior Door Hardware is Damaged and Requires Replacement	Janitor's Office	3876	1	Ea.	2	$1,862	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Janitor's Office	3872	20	SF	2	$191	No
Interior Brick/CMU Walls Require Repainting	Janitor's Office	3873	400	SF	4	$1,261	No
Interior Doors Require Repainting	Janitor's Office	3875	1	Door	4	$253	No
The Concrete Flooring Requires Repair or Repainting	Janitor's Office	3874	500	SF	4	$1,310	No
The Concrete Flooring Is Damaged And Requires Replacement	Gates	3907	300	SF	3	$2,408	No
Location Note:	Gate J						
The Concrete Flooring Is Damaged And Requires Replacement	Gates	3910	100	SF	3	$803	No
Location Note:	Gate K						
The Concrete Flooring Is Damaged And Requires Replacement	Gates	3916	200	SF	3	$1,605	No
Location Note:	Gate M						
The Concrete Flooring Is Damaged And Requires Replacement	Gates	3921	100	SF	3	$803	No
Location Note:	Gate P						
	Sub Total for System	**22**				**$44,066**	

Specialties

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Base Storage Cabinets Require Replacement	Centerplate	3864	10	LF	3	$3,010	No
The Upper Storage Cabinets Require Replacement	Ticket Window H	3856	16	LF	3	$3,094	No
Turnstile is damaged and requires replacement	Gates	3889	1	Ea.	3	$9,797	No
Location Note:	Gate B						
Turnstile is damaged and requires replacement	Gates	3897	1	Ea.	3	$9,797	No
Location Note:	Gate E						
Turnstile is damaged and requires replacement	Gates	3900	1	Ea.	3	$9,797	No
Location Note:	Gate F						
Turnstile is damaged and requires replacement	Gates	3912	1	Ea.	3	$9,797	No
Location Note:	Gate K						
	Sub Total for System		**6**			**$45,294**	
	Sub Total for Renovate Outer Ring Buildings - 2012		**89**			**$462,620**	

Renovate Press Boxes - 2012

Exterior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Exterior door hardware is damaged and should be replaced	Stadium / Press Level / 396* - Box 38 Radio	3992	1	Ea.	2	$2,457	No
Handrails require minor repairs	Stadium / Press Level / 396* - Box 38 Radio	3994	12	LF	2	$35	No
Exterior door hardware is damaged and should be replaced	Stadium / Press Level / 397* - Box 37 Chargers Coaches	3997	1	Ea.	2	$2,457	No
Exterior door hardware is damaged and should be replaced	Stadium / Press Level / 398* - Box 36 Network T.V.	4001	1	Ea.	2	$2,457	No
Handrails require minor repairs	Stadium / Press Level / 398* - Box 36 Network T.V.	4003	12	LF	2	$35	No
Handrails require minor repairs	Stadium / Press Level / 399* - Box 35 Radio	4008	8	LF	2	$23	No
Handrails require minor repairs	Stadium / Press Level / 405* - Box 26A Padre Owner	3927	20	LF	2	$55	No
Handrails require minor repairs	Stadium / Press Level / 409* - Box 30 Padre Home T.V.	3959	20	LF	2	$59	No
Exterior door hardware is damaged and should be replaced	Stadium / Press Level / 411* - Box B Radio	3986	20	Ea.	2	$49,140	No
Exterior door hardware is damaged and should be replaced	Stadium / Press Level / 411* - Box B Radio	3987	1	Ea.	2	$2,457	No
Handrails require minor repairs	Stadium / Press Level / 411* - Box B Radio	3989	12	LF	2	$35	No
Exterior door hardware is damaged and should be replaced	Stadium / Press Level / 412* - Box C Radio	3979	1	Ea.	2	$2,457	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 412* - Box C Radio	3978	1	Door	2	$765	No
Handrails require minor repairs	Stadium / Press Level / 412* - Box C Radio	3982	12	LF	2	$35	No
Exterior door hardware is damaged and should be replaced	Stadium / Press Level / 413* - Box D Radio	3971	40	Ea.	2	$98,281	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 413* - Box D Radio	3970	1	Door	2	$765	No
Handrails require minor repairs	Stadium / Press Level / 413* - Box D Radio	3975	12	LF	2	$35	No
Exterior door hardware is damaged and should be replaced	Stadium / Press Level / 417* - Copy Room	3943	1	Ea.	2	$2,457	No
Exterior Metal Door Requires Repainting	Stadium / Press Level / 417* - Copy Room	3942	1	Door	2	$765	No
Exterior door hardware is damaged and should be replaced	Stadium / Press Level / 425* - Lounge	3940	2	Ea.	2	$4,914	No
	Sub Total for System		**20**			**$169,685**	

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 396* - Box 38 Radio	3993	16	SF	2	$153	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 397* - Box 37 Chargers Coaches	3998	12	SF	2	$115	No
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Press Level / 398* - Box 36 Network T.V.	4002	20	SF	2	$551	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 399* - Box 35 Radio	4007	20	SF	2	$191	No
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Press Level / 401* - Box 33 Radio	3947	40	SF	2	$1,102	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 401* - Box 33 Radio	3949	24	SF	2	$229	No
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Press Level / 402* - Box 32 Radio	3950	20	SF	2	$551	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 402* - Box 32 Radio	3952	12	SF	2	$115	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 403* - Box 31 Radio	3954	16	SF	2	$153	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 404* - Box 25B City Box	4096	40	SF	2	$382	No
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Press Level / 405* - Box 26A Padre Owner	3924	80	SF	2	$2,205	No

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 405* - Box 26A Padre Owner	3926	80	SF	2	$765	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 407* - Box 28 T.V.	3931	80	SF	2	$765	No
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Press Level / 408* - Box 29 T.V.	3935	20	SF	2	$551	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 408* - Box 29 T.V.	3937	40	SF	2	$382	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 409* - Box 30 Padre Home T.V.	3958	20	SF	2	$191	No
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Press Level / 410* - Box A General Manager	4011	100	SF	2	$2,756	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 410* - Box A General Manager	4014	120	SF	2	$1,147	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 411* - Box B Radio	3988	12	SF	2	$115	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 412* - Box C Radio	3981	16	SF	2	$153	No
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Press Level / 413* - Box D Radio	3972	40	SF	2	$1,102	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 413* - Box D Radio	3974	12	SF	2	$115	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 425* - Lounge	3941	36	SF	2	$344	No
The Suspended Ceiling Grid is Damaged And Require Replacement	Stadium / Press Level / 426* - Kitchen	3929	20	SF	2	$191	No
The Gypboard Ceilings Are Damaged And Requires Repair	Stadium / Press Level / *582 - Women RR - Small	3962	50	SF	3	$192	No
Interior Walls Require Repainting	Stadium / Press Level / 401* - Box 33 Radio	3948	100	SF	4	$324	No
Interior Walls Require Repainting	Stadium / Press Level / 402* - Box 32 Radio	3951	100	SF	4	$324	No
Interior Walls Require Repainting	Stadium / Press Level / 403* - Box 31 Radio	3953	100	SF	4	$324	No
Interior Brick/CMU Walls Require Repainting	Stadium / Press Level / 405* - Box 26A Padre Owner	3925	100	SF	4	$315	No
Interior Walls Require Repainting	Stadium / Press Level / 407* - Box 28 T.V.	3930	100	SF	4	$324	No
Interior Walls Require Repainting	Stadium / Press Level / 408* - Box 29 T.V.	3936	100	SF	4	$324	No
Interior Walls Require Repainting	Stadium / Press Level / 409* - Box 30 Padre Home T.V.	3957	100	SF	4	$324	No
Interior Walls Require Repainting	Stadium / Press Level / 410* - Box A General Manager	4013	480	SF	4	$1,553	No
The Concrete Flooring Requires Repair or Repainting	Stadium / Press Level / 410* - Box A General Manager	4012	200	SF	4	$524	No
Interior Walls Require Repainting	Stadium / Press Level / 413* - Box D Radio	3973	100	SF	4	$324	No
Interior Walls Require Repainting	Stadium / Press Level / 417* - Copy Room	3945	200	SF	4	$647	No
The Exposed Ceilings Are Damaged And Requires Repainting	Stadium / Press Level / 417* - Copy Room	3946	150	SF	4	$369	No
Interior Walls Require Repainting	Stadium / Press Level / 426* - Kitchen	3928	120	SF	4	$388	No
	Sub Total for System		**38**			**$20,580**	

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Radiant Heat HVAC Component Is Damaged And Requires Replacement	Stadium / Press Level / 396* - Box 38 Radio	3995	1	Ea.	2	$2,773	No
The Radiant Heat HVAC Component Is Damaged And Requires Replacement	Stadium / Press Level / 397* - Box 37 Chargers Coaches	3999	1	Ea.	2	$2,773	No
Controls Are Inadequate And Should Be Repaired	Stadium / Press Level / 398* - Box 36 Network T.V.	4005	150	SF	2	$249	No
The Radiant Heat HVAC Component Is Damaged And Requires Replacement	Stadium / Press Level / 398* - Box 36 Network T.V.	4004	1	Ea.	2	$2,773	No
The Radiant Heat HVAC Component Is Damaged And Requires Replacement	Stadium / Press Level / 399* - Box 35 Radio	4009	1	Ea.	2	$2,773	No
The Radiant Heat HVAC Component Is Damaged And Requires Replacement	Stadium / Press Level / 400* - Box 34 Visiting Coach	3955	1	Ea.	2	$2,773	No
The Radiant Heat HVAC Component Is Damaged And Requires Replacement	Stadium / Press Level / 407* - Box 28 T.V.	3934	1	Ea.	2	$2,773	No
The Radiant Heat HVAC Component Is Damaged And Requires Replacement	Stadium / Press Level / 408* - Box 29 T.V.	3938	1	Ea.	2	$2,773	No
The Radiant Heat HVAC Component Is Damaged And Requires Replacement	Stadium / Press Level / 410* - Box A General Manager	4015	40	Ea.	2	$110,935	No
The Radiant Heat HVAC Component Is Damaged And Requires Replacement	Stadium / Press Level / 411* - Box B Radio	3990	1	Ea.	2	$2,773	No
The Radiant Heat HVAC Component Is Damaged And Requires Replacement	Stadium / Press Level / 412* - Box C Radio	3983	1	Ea.	2	$2,773	No

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Radiant Heat HVAC Component Is Damaged And Requires Replacement	Stadium / Press Level / 413" - Box D Radio	3976	1	Ea.	2	$2,773	No
	Sub Total for System		**12**			**$138,917**	

Electrical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Electrical Receptacles Are Inadequate And Require Replacement	Stadium / Press Level / 404" - Box 25B City Box	4101	2	Ea.	2	$479	No
The GFCI Electrical Receptacles Are Inadequate And More Are Needed	Stadium / Press Level / 404" - Box 25B City Box	4102	1	Ea.	2	$514	No
The Panelboard Is Damaged And Should Be Replaced	Stadium / Press Level / 404" - Box 25B City Box	4100	60	Amps	2	$5,319	No
Requirement Note:	There is no cover and it is not readily accessible.						
The Electrical Receptacles Are Inadequate And Require Replacement	Stadium / Press Level / 407" - Box 28 T.V.	3932	1	Ea.	2	$239	No
The Electrical Receptacles Are Inadequate And Require Replacement	Stadium / Press Level / 412" - Box C Radio	3985	2	Ea.	2	$479	No
The Electrical Receptacles Are Inadequate And Require Replacement	Stadium / Press Level / 413" - Box D Radio	3977	2	Ea.	2	$479	No
The 2 X 2 Interior Fluorescent Lighting Is Damaged And Should Be Replaced	Stadium / Press Level / *579 - Men RR - Large	3960	2	Ea.	3	$821	No
The 2 X 2 Interior Fluorescent Lighting Is Damaged And Should Be Replaced	Stadium / Press Level / *580 - Women RR - Large	3961	2	Ea.	3	$821	No
The 2 X 4 Interior Fluorescent Lighting Is Damaged And Should Be Replaced	Stadium / Press Level / *582 - Women RR - Small	3963	2	Ea.	3	$1,206	No
The Incandescent Lighting Is Damaged And Should Be Replaced	Stadium / Press Level / 404" - Box 25B City Box	4099	16	Ea.	3	$6,159	No
	Sub Total for System		**10**			**$16,515**	

Specialties

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Seat Spring requires repair	Stadium / Press Level / 404" - Box 25B City Box	4097	5	Ea.	2	$143	No
The Base Storage Cabinets Require Replacement	Stadium / Press Level / 404" - Box 25B City Box	4098	8	LF	3	$2,408	No
	Sub Total for System		**2**			**$2,552**	
	Sub Total for Renovate Press Boxes - 2012		**82**			**$348,249**	

Repair Basement Plumbing - 2012

Plumbing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
LC: The Plumbing / Domestic Water Piping System system is beyond its useful life.	Stadium	4784	1,000	LF	2	$106,563	No
Location Note:	Basement Plumbing						
Requirement Note:	5 year projection						
	Sub Total for System		**1**			**$106,563**	
	Sub Total for Repair Basement Plumbing - 2012		**1**			**$106,563**	

Repair Communication Systems - 2012

Electrical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Electrical Equipment is Abandonded and Requires Removal	Stadium	4817	1	Ea.	4	$25,000	No
Requirement Note:	The equipment racks are populated with various patch panels and serves as a crossconnect point between the truck bays and the rest of the facility. Eliminating dead cable and equipment should be considered.						
	Sub Total for System		**1**			**$25,000**	

Technology

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
IT Infrastructure/Telecom System needs to be repaired	Stadium	4814	1	LS	3	$75,000	No
Requirement Note:	It is highly recommended that all panels be replaced with weather resistant material and all cables should be relabeled, reterminated, tested and installed in new panels. The panels and cabling should be relabeled using a new approved labeling scheme.						
IT Infrastructure/Telecom System needs to be replaced	Stadium	4815	1	LS	4	$75,000	No
Requirement Note:	Replace all exterior interface boxes with weathertight plastic boxes. Replace all interior panels with new, weather resistant material. Replace all interior panels and relabel using new approved labeling scheme. Reterminate, test and label all cables.						
	Sub Total for System		**2**			**$150,000**	
	Sub Total for Repair Communication Systems - 2012		**3**			**$175,000**	

Repair Concourses - 2012

Site

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Small Benches Are Damaged And Require Replacement	Stadium / Plaza Level	4651	1	Ea.	4	$2,405	No
Requirement Note:	Replace fiberglass bench per assessors notes						
Site Signage Is Damaged And Requires Replacement	Stadium / View Level	4299	4	Ea.	4	$1,910	No
Site Signage Is Damaged And Requires Replacement	Stadium / View Level / 546* - Seating 30	4332	2	Ea.	4	$955	No
Location Note:	Section 30						
	Sub Total for System		**3**			**$5,270**	

Exterior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Handrails require minor repairs	Stadium / Plaza Level	4285	880	LF	2	$2,577	No
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Plaza Level	4707	4	Door	2	$15,070	No
Requirement Note:	Replace 4 steel doors per assessors notes						
Handrails require minor repairs	Stadium / Club Level	4288	100	LF	2	$293	No
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Club Level	4652	5	Door	2	$18,837	No
Requirement Note:	Replace 5 steel doors per assessors notes						
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Loge Level	4657	7	Door	2	$26,372	No
Requirement Note:	Replace 7 steel doors per assessors notes						
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / Press Level	4658	5	Door	2	$18,837	No
Requirement Note:	Replace 5 steel doors per assessors notes						
The Metal Exterior Door Is Damaged And Requires Replacement	Stadium / View Level	4659	22	Door	2	$82,884	No
Requirement Note:	Replace 22 steel doors per assessors notes						
The Exterior Requires Painting	Stadium / View Level	4660	360	SF Wall	4	$789	No
Requirement Note:	Rpaint 360 square feet of walls per assessors notes						
	Sub Total for System		**8**			**$165,658**	

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Plaza Level	4284	4,290	SF	2	$118,231	No
The Ceramic Tile Flooring Is Damaged And Requires Replacement	Stadium / Club Level	4653	100	SF	2	$1,845	No
Requirement Note:	Replace 100 square feet of ceramic tile per assessors notes						
Moisture resistant base is damaged or missing and should be installed	Stadium / Loge Level	4656	40	LF	2	$229	No
Requirement Note:	Replace 40 linear feet of vinyl base per assessors notes						
The Athletic Sport Flooring Is Damaged And Requires Replacement	Stadium / Loge Level	4290	1,460	SF	2	$40,237	No
Stair Tread needs minor repairs	Stadium / View Level	4687	20,416	SF	2	$313,516	No
Requirement Note:	Resurface stair tread and risers with nonslip paint/coating Approximately 44 steps average per set of stairs. Estimated 58 stair cases based on number of sections (57 sections). Total of 2552 stair treads and risers. Estimated square foot area of tread						
The Concrete Flooring Is Damaged And Requires Replacement	Stadium / Plaza Level	4282	2,418	SF	3	$19,406	No
Concrete requires repair	Stadium / Loge Level	4289	120	SF	3	$6,143	No
Concrete requires repair	Stadium / Press Level	4294	50	SF	3	$2,559	No
Concrete requires repair	Stadium / View Level	4295	6	SF	3	$307	No
The Concrete Flooring Is Damaged And Requires Replacement	Stadium / View Level	4798	2,000	SF	3	$16,051	No
Requirement Note:	Circle areas of concrete to be replaced. 8 rows per section with 2 per row.						
Concrete requires repair	Stadium / View Level / 520* - Seating 04	4369	20	SF	3	$1,024	No
Location Note:	section 04						
Concrete requires repair	Stadium / View Level / 521* - Seating 05	4367	20	SF	3	$1,024	No
Location Note:	section 05						
Epoxy flooring requires replacement	Stadium / Field Level	4801	5,900	SF	4	$90,603	No
Requirement Note:	There are handicapped access platforms framed with steel plates. 25 locations, approximately 39ft x 6ft in plan. These all need sandblasting or other type of clean and coat in order to remove rust and allow for new epoxy coating.						
The Concrete Flooring Requires Repair or Repainting	Stadium / Plaza Level	4283	7,000	SF	4	$18,346	No
Epoxy flooring requires replacement	Stadium / Club Level	4795	500	SF	4	$7,678	No
Requirement Note:	Rusted steel plate framing system for the handicapped seating area needs to be resurfaced. Aisle 9 to 11						
Epoxy flooring requires replacement	Stadium / Club Level	4796	500	SF	4	$7,678	No
Requirement Note:	Rusted steel plate framing system for the handicapped seating area needs to be resurfaced. Aisle 38 to 41						
Epoxy flooring requires replacement	Stadium / Club Level	4797	500	SF	4	$7,678	No
Requirement Note:	Rusted steel plate framing system for the handicapped seating area needs to be resurfaced						
The Concrete Flooring Requires Repair or Repainting	Stadium / Club Level	4286	7,650	SF	4	$20,049	No

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Concrete Flooring Requires Repair or Repainting	Stadium / Press Level	4292	15,000	SF	4	$39,312	No
Interior Brick/CMU Walls Require Repainting	Stadium / View Level	4296	22,000	SF	4	$69,370	No
The Concrete Flooring Requires Repair or Repainting	Stadium / View Level	4298	70,000	SF	4	$183,458	No
	Sub Total for System	**21**				**$964,744**	
	Sub Total for Repair Concourses - 2012	**32**				**$1,135,672**	

Repair Conveyances - 2012

Structural

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
1" Expansion Joint is damaged and requires replacement	Conveyance	4301	384	LF	3	$3,447	No
Location Note:	Ramp A						
1" Expansion Joint is damaged and requires replacement	Conveyance	4303	408	LF	3	$3,636	No
Location Note:	Ramp C						
1" Expansion Joint is damaged and requires replacement	Conveyance	4305	408	LF	3	$3,636	No
Location Note:	Ramp E						
1" Expansion Joint is damaged and requires replacement	Conveyance	4308	408	LF	3	$3,636	No
Location Note:	Ramp F						
1" Expansion Joint is damaged and requires replacement	Conveyance	4311	408	LF	3	$3,636	No
Location Note:	Ramp H						
1" Expansion Joint is damaged and requires replacement	Conveyance	4314	294	LF	3	$2,737	No
Location Note:	Ramp K						
6" Expansion Joint is damaged and requires replacement	Conveyance	4312	18	LF	3	$1,581	No
Location Note:	Ramp H						
6" Expansion Joint is damaged and requires replacement	Conveyance	4315	40	LF	3	$3,000	No
Location Note:	Ramp K						
Concrete requires repair	Conveyance	4403	32	SF	3	$1,638	No
Location Note:	Ramp L						
Requirement Note:	Topping slab at 2nd from top most landing, 32 sqft of thin topping has spalled.						
Concrete requires repair	Conveyance	4404	8	SF	3	$410	No
Location Note:	Ramp A						
Requirement Note:	Left ramp at Press Level spalled concrete 8sqft						
Concrete requires repair	Conveyance	4405	10	SF	3	$512	No
Location Note:	Ramp A						
Requirement Note:	Spalled bridge support at stadium side at expansion joint 10sqft						
Concrete requires repair	Conveyance	4406	4	SF	3	$205	No
Location Note:	Ramp A						
Requirement Note:	Right ramp down from Press Level 4sqft spalled slab						
Concrete requires repair	Conveyance	4407	1	SF	3	$51	No
Location Note:	Ramp A						
Requirement Note:	Loge Level center landing minor concrete spalling at slab.						
Concrete requires repair	Conveyance	4408	2	SF	3	$102	No
Location Note:	Ramp A						
Requirement Note:	Loge Level bridge from Club Level spalled at stadium side support.						
Concrete requires repair	Conveyance	4409	12	SF	3	$614	No
Location Note:	Stair P						
Requirement Note:	Section 60 - concrete with rack pockets (original construction defect) - 3LF						
Concrete requires repair	Conveyance	4410	6	SF	3	$307	No
Location Note:	Stair P						
Requirement Note:	Plaza Level spalled concrete at base of elevator tower.						
Concrete requires repair	Conveyance	4411	3	SF	3	$154	No
Location Note:	Elevator 2						
Requirement Note:	Lower Level, similar concrete damage to that found at Elevator #1. Possible wash down damage.						
Concrete requires repair	Conveyance	4412	10	SF	3	$512	No
Location Note:	Ramp E						
Requirement Note:	2nd level guardrail is spalling at touch points - 2LF						
Concrete requires repair	Conveyance	4413	12	SF	3	$614	No
Location Note:	Ramp E						
Requirement Note:	Club Level landing spalled concrete						

Structural

Requirement		Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Concrete requires repair		Conveyance	4414	8	SF	3	$410	No
	Location Note:	Ramp E						
	Requirement Note:	Loge Level landing spalled concrete						
Concrete requires repair		Conveyance	4415	48	SF	3	$2,457	No
	Location Note:	Ramp E						
	Requirement Note:	Left Press Level ramp deck deterioration - 48sqft (6x8)						
Concrete requires repair		Conveyance	4416	24	SF	3	$1,229	No
	Location Note:	Ramp E						
	Requirement Note:	Right side Press Level ramp deck deterioration						
Concrete requires repair		Conveyance	4417	48	SF	3	$2,457	No
	Location Note:	Ramp F						
	Requirement Note:	Minor spalling concrete support beam at stairway bridge Press Level - 16LF						
Concrete requires repair		Conveyance	4418	7	SF	3	$358	No
	Location Note:	Ramp F						
	Requirement Note:	Left Loge Level landing spalled concrete and patches.						
Concrete requires repair		Conveyance	4419	24	SF	3	$1,229	No
	Location Note:	Ramp F						
	Requirement Note:	Right up ramp needs patching.						
Concrete requires repair		Conveyance	4420	124	SF	3	$6,347	No
	Location Note:	Ramp F						
	Requirement Note:	Spalled concrete at ramp to lower basement level (cart or truck impact 24x6)						
Concrete requires repair		Conveyance	4421	56	SF	3	$2,867	No
	Location Note:	Elevator 3						
	Requirement Note:	Base of elevator spalled concrete similar to the others - 16x3.5 - No other visible damage.						
Concrete requires repair		Conveyance	4422	32	SF	3	$1,638	No
	Location Note:	Escalator G						
	Requirement Note:	Spalled concrete on guardrail Loge Level west side of escalator. Exposed rebar 4x8 section.						
Concrete requires repair		Conveyance	4423	16	SF	3	$819	No
	Location Note:	Ramp H						
	Requirement Note:	Left ramp up spalled concrete - 8x2						
Concrete requires repair		Conveyance	4424	20	SF	3	$1,024	No
	Location Note:	Ramp H						
	Requirement Note:	Water erosion at upper landing between inner and outer ramps.						
Concrete requires repair		Conveyance	4425	20	SF	3	$1,024	No
	Location Note:	Ramp H						
	Requirement Note:	Press Level landing - spalling of concrete at bearing support. View Level bridge 2-4 ft sections.						
Concrete requires repair		Conveyance	4426	3	SF	3	$154	No
	Location Note:	Ramp H						
	Requirement Note:	Spalling at precast column near Section 32						
Concrete requires repair		Conveyance	4427	10	SF	3	$512	No
	Location Note:	Ramp H						
	Requirement Note:	Upper west side ramp slab erosion.						
Concrete requires repair		Conveyance	4428	18	SF	3	$921	No
	Location Note:	Escalator H						
	Requirement Note:	Rock pocket patch corner of lower escalator						
Concrete requires repair		Conveyance	4429	10	SF	3	$512	No
	Location Note:	Ramp K						
	Requirement Note:	Bridge over Club Level spalled concrete at stadium side expansion joint - 2sqft x 6in deep						
Concrete requires repair		Conveyance	4430	20	SF	3	$1,024	No
	Location Note:	Ramp K						
	Requirement Note:	Ramp above Loge Level similar spalled concrete - 4sqft x 6in deep at support beam						
Concrete requires repair		Conveyance	4431	12	SF	3	$614	No
	Location Note:	Ramp K						
	Requirement Note:	Ramp up to Press Level right side (east side) exposed rebar at a slab construction joint and spalled out section at the other end.						
Concrete requires repair		Conveyance	4451	12	SF	3	$614	No
	Location Note:	Ramp C						
	Requirement Note:	Exterior guardrail spalled and cracking concrete - 6x2						

Structural

Requirement		Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Concrete requires repair		Conveyance	4664	1	SF	3	$51	No
	Location Note:	Ramp C						
	Requirement Note:	First landing up from loge 6 sq. inches of exposed rebar - reapair concrete per assessors notes						
Concrete requires repair		Conveyance	4665	3	LF	3	$154	No
	Location Note:	Ramp C						
	Requirement Note:	Exposed rebar at press level to upper level 3 linear feet per assessors notes						
Concrete requires repair		Conveyance	4668	1	SF	3	$51	No
	Location Note:	Ramp H						
	Requirement Note:	Left ramp to club level defect in concrete - 10 square inches - repair concrete per assessors notes						
Concrete requires repair		Conveyance	4669	16	SF	3	$819	No
	Location Note:	Ramp H						
	Requirement Note:	Repair 16 square feet of eroded concrete at inner landing of club level per assessors notes						
Concrete requires repair		Conveyance	4670	10	SF	3	$512	No
	Location Note:	Ramp H						
	Requirement Note:	Repair 10 square feet of concrete patch work on right side up ramp per assessors notes						
Concrete requires repair		Conveyance	4671	1	SF	3	$51	No
	Location Note:	Ramp H						
	Requirement Note:	1 square foot patch concrete patch work on right side up ramp per assessors notes						
Concrete requires repair		Stadium	4432	4	SF	3	$205	No
	Location Note:	Column No. 1L						
	Requirement Note:	Patch concrete						
Concrete requires repair		Stadium	4433	15	SF	3	$768	No
	Location Note:	Column No. 2L						
	Requirement Note:	Spalling concrete at View Level guardrail						
Concrete requires repair		Stadium	4434	10	SF	3	$512	No
	Location Note:	Column No. 3R						
	Requirement Note:	Above Press Level spalled concrete						
Concrete requires repair		Stadium	4435	6	SF	3	$307	No
	Location Note:	Column No. 3L						
	Requirement Note:	Spalling concrete at View Level						
Concrete requires repair		Stadium	4436	20	SF	3	$1,024	No
	Location Note:	Column No. 5L/5R						
	Requirement Note:	View Level guardrail spalled near column - 2-8LF						
Concrete requires repair		Stadium	4437	40	SF	3	$2,048	No
	Location Note:	Column No. 6L/6R						
	Requirement Note:	View Level guardrail spalled near column plus the face of the column has rebar ties starting to be exposed - 20LF						
Concrete requires repair		Stadium	4438	40	SF	3	$2,048	No
	Location Note:	Column No. 7L/7R						
	Requirement Note:	20LF of exposed ties						
Concrete requires repair		Stadium	4439	80	SF	3	$4,095	No
	Location Note:	Column No. 8L						
	Requirement Note:	Surface spalling cover at ties - 40LF						
Concrete requires repair		Stadium	4440	160	SF	3	$8,190	No
	Location Note:	Column No. 10L/10R						
	Requirement Note:	Surface spalling cover - 80LF						
Concrete requires repair		Stadium	4441	6	SF	3	$307	No
	Location Note:	Column No. 14L						
Concrete requires repair		Stadium	4442	6	SF	3	$307	No
	Location Note:	Column No. 15L						
Concrete requires repair		Stadium	4443	120	SF	3	$6,143	No
	Location Note:	Column No. 16L/16R						
	Requirement Note:	Ties spalling - 80LF x 18in						
Concrete requires repair		Stadium	4444	9	SF	3	$461	No
	Location Note:	Column No. 18L						
	Requirement Note:	Ties spalling						
Concrete requires repair		Stadium	4445	15	SF	3	$768	No
	Location Note:	Column No. 19L						
	Requirement Note:	Ties spalling - 10LF x 18in						

Structural

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Concrete requires repair	Stadium	4446	20	SF	3	$1,024	No
Requirement Note:	Spalling concrete at guard rail upper level of 1996 building.						
Concrete requires repair	Stadium	4447	100	SF	3	$5,119	No
Requirement Note:	Spalling concrete at guard rail upper level of 1996 building.						
Concrete requires repair	Stadium	4448	120	SF	3	$6,143	No
Location Note:	Column No. 23L						
Requirement Note:	2nd level and 3rd level concrete spalling at ties - 80LF x 18in						
Concrete requires repair	Stadium	4449	150	SF	3	$7,678	No
Location Note:	Column No. 28L/28R						
Requirement Note:	Spalling concrete - 100LF x 18in						
Concrete requires repair	Stadium	4450	80	SF	3	$4,095	No
Location Note:	Column No. 39L/39R						
Requirement Note:	Ties spalling concrete - 40LF						
Concrete requires repair	Stadium	4452	30	SF	3	$1,536	No
Location Note:	Column No. 40R						
Requirement Note:	Ties spalling concrete - 20LF x 18in						
	Sub Total for System		**64**			**$111,048**	

Exterior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Concrete require cleaning	Conveyance	4307	200	SF	2	$667	No
Location Note:	Ramp F						
The Exterior Requires Cleaning	Conveyance	4317	114	SF Wall	4	$285	No
Location Note:	Ramp L						
Requirement Note:	Glue on wall						
	Sub Total for System		**2**			**$952**	

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Carpet Flooring Is Damaged And Requires Replacement	Conveyance	3832	600	SF	2	$6,441	No
Location Note:	Ramp A						
Concrete requires repair	Conveyance	4302	500	SF	3	$25,594	No
Location Note:	Ramp C						
Concrete requires repair	Conveyance	4309	54	SF	3	$2,764	No
Location Note:	Ramp F						
Concrete requires repair	Conveyance	4310	14	SF	3	$717	No
Location Note:	Ramp H						
Concrete requires repair	Conveyance	4313	50	SF	3	$2,559	No
Location Note:	Ramp K						
Concrete requires repair	Conveyance	4316	30	SF	3	$1,536	No
Location Note:	Ramp L						
Concrete requires repair	Conveyance	4318	20	SF	3	$1,024	No
Location Note:	Ramp P						
Concrete requires repair	Conveyance	4663	25	SF	3	$1,280	No
Location Note:	Ramp C						
Requirement Note:	Spalled concrete @ base @ elevator 25 square feet per assessors notes						
Concrete requires repair	Conveyance	4697	8	SF	3	$410	No
Location Note:	Ramp H						
Requirement Note:	(Exposed rebar) at right side of verticaal offset in ramp panels 8 LF						
Concrete requires repair	Conveyance	4804	24	SF	3	$1,229	No
Location Note:	Ramp E						
Requirement Note:	Press level at right side has exposed rebar at upper level.						
Concrete requires repair	Conveyance	4806	64	SF	3	$3,276	No
Location Note:	Ramp H						
Requirement Note:	The top of the guardrail is cracked from pinch point bearing on adjacent rail.						
Concrete requires repair	Conveyance	4807	8	LF	3	$410	No
Location Note:	Ramp H						
Requirement Note:	Exposed rebar at upper left side of vertical offset in ramp panels						
The Concrete Flooring Is Damaged And Requires Replacement	Conveyance	4803	84	SF	3	$674	No
Location Note:	Ramp C						

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Concrete Flooring Is Damaged And Requires Replacement	Conveyance	4805	540	SF	3	$4,334	No
Location Note:	Ramp F						
Requirement Note:	First landing - left side of landing approximately 540SF has been patched with a thin epoxy coating and needs to be replaced.						
The Concrete Flooring Requires Repair or Repainting	Conveyance	4300	200	SF	4	$524	No
Location Note:	Ramp A						
The Concrete Flooring Requires Repair or Repainting	Conveyance	4304	200	SF	4	$524	No
Location Note:	Ramp E						
The Concrete Flooring Requires Repair or Repainting	Conveyance	4306	100	SF	4	$262	No
Location Note:	Ramp F						
	Sub Total for System		**17**			**$53,556**	

Electrical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Electrical Receptacles Are Inadequate And Require Replacement	Conveyance	4808	1	Ea.	2	$239	No
Location Note:	Ramp L						
Requirement Note:	Relocate receptacle to ring wall. Coordinate run overhead with eyebolts. Add glue						
The Electrical Receptacles Are Inadequate And Require Replacement	Conveyance	4809	1	Ea.	2	$239	No
Location Note:	Ramp P						
Requirement Note:	Relocate receptacle for use by vendors.						
	Sub Total for System		**2**			**$479**	

Plumbing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Non-Refrigerated Drinking Fountain is Damaged And Should Be Replaced	Conveyance	4696	1	Ea.	3	$3,076	No
Location Note:	Ramp E						
Requirement Note:	Water fountain pulled from wall - section 12 View Level -per assessors notes						
	Sub Total for System		**1**			**$3,076**	

Conveyances

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Elevator Cab And Or Controls Are Damaged Or Missing And Require Repair	Stadium	4857	4	Ea.	2	$171,001	No
Requirement Note:	Renovate elevators.						
	Sub Total for System		**1**			**$171,001**	
	Sub Total for Repair Conveyances - 2012		**87**			**$340,112**	

Repair Electrical Systems - 2012

Electrical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Pole Lighting Is Damaged And Should Be Repaired	Site Level	4689	53	Ea.	3	$105,372	No
Requirement Note:	For all poles 2 ring of further outside ring road replace the rusted hand hole covers per assessors notes						
Bus Duct has reached the end of its Service Life	Stadium	4682	3,600	LF	2	$221,132	No
Location Note:	Field Light Ring Bus Duct						
Requirement Note:	Replace three 1200ft, 1250A Bus Duct, 480/277						
Circuit Breaker - 225 Amp requires replacement	Stadium	4848	1	Ea.	2	$369	No
Requirement Note:	PC-6 "East Tunnel" circuit #2/0 wire not protected. Replace circuit breaker with 175A, 3P or replace feeder.						
Circuit Breaker - 225 Amp requires replacement	Stadium	4849	1	Ea.	2	$369	No
Requirement Note:	PC-4 panel 3N not protected. Replace CB with 200A, 3P						
Circuit Breaker - 225 Amp requires replacement	Stadium	4850	1	Ea.	2	$369	No
Requirement Note:	PC-4 New panel not labeled and feeder not protected. Replace CB with 40A, 3P						
Circuit Breaker - 225 Amp requires replacement	Stadium	4851	1	Ea.	2	$369	No
Requirement Note:	PC-4 feeder not protected. Replace CB with 20A						
Circuit Breaker - 225 Amp requires replacement	Stadium	4852	1	Ea.	2	$369	No
Requirement Note:	PC-4 panel 3E CB not working. Replace circuit breaker.						
Grounding needs minor repairs	Stadium	4680	1	Ea.	2	$309	No
Location Note:	PC-5						
Requirement Note:	Insufficient XF/Air Switch grounding. Repair ground						

Electrical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Grounding needs minor repairs	Stadium	4681	1	Ea.	2	$309	No
Location Note:	PC-2						
Requirement Note:	Insufficient ground for circuit C44A						
LC: The Electrical / Unit Substation / Unit Substations (Assume 480v) system is beyond its useful life.	Stadium	4840	1,200	Amps	2	$50,231	No
Requirement Note:	4 power centers for the parking lot lights are at end of life and need to be replaced. (12kV - 480/277V 150kVA)						
Panelboard - 200 Amp needs minor repairs	Stadium	4692	3	Ea.	2	$287	No
Requirement Note:	Place cover on done J-Boxes per assessors notes - pole XH3						
Panelboard - 200 Amp needs minor repairs	Stadium	4833	1	Ea.	2	$96	No
Requirement Note:	Provide panel cover for Panel AC						
Panelboard - 200 Amp needs minor repairs	Stadium	4834	1	Ea.	2	$96	No
Requirement Note:	Provide panel cover for Panel AL						
Panelboard - 200 Amp needs minor repairs	Stadium	4835	1	Ea.	2	$96	No
Requirement Note:	Provide panel cover for Panel BH						
Panelboard - 200 Amp needs minor repairs	Stadium	4836	1	Ea.	2	$96	No
Requirement Note:	Provide panel cover for Panel CF						
Panelboard - 200 Amp needs minor repairs	Stadium	4837	1	Ea.	2	$96	No
Requirement Note:	Provide panel cover for Panel CH						
Panelboard - 200 Amp needs minor repairs	Stadium	4838	1	Ea.	2	$96	No
Requirement Note:	Provide dead front cover for Panel CL						
Panelboard - 200 Amp needs minor repairs	Stadium	4839	42	Ea.	2	$4,011	No
Requirement Note:	Provide 42 blank covers for PC-6 panels						
Panelboard - 200 Amp needs minor repairs	Stadium	4853	1	Ea.	2	$96	No
Requirement Note:	Provide new panel cover for PC-4						
Safety switch requires replacement	Stadium	4854	1	Ea.	2	$11,339	No
Requirement Note:	Replace Air switch at PC-13						
Safety switch requires replacement	Stadium	4855	1	Ea.	2	$11,339	No
Requirement Note:	Replace air switch at PC-58						
The Electrical Receptacles Are Inadequate And More Are Needed	Stadium	4686	1	Ea.	2	$3,000	No
Requirement Note:	Existing feed for the "Game Face" booth near the security office are several extension cords passing through the building. Provide permanent feeder or a permanent receptacle adjacent to the booth.						
The Exterior Dry Type Transformer Is Damaged And Should Be Replaced	Stadium	4674	113	kVA	2	$22,859	No
Location Note:	Field Lights Zone A Light Ring						
Requirement Note:	Replace one 112.5KVA XF: 480-208/120v						
The Exterior Dry Type Transformer Is Damaged And Should Be Replaced	Stadium	4677	113	kVA	2	$22,859	No
Location Note:	Field Lights Zone B Light Ring						
Requirement Note:	XF B and BH are at end of life. Replace two 112.5kVA 480-208/120V including primary feeders for B						
The Exterior Dry Type Transformer Is Damaged And Should Be Replaced	Stadium	4678	113	kVA	2	$22,859	No
Location Note:	Field Lights Zone C Light Ring						
Requirement Note:	XF CC is at end of life. It has signs of overheating. Replace one 112.5kVA, 480-208/120V						
The Exterior Electrical Enclosure Is Damaged And Should Be Replaced	Stadium	4683	34	Ea.	2	$10,599	No
Location Note:	Field Light Ring						
Requirement Note:	Replace 34 2x3 NEMA 3R enclosures.						
The GFCI Electrical Receptacles Are Inadequate And More Are Needed	Stadium	4685	200	Ea.	2	$102,823	No
Requirement Note:	Exterior outlets need GFI and in-use weatherproof covers.						
The GFCI Electrical Receptacles Are Inadequate And More Are Needed	Stadium	4846	30	Ea.	2	$15,423	No
Requirement Note:	Provide permanent feeders to replace the extention cord feeders.						
The Mounted Building Lighting Is Damaged And Should Be Repaired	Stadium	4709	3,000	Ea.	2	$927,527	No
Requirement Note:	5 Years 3000 1 x 4 lenses per assessors notes						
The Panelboard Is Damaged And Should Be Replaced	Stadium	4673	400	Amps	2	$35,463	No
Location Note:	Field Lights Zone A Light Ring						
Requirement Note:	Panel AA oxidizing - end of life. 400A, 208/120V						

Electrical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Panelboard Is Damaged And Should Be Replaced	Stadium	4675	400	Amps	2	$35,463	No
Location Note:	Field Lights Zone A Light Ring						
Requirement Note:	Replace one 400A, 208/120V panel						
The Panelboard Is Damaged And Should Be Replaced	Stadium	4676	225	Amps	2	$19,948	No
Location Note:	Field Lights Zone A Light Ring						
Requirement Note:	Replace one 225A, 208/120V panel.						
The Panelboard Is Damaged And Should Be Replaced	Stadium	4679	100	Amps	2	$8,866	No
Requirement Note:	Panel CC is at end of life. Replace panel 100A, 480/277V						
The Panelboard Is Damaged And Should Be Replaced	Stadium	4684	20	Ea.	2	$158,273	No
Requirement Note:	Replace 20 Panels - 225A, 120/208V.						
	Sub Total for System		**34**			**$1,792,803**	
	Sub Total for Repair Electrical Systems - 2012		**34**			**$1,792,803**	

Repair Grease Traps - 2012

Plumbing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Repair Grease Trap	Stadium	4791	15	Ea.	2	$11,344	No
Location Note:	Grease Traps - Plaza & Basement						
Requirement Note:	5 year projection						
	Sub Total for System		**1**			**$11,344**	
	Sub Total for Repair Grease Traps - 2012		**1**			**$11,344**	

Repair Stadium Seats - 2012

Specialties

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Seat Spring requires repair	Stadium / Field Level / 016* - Seating 01	4493	11	Ea.	2	$315	No
Seat Spring requires repair	Stadium / Field Level / 017* - Seating 02	4494	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / Field Level / 018* - Seating 03	4495	12	Ea.	2	$344	No
Seat Spring requires repair	Stadium / Field Level / 019* - Seating 04	4497	10	Ea.	2	$287	No
Seat Spring requires repair	Stadium / Field Level / 020* - Seating 05	4498	17	Ea.	2	$487	No
Seat Spring requires repair	Stadium / Field Level / 021* - Seating 06	4499	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / Field Level / 022* - Seating 07	4501	21	Ea.	2	$602	No
Seat Spring requires repair	Stadium / Field Level / 023* - Seating 08	4502	24	Ea.	2	$688	No
Seat Spring requires repair	Stadium / Field Level / 024* - Seating 09	4504	13	Ea.	2	$372	No
Seat Spring requires repair	Stadium / Field Level / 025* - Seating 10	4506	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / Field Level / 026* - Seating 11	4507	11	Ea.	2	$315	No
Seat Spring requires repair	Stadium / Field Level / 027* - Seating 12	4508	11	Ea.	2	$315	No
Seat Spring requires repair	Stadium / Field Level / 028* - Seating 13	4509	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / Field Level / 029* - Seating 14	4510	12	Ea.	2	$344	No
Seat Spring requires repair	Stadium / Field Level / 030* - Seating 15	4511	10	Ea.	2	$287	No
Seat Spring requires repair	Stadium / Field Level / 031* - Seating 16	4512	9	Ea.	2	$258	No
Seat Spring requires repair	Stadium / Field Level / 032* - Seating 17	4513	9	Ea.	2	$258	No
Seat Spring requires repair	Stadium / Field Level / 033* - Seating 18	4514	8	Ea.	2	$229	No
Seat Spring requires repair	Stadium / Field Level / 034* - Seating 19	4519	8	Ea.	2	$229	No
Seat Spring requires repair	Stadium / Field Level / 046* - Seating 31	4521	10	Ea.	2	$287	No
Seat Spring requires repair	Stadium / Field Level / 047* - Seating 32	4522	13	Ea.	2	$372	No
Seat Spring requires repair	Stadium / Field Level / 048* - Seating 33	4524	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Field Level / 049* - Seating 34	4525	17	Ea.	2	$487	No
Seat Spring requires repair	Stadium / Field Level / 050* - Seating 35	4526	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Field Level / 051* - Seating 36	4527	16	Ea.	2	$458	No
Seat Spring requires repair	Stadium / Field Level / 052* - Seating 37	4528	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Field Level / 053* - Seating 38	4529	17	Ea.	2	$487	No
Seat Spring requires repair	Stadium / Field Level / 054* - Seating 39	4530	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Field Level / 055* - Seating 40	4531	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Field Level / 056* - Seating 41	4532	10	Ea.	2	$287	No
Seat Spring requires repair	Stadium / Field Level / 057* - Seating 42	4533	6	Ea.	2	$172	No
Seat Spring requires repair	Stadium / Field Level / 058* - Seating 43	4534	9	Ea.	2	$258	No
Seat Spring requires repair	Stadium / Field Level / 059* - Seating 44	4535	10	Ea.	2	$287	No
Seat Spring requires repair	Stadium / Field Level / 060* - Seating 45	4536	4	Ea.	2	$115	No
Seat Spring requires repair	Stadium / Field Level / 063* - Seating 56	4537	3	Ea.	2	$86	No
Seat Spring requires repair	Stadium / Field Level / 064* - Seating 57	4538	10	Ea.	2	$287	No

Specialties

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Seat Spring requires repair	Stadium / Field Level / 065* - Seating 58	4539	9	Ea.	2	$258	No
Seat Spring requires repair	Stadium / Field Level / Seating 00-Interior Circulation Area	4492	7	Ea.	2	$201	No
Seat Spring requires repair	Stadium / Plaza Level / 111* - Seating 01	4453	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 112* - Seating 02	4454	18	Ea.	2	$516	No
Seat Spring requires repair	Stadium / Plaza Level / 113* - Seating 03	4455	8	Ea.	2	$229	No
Seat Spring requires repair	Stadium / Plaza Level / 114* - Seating 04	4456	4	Ea.	2	$115	No
Seat Spring requires repair	Stadium / Plaza Level / 115* - Seating 05	4457	6	Ea.	2	$172	No
Seat Spring requires repair	Stadium / Plaza Level / 116* - Seating 06	4458	1	Ea.	2	$29	No
Seat Spring requires repair	Stadium / Plaza Level / 117* - Seating 07	4459	8	Ea.	2	$229	No
Seat Spring requires repair	Stadium / Plaza Level / 118* - Seating 08	4460	5	Ea.	2	$143	No
Seat Spring requires repair	Stadium / Plaza Level / 119* - Seating 09	4461	5	Ea.	2	$143	No
Seat Spring requires repair	Stadium / Plaza Level / 120* - Seating 10	4462	1	Ea.	2	$29	No
Seat Spring requires repair	Stadium / Plaza Level / 121* - Seating 11	4463	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 122* - Seating 12	4464	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / Plaza Level / 123* - Seating 13	4465	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 124* - Seating 14	4466	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / Plaza Level / 125* - Seating 15	4467	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 126* - Seating 16	4468	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 127* - Seating 17	4469	20	Ea.	2	$573	No
Seat Spring requires repair	Stadium / Plaza Level / 128* - Seating 18	4470	21	Ea.	2	$602	No
Seat Spring requires repair	Stadium / Plaza Level / 129* - Seating 19	4471	21	Ea.	2	$602	No
Seat Spring requires repair	Stadium / Plaza Level / 130* - Seating 20	4472	21	Ea.	2	$602	No
Seat Spring requires repair	Stadium / Plaza Level / 131* - Seating 21	4473	21	Ea.	2	$602	No
Seat Spring requires repair	Stadium / Plaza Level / 132* - Seating 22	4474	20	Ea.	2	$573	No
Seat Spring requires repair	Stadium / Plaza Level / 133* - Seating 23	4475	21	Ea.	2	$602	No
Seat Spring requires repair	Stadium / Plaza Level / 134* - Seating 24	4476	21	Ea.	2	$602	No
Seat Spring requires repair	Stadium / Plaza Level / 135* - Seating 25	4477	20	Ea.	2	$573	No
Seat Spring requires repair	Stadium / Plaza Level / 136* - Seating 26	4478	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 137* - Seating 27	4479	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 138* - Seating 28	4480	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 139* - Seating 29	4481	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 140* - Seating 30	4482	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 141* - Seating 31	4483	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 142* - Seating 32	4484	20	Ea.	2	$573	No
Seat Spring requires repair	Stadium / Plaza Level / 143* - Seating 33	4485	20	Ea.	2	$573	No
Seat Spring requires repair	Stadium / Plaza Level / 144* - Seating 34	4486	21	Ea.	2	$602	No
Seat Spring requires repair	Stadium / Plaza Level / 145* - Seating 35	4487	20	Ea.	2	$573	No
Seat Spring requires repair	Stadium / Plaza Level / 146* - Seating 36	4488	21	Ea.	2	$602	No
Seat Spring requires repair	Stadium / Plaza Level / 147* - Seating 37	4489	21	Ea.	2	$602	No
Seat Spring requires repair	Stadium / Plaza Level / 148* - Seating 38	4490	20	Ea.	2	$573	No
Seat Spring requires repair	Stadium / Plaza Level / 149* - Seating 39	4491	19	Ea.	2	$544	No
Seat Spring requires repair	Stadium / Plaza Level / 150* - Seating 40	4515	19	Ea.	2	$544	No
Seat Spring requires repair	Stadium / Plaza Level / 151* - Seating 41	4516	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / Plaza Level / 152* - Seating 42	4517	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / Plaza Level / 153* - Seating 43	4518	43	Ea.	2	$1,232	No
Seat Spring requires repair	Stadium / Plaza Level / 154* - Seating 44	4520	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / Plaza Level / 155* - Seating 45	4523	13	Ea.	2	$372	No
Seat Spring requires repair	Stadium / Plaza Level / 156* - Seating 46	4540	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / Plaza Level / 157* - Seating 47	4545	22	Ea.	2	$630	No
Seat Spring requires repair	Stadium / Plaza Level / 158* - Seating 48	4553	23	Ea.	2	$659	No
Seat Spring requires repair	Stadium / Plaza Level / 159* - Seating 49	4555	23	Ea.	2	$659	No
Seat Spring requires repair	Stadium / Plaza Level / 160* - Seating 50	4559	12	Ea.	2	$344	No
Seat Spring requires repair	Stadium / Plaza Level / 161* - Seating 51	4568	11	Ea.	2	$315	No
Seat Spring requires repair	Stadium / Plaza Level / 162* - Seating 52	4587	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / Plaza Level / 163* - Seating 53	4602	13	Ea.	2	$372	No
Seat Spring requires repair	Stadium / Plaza Level / 164* - Seating 54	4609	25	Ea.	2	$716	No
Seat Spring requires repair	Stadium / Plaza Level / 165* - Seating 55	4610	24	Ea.	2	$688	No
Seat Spring requires repair	Stadium / Plaza Level / 166* - Seating 56	4611	23	Ea.	2	$659	No
Seat Spring requires repair	Stadium / Plaza Level / 167* - Seating 57	4612	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 168* - Seating 58	4613	15	Ea.	2	$430	No
Seat Spring requires repair	Stadium / Plaza Level / 169* - Seating 59	4614	14	Ea.	2	$401	No

Specialties

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Seat Spring requires repair	Stadium / Plaza Level / 170* - Seating 60	4615	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / Plaza Level / 171* - Seating 61	4616	14	Ea.	2	$401	No
Seat Spring requires repair	Stadium / View Level / 517* - Seating 01	4373	1	Ea.	2	$29	No
	Location Note: section 01						
Seat Spring requires repair	Stadium / View Level / 518* - Seating 02	4372	1	Ea.	2	$29	No
	Location Note: section 02						
Seat Spring requires repair	Stadium / View Level / 519* - Seating 03	4371	11	Ea.	2	$315	No
	Location Note: section 03						
Seat Spring requires repair	Stadium / View Level / 520* - Seating 04	4368	8	Ea.	2	$229	No
	Location Note: section 04						
Seat Spring requires repair	Stadium / View Level / 521* - Seating 05	4366	7	Ea.	2	$201	No
	Location Note: section 05						
Seat Spring requires repair	Stadium / View Level / 522* - Seating 06	4365	6	Ea.	2	$172	No
	Location Note: section 06						
Seat Spring requires repair	Stadium / View Level / 523* - Seating 07	4364	5	Ea.	2	$143	No
	Location Note: section 07						
Seat Spring requires repair	Stadium / View Level / 524* - Seating 08	4363	12	Ea.	2	$344	No
	Location Note: section 08						
Seat Spring requires repair	Stadium / View Level / 525* - Seating 09	4362	5	Ea.	2	$143	No
	Location Note: section 09						
Seat Spring requires repair	Stadium / View Level / 526* - Seating 10	4361	6	Ea.	2	$172	No
	Location Note: section 10						
Seat Spring requires repair	Stadium / View Level / 527* - Seating 11	4360	4	Ea.	2	$115	No
	Location Note: section 11						
Seat Spring requires repair	Stadium / View Level / 528* - Seating 12	4358	3	Ea.	2	$86	No
	Location Note: section 12						
Seat Spring requires repair	Stadium / View Level / 530* - Seating 14	4355	5	Ea.	2	$143	No
	Location Note: section 14						
Seat Spring requires repair	Stadium / View Level / 531* - Seating 15	4352	8	Ea.	2	$229	No
	Location Note: section 15						
Seat Spring requires repair	Stadium / View Level / 532* - Seating 16	4350	4	Ea.	2	$115	No
	Location Note: section 16						
Seat Spring requires repair	Stadium / View Level / 533* - Seating 17	4348	7	Ea.	2	$201	No
	Location Note: section 17						
Seat Spring requires repair	Stadium / View Level / 534* - Seating 18	4347	3	Ea.	2	$86	No
	Location Note: section 18						
Seat Spring requires repair	Stadium / View Level / 535* - Seating 19	4346	5	Ea.	2	$143	No
	Location Note: section 19						
Seat Spring requires repair	Stadium / View Level / 536* - Seating 20	4345	5	Ea.	2	$143	No
	Location Note: section 20						
Seat Spring requires repair	Stadium / View Level / 537* - Seating 21	4343	5	Ea.	2	$143	No
	Location Note: Section 21						
Seat Spring requires repair	Stadium / View Level / 538* - Seating 22	4341	4	Ea.	2	$115	No
	Location Note: section 22						
Seat Spring requires repair	Stadium / View Level / 539* - Seating 23	4340	17	Ea.	2	$487	No
	Location Note: section 23						
Seat Spring requires repair	Stadium / View Level / 540* - Seating 24	4339	9	Ea.	2	$258	No
	Location Note: section 24						
Seat Spring requires repair	Stadium / View Level / 541* - Seating 25	4338	11	Ea.	2	$315	No
	Location Note: Section 25						
Seat Spring requires repair	Stadium / View Level / 542* - Seating 26	4337	7	Ea.	2	$201	No
	Location Note: section 26						
Seat Spring requires repair	Stadium / View Level / 543* - Seating 27	4335	7	Ea.	2	$201	No
	Location Note: section27						
Seat Spring requires repair	Stadium / View Level / 544* - Seating 28	4334	8	Ea.	2	$229	No
	Location Note: section 28						
Seat Spring requires repair	Stadium / View Level / 545* - Seating 29	4333	5	Ea.	2	$143	No
	Location Note: section 29						
Seat Spring requires repair	Stadium / View Level / 547* - Seating 31	4330	4	Ea.	2	$115	No
	Location Note: Section 31						
Seat Spring requires repair	Stadium / View Level / 548* - Seating 32	4328	11	Ea.	2	$315	No
	Location Note: section 32						

Specialties

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Seat Spring requires repair	Stadium / View Level / 549* - Seating 33	4327	10	Ea.	2	$287	No
Location Note:	section 33						
Seat Spring requires repair	Stadium / View Level / 550* - Seating 34	4326	18	Ea.	2	$516	No
Location Note:	Seciton 34						
Seat Spring requires repair	Stadium / View Level / 551* - Seating 35	4325	9	Ea.	2	$258	No
Location Note:	Section 35						
Seat Spring requires repair	Stadium / View Level / 552* - Seating 36	4324	9	Ea.	2	$258	No
Location Note:	Section 36						
Seat Spring requires repair	Stadium / View Level / 553* - Seating 37	4323	4	Ea.	2	$115	No
Location Note:	section 37						
Seat Spring requires repair	Stadium / View Level / 554* - Seating 38	4322	5	Ea.	2	$143	No
Location Note:	section 38						
Seat Spring requires repair	Stadium / View Level / 555* - Seating 39	4321	4	Ea.	2	$115	No
Location Note:	section 39						
Seat Spring requires repair	Stadium / View Level / 556* - Seating 40	4320	9	Ea.	2	$258	No
Location Note:	section 40						
Seat Spring requires repair	Stadium / View Level / 557* - Seating 41	4319	3	Ea.	2	$86	No
Location Note:	section 41						
Seat Spring requires repair	Stadium / View Level / 566* - Seating 54	4374	1	Ea.	2	$29	No
Location Note:	section 54						
	Sub Total for System		**139**			**$49,106**	
	Sub Total for Repair Stadium Seats - 2012		**139**			**$49,106**	

Repalace Stadium Seats - 2012

Specialties

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Seat is damaged and requires replacement	Stadium / Club Level / 201* - Seating 01	4541	189	Ea.	3	$18,050	No
Requirement Note:	replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 202* - Seating 02	4546	271	Ea.	3	$25,881	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 203* - Seating 03	4547	243	Ea.	3	$23,207	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 204* - Seating 04	4548	243	Ea.	3	$23,207	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 205* - Seating 05	4549	243	Ea.	3	$23,207	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 206* - Seating 06	4550	243	Ea.	3	$23,207	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 207* - Seating 07	4551	271	Ea.	3	$25,881	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 208* - Seating 08	4552	243	Ea.	3	$23,207	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 209* - Seating 09	4554	165	Ea.	3	$15,758	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 210* - Seating 10	4562	223	Ea.	3	$21,297	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 211* - Seating 11	4566	195	Ea.	3	$18,623	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 212* - Seating 12	4571	195	Ea.	3	$18,623	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 213* - Seating 13	4576	195	Ea.	3	$18,623	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 214* - Seating 14	4579	220	Ea.	3	$21,010	No
Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement	Stadium / Club Level / 215* - Seating 15	4584	79	Ea.	3	$7,545	No
Requirement Note:	Replace seat cushion						
Seat is damaged and requires replacement	Stadium / Club Level / 227* - Seating 27	4588	77	Ea.	3	$7,354	No
Requirement Note:	Replace seat cushions						

Specialties

Requirement		Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Seat is damaged and requires replacement		Stadium / Club Level / 226" - Seating 28	4589	220	Ea.	3	$21,010	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 229" - Seating 29	4590	195	Ea.	3	$18,623	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 230" - Seating 30	4591	195	Ea.	3	$18,623	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 231" - Seating 31	4592	195	Ea.	3	$18,623	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 232" - Seating 32	4593	263	Ea.	3	$25,117	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 233" - Seating 33	4594	235	Ea.	3	$22,443	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 234" - Seating 34	4595	243	Ea.	3	$23,207	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 235" - Seating 35	4596	271	Ea.	3	$25,881	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 236" - Seating 36	4597	243	Ea.	3	$23,207	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 237" - Seating 37	4598	243	Ea.	3	$23,207	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 238" - Seating 38	4599	243	Ea.	3	$23,207	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 239" - Seating 39	4600	194	Ea.	3	$18,527	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 240" - Seating 40	4601	221	Ea.	3	$21,106	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 241" - Seating 41	4603	189	Ea.	3	$18,050	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 242" - Seating 42	4604	184	Ea.	3	$17,572	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 243" - Seating 43	4605	184	Ea.	3	$17,572	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 244" - Seating 44	4606	177	Ea.	3	$16,904	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 245" - Seating 45	4607	52	Ea.	3	$4,966	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 254" - Seating 58	4608	52	Ea.	3	$4,966	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 255" - Seating 59	4617	175	Ea.	3	$16,713	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 256" - Seating 60	4618	184	Ea.	3	$17,572	No
	Requirement Note:	Replace seat cushions						
Seat is damaged and requires replacement		Stadium / Club Level / 257" - Seating 61	4619	184	Ea.	3	$17,572	No
	Requirement Note:	Replace seat cushion						
		Sub Total for System		**38**			**$729,334**	
		Sub Total for Repalace Stadium Seats - 2012		**38**			**$729,334**	

Replace Basement Cold Water Isolation Valves - 2012

Plumbing

Requirement		Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Valve (>3") requires replacement		Stadium	4785	15	Ea.	2	$60,328	No
	Location Note:	Cold Water Isolation Valves - Basement						
	Requirement Note:	5 year projection						
		Sub Total for System		**1**			**$60,328**	
		Sub Total for Replace Basement Cold Water Isolation Valves - 2012		**1**			**$60,328**	

Replace Basement Hot Water Expansion Bellows - 2012

Structural

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
2" Expansion Joint is damaged and requires replacement	Stadium	4786	15	EACH	3	$23,203	No
Location Note:	Hot Water Expansion Bellows - Basement						
Requirement Note:	5 year projection						
	Sub Total for System		**1**			**$23,203**	
	Sub Total for Replace Basement Hot Water Expansion Bellows - 2012		**1**			**$23,203**	

Replace CCTV System - 2012

Fire and Life Safety

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Digital recording security system requires replacement	Stadium	4825	1	Ea.	2	$300,000	No
Requirement Note:	System headend is old and needs to be replaced. Most stadium systems are recording at a minimum of 7 frames per second and at higher CIF rates. Recommend complete replacement of headend system and monitor consoles.						
Digital recording security system requires replacement	Stadium	4826	1	Ea.	2	$2,500,000	No
Requirement Note:	Quantity of CCTV cameras is substandard for stadium size. Recommend wholesale system replacement to include all IP based cameras and associated cabling infrastructure. Estimate 300 CCTV cameras, mix of PTZ and fixed, color and black and white.						
	Sub Total for System		**2**			**$2,800,000**	
	Sub Total for Replace CCTV System - 2012		**2**			**$2,800,000**	

Replace Expansion Joint - 2012

Structural

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Expansion Joint Cover Assemblies requires replacement	Stadium / View Level	4672	60	LF	2	$8,651	No
Requirement Note:	Section 34 expansion joint tripping hazard - replace cover per assessors notes						
1" Expansion Joint is damaged and requires replacement	Stadium / Field Level	4828	106,339	SF	3	$136,082	No
Requirement Note:	Replace the expansion joints throughout this level. Numbers given by the stadium were used for the cost estimation.						
1" Expansion Joint is damaged and requires replacement	Stadium / Plaza Level	4830	704,636	SF	3	$901,723	No
Requirement Note:	Replace the expansion joints throughout this level. Numbers given by the stadium were used for the cost estimation.						
1" Expansion Joint is damaged and requires replacement	Stadium / Club Level	4827	148,671	SF	3	$190,254	No
Requirement Note:	Replace the expansion joints throughout this level. Numbers given by the stadium were used for the cost estimation.						
6" Expansion Joint is damaged and requires replacement	Stadium / Club Level	4287	1,125	LF	3	$72,979	No
1" Expansion Joint is damaged and requires replacement	Stadium / Loge Level	4829	114,075	SF	3	$145,982	No
Requirement Note:	Replace the expansion joints throughout this level. Numbers given by the stadium were used for the cost estimation.						
6" Expansion Joint is damaged and requires replacement	Stadium / Loge Level	4291	1,200	LF	3	$77,816	No
1" Expansion Joint is damaged and requires replacement	Stadium / Press Level	4831	103,219	SF	3	$132,089	No
Requirement Note:	Replace the expansion joints throughout this level. Numbers given by the stadium were used for the cost estimation.						
6" Expansion Joint is damaged and requires replacement	Stadium / Press Level	4293	730	LF	3	$47,502	No
1" Expansion Joint is damaged and requires replacement	Stadium / View Level	4832	217,721	SF	3	$278,618	No
Requirement Note:	Replace the expansion joints throughout this level. Numbers given by the stadium were used for the cost estimation.						
6" Expansion Joint is damaged and requires replacement	Stadium / View Level	4297	1,575	LF	3	$102,002	No
	Sub Total for System		**11**			**$2,093,698**	
	Sub Total for Replace Expansion Joint - 2012		**11**			**$2,093,698**	

Replace Field Bleachers - 2012

Structural

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Structural Steel is missing and is needed	Stadium / Field Level	4800	200	LF	2	$33,515	No
Requirement Note:	Approximately 200LF of structural steel elements that have significant rust should be strengthened. Assume that C12x20.7 steel can be added to supplement what is already there. That is approx. 4500lbs of additional steel that needs to be welded in place.						
	Sub Total for System		**1**			**$33,515**	

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Stair Tread/Nosing requires replacement	Stadium / Field Level	4802	3,040	LF	2	$1,024,353	No
Requirement Note:	Stair nosing is a tripping hazard.						
Epoxy flooring requires replacement	Stadium / Field Level	4799	57,000	SF	4	$875,315	No
Requirement Note:	The entire upper surface of the steel bleacher sections should be sandblasted and recoated with epoxy paint. The lower plate surfaces are also rusted and should be cleaned and coated. There are approximately 28,500SF of bleacher area on each side of the s						
	Sub Total for System		**2**			**$1,899,668**	
	Sub Total for Replace Field Bleachers - 2012		**3**			**$1,933,183**	

Replace Pipework in Plumbing Warehouse - 2012

Plumbing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
LC: The Plumbing / Domestic Water Piping System system is beyond its useful life.	Stadium	4792	300	LF	2	$65,313	No
Location Note:	Plumbing Warehouse Area						
Requirement Note:	5 year projection						
	Sub Total for System		**1**			**$65,313**	
	Sub Total for Replace Pipework in Plumbing Warehouse - 2012		**1**			**$65,313**	

Replace Pipework in Press/Loge Suites - 2012

Plumbing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
LC: The Plumbing / Domestic Water Piping System system is beyond its useful life.	Stadium	4793	1,000	LF	2	$130,625	No
Location Note:	Plumbing in Press/Loge Suites						
Requirement Note:	5 year projection						
	Sub Total for System		**1**			**$130,625**	
	Sub Total for Replace Pipework in Press/Loge Suites - 2012		**1**			**$130,625**	

Replace Stadium Equipment - 2012

Equipment

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Equipment has passed its useful life and requires replacement.	Site Level	4630	2	Ea.	2	$40,000	No
Requirement Note:	Replace 2 Jacobson Triplex Mowers.						
Equipment has passed its useful life and requires replacement.	Site Level	4632	1	Ea.	2	$3,000	No
Requirement Note:	Replace 1 Jacobson Turf Cat Mower						
Equipment has passed its useful life and requires replacement.	Site Level	4634	2	Ea.	2	$60,000	No
Requirement Note:	Replace 2 John Deer Utility Tractors.						
Equipment has passed its useful life and requires replacement.	Site Level	4635	1	Ea.	2	$20,000	No
Requirement Note:	Replace 1 4ton Heavy Sod Roller						
Equipment has passed its useful life and requires replacement.	Site Level	4636	1	Ea.	2	$10,000	No
Requirement Note:	Replace 1 Turfco Pull Type Top Dresser						
Equipment has passed its useful life and requires replacement.	Site Level	4637	1	Ea.	2	$60,000	No
Requirement Note:	Replace 1 Loader/Backhoe						
Equipment has passed its useful life and requires replacement.	Site Level	4638	1	Ea.	2	$130,000	No
Requirement Note:	Replace 1 Parking Lot Street Sweeper						
Equipment has passed its useful life and requires replacement.	Site Level	4639	1	Ea.	2	$50,000	No
Requirement Note:	Replace 1 Ride-on sweeper						
Equipment has passed its useful life and requires replacement.	Site Level	4640	2	Ea.	2	$80,000	No
Requirement Note:	Replace 2 4ton Small Fork Lifts						
Equipment has passed its useful life and requires replacement.	Site Level	4641	1	Ea.	2	$30,000	No
Requirement Note:	Replace 1 3/4 ton pickup truck with liftgate						
Equipment has passed its useful life and requires replacement.	Site Level	4642	1	Ea.	2	$25,000	No
Requirement Note:	Replace 1 1/2 ton pickup truck						
Equipment has passed its useful life and requires replacement.	Site Level	4643	1	Ea.	2	$80,000	No
Requirement Note:	Replace 1 Volvo Trash Compactor Truck. It probably makes more sense to rent the truck with a trash service.						
Equipment has passed its useful life and requires replacement.	Site Level	4644	6	Ea.	2	$108,000	No
Requirement Note:	Replace 6 Flatbed Golf Carts						
Equipment has passed its useful life and requires replacement.	Site Level	4645	1	Ea.	2	$6,000	No
Requirement Note:	Replace 1 Paint Striping Machine						
Equipment has passed its useful life and requires replacement.	Site Level	4646	1	Ea.	2	$4,000	No
Requirement Note:	Replace 1 Concrete/Plaster Mixer						
	Sub Total for System		**15**			**$706,000**	
	Sub Total for Replace Stadium Equipment - 2012		**15**			**$706,000**	

Survey Audio System - 2012

Technology

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Audio-Visual System needs to be repaired	Stadium	4820	1	LS	3	$35,000	No
Requirement Note:	Lack of documentation is problematic. The city should have the existing sound system surveyed to obtain the latest as-built condition of the facility. Part numbers for installed major products should be obtained for future maintenance issues.						
	Sub Total for System		**1**			**$35,000**	
	Sub Total for Survey Audio System - 2012		**1**			**$35,000**	

Survey Cable Plant - 2012

Technology

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
IT Infrastructure/Telecom System needs to be repaired	Stadium	4813	1	LS	3	$75,000	No
Requirement Note:	The current status of the backbone system is that it is undocumented and the existing pathways are generally congested which exceeds the TIA recommended fill ratios for conduits and cable trays. Survey/Document the existing cable plant.						
	Sub Total for System		**1**			**$75,000**	
	Sub Total for Survey Cable Plant - 2012		**1**			**$75,000**	

Upgrade Video Cabling - 2012

Technology

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Audio-Visual System needs to be repaired	Stadium	4816	1	LS	3	$75,000	No
Requirement Note:	Internal RF system that provides video programming to the 450+ televisions around the stadium, needs an upgrade to accommodate the HD channels in the higher frequencies.						
IT Infrastructure/Telecom System needs to be replaced	Stadium	4818	1	LS	4	$125,000	No
Requirement Note:	It is recommended to consider the use of new cabletray that could be installed above the exterior walkways. Cable tray installation is suggested for all levels to facilitate installing or removing cables in the future.						
	Sub Total for System		**2**			**$200,000**	
	Sub Total for Upgrade Video Cabling - 2012		**2**			**$200,000**	

Renovate Clubs - 2013

Roofing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Skylight is Damaged and Requires Replacement	Clubs	4858	2	Ea.	2	$5,231	No
Location Note:	Club Lounge C						
Skylight is Damaged and Requires Replacement	Clubs	4859	2	Ea.	2	$5,212	No
Location Note:	Club Lounge D						
Skylight is Damaged and Requires Replacement	Clubs	4860	2	Ea.	2	$5,212	No
Location Note:	Club Lounge E						
Skylight is Damaged and Requires Replacement	Clubs	4861	2	Ea.	2	$5,212	No
Location Note:	Club Lounge F						
	Sub Total for System		**4**			**$20,867**	

Exterior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Exterior Metal Door Requires Repainting	Clubs	3811	1	Door	2	$765	No
Location Note:	Club Tower						
The Metal Exterior Door Is Damaged And Requires Replacement	Clubs	3810	2	Door	2	$7,535	No
Location Note:	Club Tower						
The Exterior Soffit Is Damaged And Requires Replacement	Clubs	3822	20	SF	3	$536	No
Location Note:	Club Lounge E						
Requirement Note:	Metal						
The Exterior Soffit Is Damaged And Requires Replacement	Clubs	3823	20	SF	3	$536	No
Location Note:	Club Lounge F						
Requirement Note:	Metal						
	Sub Total for System		**4**			**$9,372**	

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Base Nosing requires replacement	Clubs	3816	20	LF	2	$114	No
Location Note:	Club Tower						
The Carpet Flooring Is Damaged And Requires Replacement	Clubs	3829	3,500	SF	2	$37,572	No
Location Note:	Club Tower						

Interior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Ceramic Tile Flooring Is Damaged And Requires Replacement	Clubs	3817	120	SF	2	$2,214	No
Location Note:	Club Tower						
The Interior Door Hardware is Damaged and Requires Replacement	Clubs	3818	1	Ea.	2	$1,862	No
Location Note:	Club Tower						
The Vinyl Composition Tile Flooring Is Damaged And Requires Replacement	Clubs	3827	500	SF	2	$4,718	No
Location Note:	Club Tower						
The Vinyl Composition Tile Flooring Is Damaged And Requires Replacement	Clubs	3828	1,000	SF	2	$9,436	No
Location Note:	Club Tower						
Interior Gypboard Walls Require Repair	Clubs	3813	25	SF Wall	3	$238	No
Location Note:	Club Tower						
Interior Toilet Partition Require Repair Or Replacement	Clubs	3814	4	Ea.	3	$10,070	No
Location Note:	Club Tower						
The Gypboard Ceilings Are Damaged And Requires Repair	Clubs	3821	100	SF	3	$385	No
Location Note:	Club Lounge C						
The Gypboard Ceilings Are Damaged And Requires Repair	Clubs	3824	100	SF	3	$385	No
Location Note:	Club Lounge F						
The Stone/Quarry Flooring Is Damaged And Requires Replacement	Clubs	3826	12	SF	3	$503	No
Location Note:	Club Tower						
	Sub Total for System		**11**			**$67,498**	

Plumbing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Remodel Restroom	Clubs	3820	300	SF	2	$39,144	No
Location Note:	Club Tower						
Requirement Note:	Men's and Women's restroom need to be remodeled.						
	Sub Total for System		**1**			**$39,144**	
	Sub Total for Renovate Clubs - 2013		**20**			**$136,881**	

Repair Northeast Parking Area - 2013

Site

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Asphalt Coating requires replacement	Site Level	4542	148,000	SF	3	$173,988	No
Location Note:	Parking Lot A						
Asphalt Coating requires replacement	Site Level	4544	578,250	SF	3	$221,009	No
Location Note:	Parking Lot B						
Requirement Note:	Add overlay to 75% of Parking Lot B						
Asphalt Coating requires replacement	Site Level	4583	139,000	SF	3	$163,443	No
Location Note:	Parking Lot N						
Requirement Note:	Slurry seal Parking Lot N						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4543	430	CAR	3	$1,180,500	No
Location Note:	Parking Lot B						
Requirement Note:	Repair 2400LF of cracked asphalt and patch 25% of Parking Lot B						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4582	62	CAR	3	$170,212	No
Location Note:	Parking Lot N						
Requirement Note:	Repair 1,200LF of cracked asphalt and patch 20% of Parking Lot N						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4586	50	CAR	3	$137,267	No
Requirement Note:	Patch 15% of Parking Lot A and repair 1,000LF of cracked asphalt.						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4810	600	LF	3	$4,853	No
Location Note:	Parking B						
Requirement Note:	Add 600LF 6" AC berm at the exterior perimeter						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4811	1,000	LF	3	$8,088	No
Location Note:	Parking B						
Requirement Note:	Mission Gorge Creek berm needs to be repaired at NE and E perimeter to prevent flooding.						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4812	200	LF	3	$1,618	No
Location Note:	Parking B						
Requirement Note:	Remove and replace 200LF of 4' Valley Gutter.						

Site

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Fencing Is Damaged And Should Be Replaced (8' Chain Link Fence)	Site Level	4370	800	LF	3	$31,649	No
Location Note:	Parking Lot B						
Paving Requires Restriping	Site Level	4375	2,899	CAR	4	$570,108	No
Location Note:	Parking Lot B						
Paving Requires Restriping	Site Level	4382	532	CAR	4	$104,621	No
Location Note:	Parking Lot A						
Paving Requires Restriping	Site Level	4383	642	CAR	4	$126,254	No
Location Note:	Parking Lot N						
	Sub Total for System		**13**			**$2,893,609**	

Exterior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Handrails require replacement	Site Level	4393	230	LF	2	$25,195	No
Location Note:	Parking Lot N						
Requirement Note:	Modify handrails at accessible parking spaces by the stadium						
	Sub Total for System		**1**			**$25,195**	
	Sub Total for Repair Northeast Parking Area - 2013		**14**			**$2,918,803**	

Replace Building Controls - 2013

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium	4753	2	Ea.	3	$61,875	No
Location Note:	Building Controls						
Requirement Note:	5 year projection. Replace (E) pneumatic building management controls with DDC						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium	4754	2	Ea.	3	$48,125	No
Location Note:	Building Controls						
Requirement Note:	5 year projection. Replace (E) pneumatic building management controls with DDC						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium	4755	15	Ea.	3	$721,875	No
Location Note:	Building Controls						
Requirement Note:	5 year projection. Replace (E) pneumatic building management controls with DDC						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium	4756	10	Ea.	3	$206,250	No
Location Note:	Building Controls						
Requirement Note:	5 year projection. Replace (E) pneumatic building management controls with DDC						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium	4757	3	Ea.	3	$10,313	No
Location Note:	Building Controls						
Requirement Note:	5 year projection. Replace (E) pneumatic building management controls with DDC						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium	4758	30	Ea.	3	$206,250	No
Location Note:	Building Controls						
Requirement Note:	5 year projection. Replace (E) pneumatic building management controls with DDC						
	Sub Total for System		**6**			**$1,254,688**	
	Sub Total for Replace Building Controls - 2013		**6**			**$1,254,688**	

Replace Video Display System - 2013

Technology

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Audio-Visual System needs to be replaced	Stadium	4821	1	LS	3	$4,000,000	No
Requirement Note:	The Sony JumboTron is no longer supported and spare parts can be hard to come by. Recommend wholesale replacement. Includes replay, down, quarter, message board and game clock. Estimated 96ft x 120ft display area						
Audio-Visual System needs to be replaced	Stadium	4822	1	LS	3	$2,000,000	No
Requirement Note:	Replace Replay Video Board. Estimated 40ft x 40ft display area.						
Audio-Visual System needs to be replaced	Stadium	4823	1	LS	3	$3,600,000	No
Requirement Note:	Replace Ribbon Message Boards. Estimated 2ft x 1600ft display area.						
	Sub Total for System		**3**			**$9,600,000**	
	Sub Total for Replace Video Display System - 2013		**3**			**$9,600,000**	

Repair Northwest Parking Area - 2014

Site

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
The Parking Area Curb Ramp Does Not Meet Minimum Color Differential Requirements	Site Level	4386	1	Ea.	2	$124	No
Location Note:	Parking Lot E						
Asphalt Coating requires replacement	Site Level	4557	115,500	SF	3	$181,799	No
Location Note:	Parking Lot C						
Requirement Note:	Overlay and seal 75% of Parking Lot C						
Asphalt Coating requires replacement	Site Level	4560	710,500	SF	3	$271,747	No
Location Note:	Parking Lot D						
Requirement Note:	Add overlay to 70% of Parking Lot D						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4556	86	CAR	3	$236,100	No
Location Note:	Parking Lot C						
Requirement Note:	Repair 1500LF of cracked asphalt, patch 10% and replace 15% of Parking Lot C						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4558	677	CAR	3	$1,858,601	No
Location Note:	Parking Lot D						
Requirement Note:	Repair 8,000LF of cracked asphalt and path 30% of Parking Lot D						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4561	162	CAR	3	$444,746	No
Location Note:	Parking Lot E						
Requirement Note:	Repair 2,000LF of cracked asphalt and seal coat Parking Lot E. This area is used for event, team, staff and video truck parking. This also includes the west access ramp and loading dock.						
Paving Requires Restriping	Site Level	4379	3,861	CAR	4	$759,291	No
Location Note:	Parking Lot D						
Paving Requires Restriping	Site Level	4380	268	CAR	4	$52,704	No
Location Note:	Parking Lot E						
Paving Requires Restriping	Site Level	4381	667	CAR	4	$131,170	No
Location Note:	Parking Lot C						
	Sub Total for System		**9**			**$3,936,282**	

Specialties

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Seat Spring requires repair	Stadium / View Level / 546* - Seating 30	4331	2	Ea.	2	$57	No
Location Note:	section 30						
	Sub Total for System		**1**			**$57**	
	Sub Total for Repair Northwest Parking Area - 2014		**10**			**$3,936,340**	

Repair Southwest Parking Area - 2014

Site

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Asphalt Coating requires replacement	Site Level	4564	156,000	SF	3	$184,533	No
Location Note:	Parking Lot F						
Requirement Note:	Slurry seal Parking Lot F						
Asphalt Coating requires replacement	Site Level	4567	1,180,000	SF	3	$450,618	No
Location Note:	Parking Lot G						
Requirement Note:	Add overlay to 2/3 of Parking Lot G						
Asphalt Coating requires replacement	Site Level	4570	37,600	SF	3	$14,447	No
Location Note:	Parking Lot H						
Requirement Note:	Overlay asphalt paving						
Asphalt Coating requires replacement	Site Level	4573	70,000	SF	3	$82,249	No
Location Note:	Parking Lot J						
Requirement Note:	Slurry seal 40% of Parking Lot J						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4563	104	CAR	3	$285,516	No
Location Note:	Parking Lot F						
Requirement Note:	Repair 2,800LF of cracked asphalt and patch 30% of Parking Lot F						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4565	1,311	CAR	3	$3,599,152	No
Location Note:	Parking Lot G						
Requirement Note:	Repair 10,000LF of cracked asphalt and replace 1/3 of Parking Lot G						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4569	21	CAR	3	$57,652	No
Location Note:	Parking Lot H						
Requirement Note:	Patch 20% of Parking Lot H						

Site

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4572	234	CAR	3	$642,411	No
Location Note:	Parking Lot J						
Requirement Note:	Remove and replace 60% of Parking Lot J						
Paving Requires Restriping	Site Level	4378	3,902	CAR	4	$767,354	No
Location Note:	Parking Lot G						
Paving Requires Restriping	Site Level	4385	610	CAR	4	$119,961	No
Location Note:	Parking Lot F						
	Sub Total for System		**10**			**$6,203,894**	
	Sub Total for Repair Southwest Parking Area - 2014		**10**			**$6,203,894**	

Repair Ventilation Systems - 2014

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Test And Balancing Required	Stadium	4774	80,000	CFM	2	$220,000	No
Location Note:	Ventilation Systems						
Requirement Note:	5 year projection						
Duct Cleaning Required	Stadium	4775	80,000	CFM	4	$275,000	No
Location Note:	Ventilation Systems						
Requirement Note:	5 year projection						
	Sub Total for System		**2**			**$495,000**	
	Sub Total for Repair Ventilation Systems - 2014		**2**			**$495,000**	

Replace Stadium Equipment - 2014

Equipment

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Equipment has passed its useful life and requires replacement.	Site Level	4700	2	Ea.	2	$60,000	No
Requirement Note:	Replace two John Deer Utility Tractors						
Equipment has passed its useful life and requires replacement.	Site Level	4702	2	Ea.	2	$90,000	No
Requirement Note:	Replace two Tennant Floor Scrubbers						
Equipment has passed its useful life and requires replacement.	Site Level	4703	5	Ea.	2	$350,000	No
Requirement Note:	Replace five 8ton Heavy Fork Lifts						
Equipment has passed its useful life and requires replacement.	Site Level	4704	1	Ea.	2	$80,000	No
Requirement Note:	Replace one Trash Compactor						
Equipment has passed its useful life and requires replacement.	Site Level	4705	4	Ea.	2	$40,000	No
Requirement Note:	Replace four Golf Carts						
Equipment has passed its useful life and requires replacement.	Site Level	4706	5	Ea.	2	$25,000	No
Requirement Note:	Replace five Paint Spray Machines						
	Sub Total for System		**6**			**$645,000**	
	Sub Total for Replace Stadium Equipment - 2014		**6**			**$645,000**	

Repair Southeast Parking Area - 2015

Site

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Asphalt Coating requires replacement	Site Level	4575	89,000	SF	3	$105,447	No
Location Note:	Parking Lot K						
Requirement Note:	Slurry seal Parking Lot K						
Asphalt Coating requires replacement	Site Level	4578	122,000	SF	3	$143,408	No
Location Note:	Parking Lot L						
Requirement Note:	Slurry seal Parking Lot L. This includes the east access ramp.						
Asphalt Coating requires replacement	Site Level	4581	793,600	SF	3	$1,230,641	No
Location Note:	Parking Lot M						
Requirement Note:	Overlay and seal 80% of Parking Lot M						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4574	20	CAR	3	$54,907	No
Location Note:	Parking Lot K						
Requirement Note:	Repair 1,800LF of cracked asphalt and patch 10% of Parking Lot K						
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4577	41	CAR	3	$112,559	No
Location Note:	Parking Lot L						
Requirement Note:	Repair 2,000LF of cracked asphalt and patch 15% of Parking Lot L						

Site

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Asphalt Paving Is Damaged And Requires Replacement	Site Level	4580	441	CAR	3	$1,210,699	No
Location Note:	Parking Lot M						
Requirement Note:	Repair 8,000LF of cracked asphalt and patch 20% of Parking Lot M						
Fencing Is Damaged And Should Be Replaced (8' Chain Link Fence)	Site Level	4376	980	LF	3	$38,770	No
Location Note:	Parking Lot M						
Paving Requires Restriping	Site Level	4377	2,729	CAR	4	$536,676	No
Location Note:	Parking Lot M						
Paving Requires Restriping	Site Level	4384	389	CAR	4	$76,499	No
Location Note:	Parking Lot K						
	Sub Total for System		**9**			**$3,509,607**	

Exterior

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Handrails require replacement	Site Level	4398	220	LF	2	$24,099	No
Location Note:	Parking Lot K						
	Sub Total for System		**1**			**$24,099**	
	Sub Total for Repair Southeast Parking Area - 2015		**10**			**$3,533,707**	

Replace Electrical Systems - 2015

Electrical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
LC: The Electrical / Unit Substation / Unit Substations (Assume 480v) system is beyond its useful life.	Stadium	4841	1,600	Amps	2	$66,974	No
Requirement Note:	Good for 5 years. Replace at 10 years if budget allows. 700kVA, 1600A, 480/277V						
LC: The Electrical / Unit Substation / Unit Substations (Assume 480v) system is beyond its useful life.	Stadium	4842	1,600	Amps	2	$66,974	No
Requirement Note:	Good for 5 years. Replace at 10 years if budget allows. 500kVA, 1600A, 480/277V						
LC: The Electrical / Unit Substation / Unit Substations (Assume 480v) system is beyond its useful life.	Stadium	4843	6,400	Amps	2	$267,897	No
Requirement Note:	Good for 5 years. Replace all 4 at 10 years of budget allows. (4) 500kVA, 1600A, 480/277V						
LC: The Electrical / Unit Substation / Unit Substations (Assume 480v) system is beyond its useful life.	Stadium	4844	4,000	Amps	2	$167,436	No
Requirement Note:	Good for 5 years. Replace at 10 years if budget allows. 1000kVA, 4000A, 480/277V						
LC: The Electrical / Unit Substation / Unit Substations (Assume 480v) system is beyond its useful life.	Stadium	4845	8,000	Amps	2	$334,871	No
Requirement Note:	Good for 5 years. Replace at 10 years if budget allows. (4) 500/677kVA, 2000A, 120/208V						
LC: The Electrical / Unit Substation / Unit Substations (Assume 480v) system is beyond its useful life.	Stadium	4847	1,200	Amps	2	$50,231	No
Requirement Note:	Oil filled HV Switches and XFMR original installation switchboard shows deterioration. 10 year plan replace. (4) 150kVA, 12kV 480/277V						
The Mounted Building Lighting Is Missing And Needed	Stadium	4708	4,000	Ea.	2	$6,093,664	No
Requirement Note:	Install new 10 years (4000) 1 x 4 - per assessors notes						
	Sub Total for System		**7**			**$7,048,048**	
	Sub Total for Replace Electrical Systems - 2015		**7**			**$7,048,048**	

Replace Stadium Equipment - 2015

Equipment

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Equipment has passed its useful life and requires replacement.	Site Level	4701	1	Ea.	2	$24,000	No
Requirement Note:	Replace 1 Skip Loader						
	Sub Total for System		**1**			**$24,000**	
	Sub Total for Replace Stadium Equipment - 2015		**1**			**$24,000**	

Replace Plumbing System - 2016

Plumbing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
LC: The Plumbing / Domestic Water Piping System system is beyond its useful life.	Stadium	4794	1,351,200	SQFT	2	$12,076,350	No
Location Note:	Plumbing						
Requirement Note:	10 year projection. Replace all plumbing, including sanitary fixtures, floor drainage, waste, vent and domestic service pipework systems, domestic hot water heating equipment, natural gas systems, concessions plumbing provisions and roof drainage.						
	Sub Total for System		**1**			**$12,076,350**	
	Sub Total for Replace Plumbing System - 2016		**1**			**$12,076,350**	

Replace Stadium Equipment - 2016

Equipment

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Equipment has passed its useful life and requires replacement.	Site Level	4698	3	Ea.	2	$60,000	No
Requirement Note:	Replace three John Deer Triplex Mowers						
	Sub Total for System		**1**			**$60,000**	
	Sub Total for Replace Stadium Equipment - 2016		**1**			**$60,000**	

HVAC Control Replacement - 2017

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Loge Level / 323* - 44B/12	4789	1	EACH	3	$2,297	No
Requirement Note:	Assessors notes state that the controls will need to be replaced in less than 10 years						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Loge Level / 324* - 45A/12	4788	1	EACH	3	$2,297	No
Requirement Note:	Assessors notes state the controls will need to be replaced in less than 10 years						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 329* - 40B/8	4735	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 330* - 40A/9	4721	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 331* - 41B/12	4787	1	EACH	3	$2,297	No
Requirement Note:	Assessors notes state that the controls will need to be replaced in less than 10 years						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 332* - 41A/12	4782	1	EACH	3	$2,297	No
Requirement Note:	Assessors notes state the controls will need to be replaced in less than 10 years						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 333* - 42/30	4748	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 334* - 43/30	4719	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 335* - 44/30	4715	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 346* - 59/30	4713	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 347* - 60/30	4712	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 348* - 61/30	4711	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 349* - 1A/12	4752	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 351* - 2A/9	4759	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 352* - 2B/8	4761	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 353* - 3A/17	4762	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 354* - 3B/17	4764	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 357* - 5A/10	4765	1	Ea.	3	$2,297	No
Requirement Note:	Replace controls in 5 years per assessor's note.						

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 358" - 5B/10	4766	1	Ea.	3	$2,297	No
Requirement Note: Replace controls in 5 years per assessor's note.							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 359" - 6A/10	4768	1	Ea.	3	$2,297	No
Requirement Note: Replace controls in 5 years per assessor's note.							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 360" - 6B/10	4769	1	Ea.	3	$2,297	No
Requirement Note: Replace controls in 5 years per assessor's note.							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 361" - 8A/18	4770	1	Ea.	3	$2,297	No
Requirement Note: Replace controls in 5 years per assessor's note.							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 362" - 8B/18	4771	1	Ea.	3	$2,297	No
Requirement Note: Replace controls in 5 years per assessor's note.							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 363" - 9A/17	4773	1	Ea.	3	$2,297	No
Requirement Note: Replace controls in 5 years per assessor's note.							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 364" - 9B/17	4716	1	EACH	3	$2,297	No
Requirement Note: Assessors notes says to replace in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 365" - 10A/8	4722	1	EACH	3	$2,297	No
Requirement Note: Assessors notes states that the controls need to be replace in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 366" - 10B/8	4724	1	EACH	3	$2,297	No
Requirement Note: The assessors notes state the controls need to be replaced in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 369" - 12A/18	4727	1	EACH	3	$2,297	No
Requirement Note: Assessors notes state the controls need to replaced in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 370" - 12B/21	4729	1	EACH	3	$2,297	No
Requirement Note: Assessors notes state the controls need to be replaced in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 372" - 14A/9	4730	1	EACH	3	$2,297	No
Requirement Note: Assessors notes state that the controls need to be replace in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 373" - 14B/10	4731	1	EACH	3	$2,297	No
Requirement Note: Assessors notes state that the controls will need to be replaced in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 374" - 15A/12	4732	1	EACH	3	$2,297	No
Requirement Note: Assessors notes state that the controls will need to be replaced in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 375" - 15B/14	4733	1	EACH	3	$2,297	No
Requirement Note: Assessors notes state that the controls need to be replaced in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 377" - 17A/9	4734	1	Ea.	3	$2,297	No
Requirement Note: Assessors notes state that the controls will need to be replaced in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 378" - 17B/8	4741	1	Ea.	3	$2,297	No
Requirement Note: Assessors notes state that the controls need to be replaced in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 381" - 19A/14	4743	1	EACH	3	$2,297	No
Requirement Note: Assessors notes state that the controls need to be replaced in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 382" - 19B/14	4747	1	EACH	3	$2,297	No
Requirement Note: Assessors notes state that the controls will need to be replaced in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 383" - 20A/14	4749	1	EACH	3	$2,297	No
Requirement Note: Assessors notes state that the controls need to replaced in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 384" - 20B/14	4750	1	EACH	3	$2,297	No
Requirement Note: Assessors notes state that the controls will need to be replaced in less than 10 years							
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 385" - 21A/14	4751	1	EACH	3	$2,297	No
Requirement Note: Assessors notes state that the controls will need to be replaced in less than 10 years							

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 386* - 21B/14	4760	1	EACH	3	$2,297	No
Requirement Note:	Assessors notes state the controls will need to be replaced in less than 10 years						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 387* - 22A/14	4763	1	EACH	3	$2,297	No
Requirement Note:	Assessors notes state that the controls will need to be replaced in less than 10 years						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 389* - 23A/14	4767	1	EACH	3	$2,297	No
Requirement Note:	Assessors notes state that the controls will need to be replaced in less than 10 years						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 390* - 23B/15	4772	1	EACH	3	$2,297	No
Requirement Note:	Assessors notes state that the controls will need to be replaced in less than 10 years						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 394* - 25A/45	4776	1	EACH	3	$2,297	No
Requirement Note:	Assessors notes state that the controls will need to be replaced in less than 10 years						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 396* - Box 38 Radio	3996	150	SF	3	$358	No
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 397* - Box 37 Chargers Coaches	4000	150	SF	3	$358	No
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 399* - Box 35 Radio	4010	150	SF	3	$358	No
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 400* - Box 34 Visiting Coach	3956	150	SF	3	$358	No
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 404* - Box 25B City Box	4790	1	EACH	3	$2,297	No
Requirement Note:	Assessors notes state that the controls will need to be replaced in less than 10 years						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 407* - Box 28 T.V.	3933	150	SF	3	$358	No
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 408* - Box 29 T.V.	3939	150	SF	3	$358	No
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 410* - Box A General Manager	4016	1,200	SF	3	$2,860	No
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 411* - Box B Radio	3991	150	SF	3	$358	No
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium / Press Level / 412* - Box C Radio	3984	150	SF	3	$358	No
	Sub Total for System		**55**			**$111,404**	
	Sub Total for HVAC Control Replacement - 2017		**55**			**$111,404**	

Repair Basement Domestic Hot Water Storage Room - 2017

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Mechanical Insulation needs minor repairs	Stadium	4777	100	LF	2	$2,750	No
Location Note:	Basement Domestic Hot Water Storage Room						
Requirement Note:	5 year projection						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium	4778	4	Ea.	3	$27,500	No
Location Note:	Basement Domestic Hot Water Storage Room						
Requirement Note:	5 year projection. Pumps						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium	4779	3	Ea.	3	$10,313	No
Location Note:	Basement Domestic Hot Water Storage Room						
Requirement Note:	5 year projection. H/W tanks						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium	4780	2	Ea.	3	$20,625	No
Location Note:	Basement Domestic Hot Water Storage Room						
Requirement Note:	5 year projection. (Steam-water) heat exchangers						
	Sub Total for System		**4**			**$61,188**	
	Sub Total for Repair Basement Domestic Hot Water Storage Room - 2017		**4**			**$61,188**	

Replace Marquee Sign - 2017

Site

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Site Marquee Is Damaged And Requires Replacement	Site Level	4824	1	Ea.	3	$550,000	No
Requirement Note:	Replace marquee sign on Friars Road. Estimated 18ft x 24ft display area.						
	Sub Total for System		**1**			**$550,000**	
	Sub Total for Replace Marquee Sign - 2017		**1**			**$550,000**	

Replace Outer Circle Boiler Room - 2017

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
LC: The Mechanical / Boilers / Cast Iron - Steam system is beyond its useful life.	Stadium	4720	10,500	MBH	2	$649,688	No
Location Note:	Boiler Room (Outer Circle)						
Requirement Note:	10 year projection						
LC: The Mechanical / HVAC Piping / 2-Pipe Steam System (Hot) system is beyond its useful life.	Stadium	4723	329,281	SF	2	$1,358,284	No
Location Note:	Boiler Room (Outer Circle)						
Requirement Note:	10 year projection. Replace Piping.						
Test And Balancing Required	Stadium	4726	2,800	Hr.	2	$385,000	No
Location Note:	Boiler Room (Outer Circle)						
Requirement Note:	10 year projection						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium	4725	329,281	SF	3	$905,523	No
Location Note:	Boiler Room (Outer Circle)						
Requirement Note:	10 year projection						
	Sub Total for System		**4**			**$3,298,494**	

Plumbing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Selective Mechanical Demolition is needed	Stadium	4728	1	LS	4	$343,750	No
Location Note:	Boiler Room (Outer Circle)						
Requirement Note:	10 year projection						
	Sub Total for System		**1**			**$343,750**	
	Sub Total for Replace Outer Circle Boiler Room - 2017		**5**			**$3,642,244**	

Replace Outer Circle Chiller Compound - 2017

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
LC: The Mechanical / HVAC Piping / 2-Pipe Steam System (Hot) system is beyond its useful life.	Stadium	4742	113,651	SF	2	$781,351	No
Location Note:	Chiller Compound (Outer Circle)						
Requirement Note:	10 year projection						
Test And Balancing Required	Stadium	4745	750	Hr.	2	$103,125	No
Location Note:	Chiller Compound (Outer Circle)						
Requirement Note:	10 year projection						
The Exterior Chiller Is Damaged And Requires Replacement	Stadium	4740	200	TonAC	2	$314,531	No
Location Note:	Chiller Compound (Outer Circle)						
Requirement Note:	10 year projection						
Controls Are Inadequate And Should Be Replaced With DDC Controls	Stadium	4744	113,651	SF	3	$546,945	No
Location Note:	Chiller Compound (Outer Circle)						
Requirement Note:	10 year projection						
	Sub Total for System		**4**			**$1,745,952**	

Plumbing

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Selective Mechanical Demolition is needed	Stadium	4746	1	LS	4	$103,125	No
Location Note:	Chiller Compound (Outer Circle)						
Requirement Note:	10 year projection						
	Sub Total for System		**1**			**$103,125**	
	Sub Total for Replace Outer Circle Chiller Compound - 2017		**5**			**$1,849,077**	

Replace HVAC System - 2018

Mechanical

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Complete HVAC Systemwide Replacement	Stadium	4781	329,281	SF	2	$10,992,000	No
Location Note:	HVAC						
Requirement Note:	10 year projection						
	Sub Total for System		**1**			**$10,992,000**	
	Sub Total for Replace HVAC System - 2018		**1**			**$10,992,000**	

Replace Stadium Equipment - 2018

Equipment

Requirement	Location	ID	Qty	UoM	Priority	Repair Cost	WS&D
Equipment has passed its useful life and requires replacement.	Site Level	4699	2	Ea.	2	$10,000	No
Requirement Note:	Replace 2 Sod Cutters						
	Sub Total for System		**1**			**$10,000**	
	Sub Total for Replace Stadium Equipment - 2018		**1**			**$10,000**	
	Total (Present Value) for Qualcomm Stadium		**945**			**$79,786,725**	

Qualcomm Stadium Condition Assessment

Supporting Photos

AT&T Definity PBX

CATV Distribution System

Central Patch Facility in E-TV Room

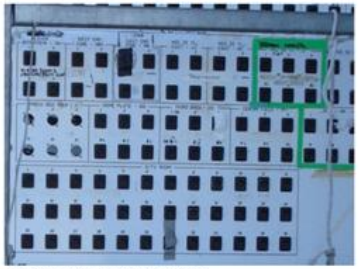
Central Riser in E-TV Room

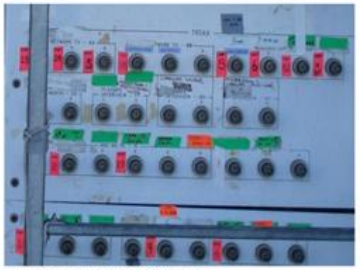
Communication Panel Field South DD (1)

Communication Panel Field South DD (2)


Communication Panel


Deteriorated Box


Enlarged Microphone Interface


Enlarged Triax Video Interface

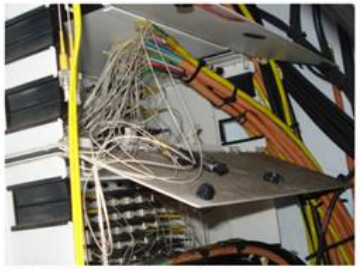

E-TV Room Distribution Rack (1)

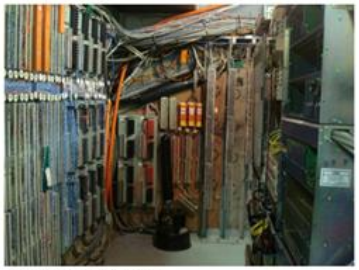

E-TV Room Distribution Rack (2)


E-TV Room Press Level Riser


Fiber Patch Panels Uncapped


Field Communication Box Third Base


Improper Fiber Termination Example


Main Point of Presence

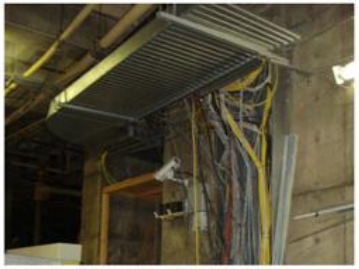

Microphone Interface Box

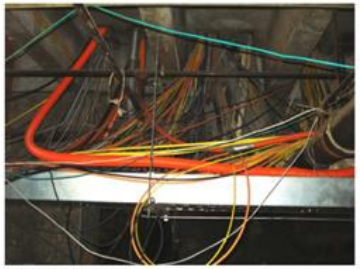
Network Truck Bay Audio Fiber Interface


New HD Flatscreen TVs in Suites


Older Model Monitors


Plaza Level Horizontal Tray System


Plaza Level Riser to Under-Slab Conduits


Plaza Level Riser

Replay Screen

Scoreboard


Security Monitors


Sound System Equipment Racks

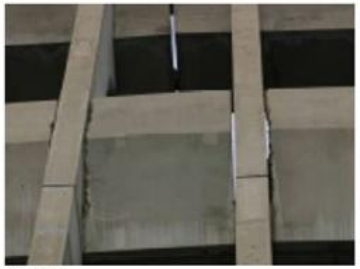

Triax Video Interface Box


Patched Concrete at Ramp


Patched Guardrail


Broken Concrete


Columns


Columns


Columns


Upward View of Column


Storage Area


Kitchen


Electrical Room


Receiving Area


Receiving Area


Outer Ring


Club Level Concourse


Club Lounge


Club Seating Area


Ramp


Club Lounge


Club Lounge

Press Area


Press Lounge


Press Cafe


Press Kitchen


Working Press


Press Box


Club Roof


Plaza Concourse


Club Lounge Exterior


Trolley Station


Trolley Station


Stadium Exterior


Loading Dock


Stadium Exterior


Scoreboard Mural


Suite Serving Area


Suite Serving Area


Suite - Interior Seating

Suite - Interior Seating

Suite - Interior Seating

Concessions

Concessions Interior

Concessions Interior

Concession

Club Lounge


Club Lounge


Stadium Field


Accessible Seating Area


Seating


Chargers Locker Room


Chargers Locker Room


Chargers Training Room


Chargers Training Room


Chargers Training Room


Showers

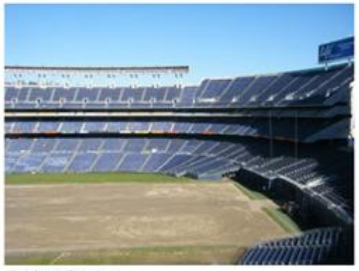

Chargers Locker Room


SDSU Locker Room


Officials Locker Room


Officials Locker Room


Stadium Seating


Stadium Seating


Concessions


Suite - Exterior Seating


Kitchen


Owner's Suite


Owner's Suite


Owner's Suite


Owner's Suite


Owner's Suite


Stadium

Qualcomm Stadium Facilities Condition Assessment

Appendix

Soft Cost Model Assumptions

Soft costs may be defined as necessary expenditures that are not directly related to the materials, equipment or labor required to construct or repair a facility. Examples include design and consultant fees, interim housing, moving or relocation costs as well as furniture and equipment. Soft costs are typically allocated as a percentage of the total construction budget. All conditions have been estimated using a default soft cost model. The actual assumptions are outlined at the end of the replacement cost model pages.

Facilities Condition Assessment

Qualcomm Stadium

AECOM + MAGELLAN CONSULTING

Facilities Condition Assessment

Qualcomm Stadium

		Soft Cost Assumptions					Factors
A	**Building Cost (i.e. R.S. Means)**			1 Sq.Ft. @ $100.00 /SqF =	$	100.00	
B	**Other Building Cost**	$ -	Or	0% of A	$	-	
C	**Building Cost**			$100.00 /SqFt	$	**100.00**	1.00
D	**Site Development**	$ -	Or	0% of C	$	-	
E	**Demolition**	$ -	Or	0% of C	$	-	
F	**Contractor GC, OH & Profit**						
F1	Subcontractor Overhead and Profit (included in Means Construction Cost)			0% of C	$	-	
F2	Subcontractor General Conditions			0.0% of C	$	-	
F3	Contractor Overhead and Profit			10.0% of C	$	10.00	
F4	Contractor General Conditions			12.0% of C	$	12.00	
G	**Inflation for Price Figures**			12 Months @ 0.0%	$	-	
H	**Regional Adjustment**			105.0%	$	5.00	
I	**Local Adjustment**			100.0%	$	-	
J	**Construction Contingency for Change Orders**			0.00% of C	$	-	
K	**Total Construction Cost**			$127.00 /SqFt	$	**127.00**	1.27
L	**Site Acquisition and Improvements**						
L1	Land	$ -	Or	43,560 Sq.Ft. @ $0.00 /SqFt	$	-	
L2	Associated Costs (Legal, Survey, Testing)	$ -		Lump Sum Amount	$	-	
L3	Infrastructure Improvements	$ -		Lump Sum Amount	$	-	
L4	Grounds Improvements (Playgrounds, Fencing, Parking)	$ -		Lump Sum Amount	$	-	
M	**Furniture, Fixtures, and Equipment**						
M1	Moveable Equipment	$ -	Or	0.00% of K	$	-	
M2	Technology Allowance	$ -	Or	0.00% of K	$	-	
M3	Supplies Allowance	$ -	Or	0.00% of K	$	-	
N	**Temporary Housing and Security**						
N1	Portable Buildings and Structures	$ -	Or	0.00% of K	$	-	
N2	Temporary Utilities	$ -	Or	0.00% of K	$	-	
N3	Move and Relocation Allowance	$ -	Or	0.00% of K	$	-	
N4	Safety and Security	$ -	Or	0.00% of K	$	-	
O	**Professional Design and Consulting Services**						
O1	Architect and Engineering Fees			15.0% of K	$	19.05	
O2	Other Design Consultants			2.0% of K	$	2.54	
O3	Program Management Fee			4.5% of K	$	5.72	
O4	Land Surveys			0.0% of K	$	-	
O5	Geotechnical Surveys			0.0% of K	$	-	
O6	Soil Bearings and Phase I Environmental			0.0% of K	$	-	
O7	Material Testing			0.30% of K	$	0.38	
O8	Building Permit/Review/Inspection Fees			3.30% of K	$	4.19	
P	**Total Project Budget**			$158.88 /SqFt	$	**158.88**	1.59
Q	**Contingency**						
Q1	Bid Contingency			5.0% of P	$	7.94	
Q2	Project Contingency			5.0% of P	$	7.94	
Q3	Program Contingency			5.0% of P	$	7.94	
Q4	Hazardous Material Contingency			0.0% of P	$	-	
Q5	ADA Contingency			0.0% of P	$	-	
		Subtotal		**15.0%**			
R	**Administration and Security Expense**						
R1	Management G&A Expense			2.40% of P	$	3.81	
R2	Printing - Bid Documents			0.30% of P	$	0.48	
R3	Advertising for Bids			0.10% of P	$	0.16	
R4	Builders Risk Insurance			0.20% of P	$	0.32	
R5	Bond Fees			2.00% of P	$	3.18	
S	**Escalation to Midpoint of Construction**			36 Months @ 0.0%	$	-	
T	**Total Program Management Budget**			$190.65 /SqFt	$	**190.65**	1.91

Facilities Condition Assessment

Qualcomm Stadium

AECOM + MAGELLAN CONSULTING

AECOM

Project No. 60190822

(Qualcomm Stadium ASCE 31-03 Tier 1 Assessment)

Structural Engineering

Calculation Book

Prepared by: ..... Approved by: .....

David Kilpatrick SE

1-25-11

PAUL ALVES, PE

Rev No	Comments	Approved	Date
0			

AECOM

Table of Contents

Structural Engineering Calculation Book

Client	Project Title	Project Number	Department:	Page 1 of 1
City of San Diego	Qualcomm ASCE 31-03 Tier 1 Assessment	60190822	Structural	

By Initialing the boxes below, this indicates that the Calculations have been reviewed and checked in accordance with AECOM Design Excellence Program DP 4-2, Preparation and Review of Calculations

Department Manager:	Shafiq Alam	Checker/Reviewer:		☐ Independent Review Required

Design Level	☐ Concept	☐ Schematic	☐ Preliminary Design	☐ Design Development	☐ 30% CD	☐ 60% CD	☐ 90% CD	☐ 100% CD
By/Date	/	/	/	/	/	/	/	/

Section #	Calculation Title	Made By	Date	Dept Checked By	Date	Independent Review By	Date	Comments
1	Executive Summary	DK		[illegible]	01-26-11			
2	Estimate of Seismic Demand and Checklist Selection Criteria							
3	Geologic Site Checklist							
4	Main Stadium Seating Section Assessment (Original Construction)							
5	Circular Ramps (Original Construction)							
6	Elevator Towers (Original Construction)							
7	ESCALATOR STRUCT. ORIGINAL CONSTRUCTION							
8	NEWER ELEMENTS BUILT BTW 1966-1996							
9	PERIMETER BUILDING							
10	REF DWGS USED IN EVALUATION							

AECOM

Calculation Index — Section 1.0 Executive Summary

Client	Project Title	Project Number	Department:	Page 1 of 1
City of San Diego	Qualcomm Stadium ASCE 31-03 Tier 1 Assessment	60190822	Structural	

Calculation Number	Calculation Title	Made By	Date	Comments
Pg 1 → 4	EXECUTIVE SUMMARY	EK	1/25/11	PAGE 4 HAS MAJOR FINDINGS

Executive Summary

In order to quickly review the basic structural systems we utilized ASCE Standard 31-03 "Seismic Evaluation of Existing Buildings". These provisions allow for a rapid evaluation of the structure for one of two building performance levels, IO (Immediate Occupancy) or LS (Life Safety). We utilized the LS provisions understanding that the IO level of performance is typically used for Fire Stations, and other emergency response type facilities, and LS is used for all others. We limited our review to a Tier 1 evaluation. This level of evaluation involves reviewing a set of system check lists and determining whether the facility is compliant [C] or non-compliant [NC]. Tier 2 evaluations involve less conservative but more detailed calculations for elements that were found to be NC in the initial review. We did not proceed with Tier 2 calculations.

ASCE31-03 establishes review requirements based on the age of a building and what building code was originally used during its design. Table 3-1 identifies Benchmark Buildings, or buildings that based on their age and code automatically satisfy the LS provisions included in the standard. Based on this table, all of the new stadium construction areas designed by Leo A Daly in 1996 fall within the Benchmark Building category and satisfy the LS provisions. These facilities were excluded from our review. All of the building elements constructed in 1966, and not subsequently modified during one of the stadium modifications required a Tier 1 review. These include the main stadium seating sections between grid lines 42 and 59, the elevator tower structures, the escalator tower structures, the spiral ramp structures and the exterior ring structures.

Main Stadium Seating Area

The transverse framing direction uses a cast in place moment frame system, (although it behaves more as a shear-wall system). The following NC items were identified:

1) Soft Story (stiffness of a story is less than 70% of the story stiffness above or below it).
2) Column shear quick check. (average column shear is > 100 psi or 2(sqrt of f'c).
3) Column axial load > .1 f'c.
4) No shear failures in framing elements. (A component must be able to resist in shear the shear due to its moment capacity at each end of the element.)
5) Column bar splices are less than 35 d_b. (d_b=reinforcing bar diameter)
6) Column tie spacing is too large.

The longitudinal framing direction uses a cast in place shear-wall system. The following NC items were identified:

7) Wall quick shear check.

In addition to the seating area, the lighting ring was checked for shear and bending on the existing column elements.

8) Weak axis bending capacity of the Lighting Ring support columns does not appear to be adequate.

9) The mass at the upper level is more than 50% greater than the level below it. 193.3 kips vs 103.3 kips.

Item 1 is not considered to be an issue for this facility. The stiffness and strength of the moment frame elements increase from the top of the building to the foundation level and this is consistent with the shear demand increasing as we move down the building.

Item 2 is a problem area. It highlights the fact that the main column elements are too short. They are 6'-1" in length and 1'-4" wide. In the newer stadium sections designed in 1996, these column or wall elements have been supplemented with additional walls, or have much longer walls. Refer to original drawing S-502 and for the modified areas, 1996 drawing 1S3.02.

Items 3 is related to item 2 above, size of the older columns is too small for both the axial load demand and the shear.

Item 4 really relates to moment frame beams and these all appear to be slender and long, therefore the shear capacity for these elements will be adequate. When this criteria is applied to the 6'-1" column section we find that they are stronger in bending than in shear. However, we found that the columns actually act more as a shear-wall in the current arrangement, so this check is too conservative. The walls still have issues noted above and further Tier 2 evaluations are recommended.

Item 5 is related to the moment frame column lap lengths. The standard lap lengths defined on the standard details for the project used 30 d_b in place of 35 d_b noted in the check sheet. Not having adequate lap lengths may reduce the moment capacities for the columns. The tall slender columns do not carry significant bending moments due to their relative flexibility vs the shorter and deeper primary load columns. The more heavily loaded short and deep columns mentioned in item 1 have #11 and #18 reinforcing steel. Lap lengths are only an issue for the #11 bars, as the original drawings indicated that #14 to #18 reinforcing steel required mechanical couplers for splicing. The #11 bars are not the most heavily load reinforcing in the columns so it may not be a problem. Additional Tier 2 review may help to eliminate this as a concern.

Item 6 relates to column tie spacing. While the beam column joint areas have tight tie spacing, the tie spacing in other sections is too wide. Wide tie spacing can significantly reduce the axial load capacity of the columns by not providing enough confinement. This issue is most pronounced in the tall slender exterior columns.

Item 7 refers to the shear stress levels in the shear walls. The most heavily loaded shear-wall had a shear stress level of 116 psi, while the quick check criteria limited it to 109.5 psi. This issue can probably be resolved by providing additional Tier 2 level calculations.

Item 8 is based on a quick moment capacity vs demand check done for the lighting support columns. The columns are adequate for bending and shear in their strong direction, (bending inward towards the field or outward). In the direction parallel to the precast light supports at the top of the columns, the columns are only 1'-4" wide, yet they are approximately 30' tall from the upper bleacher section to the

center of the pre-cast box sections. The box sections do not act as a moment frame beam at the top of the column, therefore all of the loading is taken in weak axis bending on these thin columns cantilevering up from the bleacher section below. Based on Tier 1 level calculations they appear to be overstressed in bending by approximately 90%. We did not evaluate the deflection of the columns, however the lighting elements are close to each other and do not appear to be separated by a large enough space to allow the lighting elements to move independently from each other. The gap is one to four inches as shown on S-405. This may cause them to impact in a large seismic event. Impacts such as this can cause very high localized accelerations and damage to the elements that impact each other.

Item 9. This check is related to a concern stemming from higher mode effects when an intermediate floor is heavier than the floors above or below it. We do not have this, we have the largest mass at the upper floor, so the first mode assumption in the static analysis provisions of the code is applicable.

Spiral Ramp Structures

There were no non-conforming areas found in the ramp structures.

Elevator Towers

There were no non-conforming areas found in the elevator towers, however the overturning moment capacity of the tower is very close to the demand. The issue splice length issue mentioned for the main stadium seating section is also a concern for these cantilever column elements that resist overturning with the longitudinal wall steel. A more detailed Tier 2 type review may eliminate this as an issue.

Escalators

The escalator structures are very stiff in the longitudinal direction, while the transverse direction consists of a flexible moment frame system. The following NC items were observed:

1) Clear distance to adjacent structures must be greater than 4% of the height of the shorter building for LS.
2) No shear failures in framing members based on developing their end moment capacities.
3) Rebar splice length is less than $30d_b$.
4) Column tie spacing
5) Beam stirrup spacing
6) Joint Reinforcing

Item number 1 relates to the transverse movement of the escalator structures at the top of the escalator. The escalator is approximately 55 feet tall, therefore 4% of 55 feet is 26.4 inches. The precast guardrails at this level are in very close proximity to the walls of the escalator and do not allow for this much deflection to occur.

Item 2 involves the 24 inch deep moment frame beam that spans between the support columns at each of the escalator support slabs. This beam is approximately 6% overstressed in shear, based on this Tier 1 quick calc. A more detailed Tier 2 evaluation may eliminate this issue.

Item 3 is the same issue as in the main structure and elevator towers.

Item 4 the ties in the columns are spaced greater than $d_b/4$ throughout their length and $d_b/8$ at suspected plastic hinge locations.

Item 5 the beam stirrups in the plastic hinge locations are spaced further than $d_b/4$.

Item 6, column ties do not continue through the beam column joint region.

Exterior Perimeter Structures

There were no NC items found for the perimeter structures. Small single story pre-cast concrete shear wall buildings, with metal decking.

Major Findings

The most important issues found during this evaluation are:

A) Main Stadium Seating column shear and axial load limitations for the 6'-1" long walls/columns.
B) Inadequate moment capacity for weak axis bending in the stadium lighting ring support columns, and inadequate space between adjacent precast light support boxes.
C) Column steel lap length and tie spacing limitations for the main stadium support columns.

AECOM

Calculation Index — Section 2.0

Client	Project Title	Project Number	Department:	Page 1 of 1
City of San Diego	Qualcomm Stadium ASCE 31-03 Tier 1 Assessment	60190822	Structural	

Calculation Number	Calculation Title	Made By	Date	Comments
2-1	USGS SITE EVAL.	DK	1-6-11	$V_{BASE} = .853W$

AECOM

JOB TITLE QUALCOMM
JOB NO. 60190822 CALCULATION NO.
ORIGINATOR D. KILPATRICK DATE 1-5-11
REVIEWER TV DATE 1-20-11
SCALE SHEET NO. 2-1 OF

ESTABLISH SEISMIC DEMAND -

N 32° 46' 59.51" (32.783197)
W -117° 07' 10.52 (117.119589)

MAIN SEATING STRUCTURE

Project Name = Qualcomm Stadium
Date = Wed Jan 05 12:55:14 PST 2011

Conterminous 48 States
2005 ASCE 7 Standard
Latitude = 32.783197
Longitude = -117.119589
Spectral Response Accelerations Ss and S1
Ss and S1 = Mapped Spectral Acceleration Values
Site Class B - Fa = 1.0 ,Fv = 1.0
Data are based on a 0.009999999776482582 deg grid spacing

Period (sec)	Sa (g)	
0.2	1.280	(Ss, Site Class B)
1.0	0.471	(S1, Site Class B)

Conterminous 48 States
2005 ASCE 7 Standard
Latitude = 32.783197
Longitude = -117.119589
Spectral Response Accelerations SMs and SM1
SMs = Fa x Ss and SM1 = Fv x S1
Site Class D - Fa = 1.0 ,Fv = 1.529

Period (sec)	Sa (g)	
0.2	1.280	(SMs, Site Class D)
1.0	0.720	(SM1, Site Class D)

Conterminous 48 States
2005 ASCE 7 Standard
Latitude = 32.783197
Longitude = -117.119589
Design Spectral Response Accelerations SDs and SD1
SDs = 2/3 x SMs and SD1 = 2/3 x SM1
Site Class D - Fa = 1.0 ,Fv = 1.529

Period (sec)	Sa (g)	
0.2	0.853	(SDs, Site Class D)
1.0	0.480	(SD1, Site Class D)

$S_a = \frac{S_{D1}}{T}$ BUT NEED NOT EXCEED S_{DS}

THE BUILDINGS PERIOD WILL BE LESS THAN 1.0 SECOND
∴ USE S_{DS}

$T = .02(75^{FT})^{.75} = .51$ SEC (.75 SEC TRANS. CONC. MOM. FRAME)

$V = CS_aW$ OR $CS_{DS}W$

$C = 1.0$ [4-STORY SHEARWALL BUILDING]

∴

$V = .853W$

SEISMICITY IS "HIGH"

$S_{DS} \geq .5g$

$S_{D1} \geq .2g$

Table 3-2. Checklists Required for a Tier 1 Evaluation

Level of Seismicity[1]	Level of Performance[2]	Required Checklists[3]: Level of Low Seismicity (Sec. 3.6)	Basic Structural (Sec. 3.7)	Supplemental Structural (Sec. 3.7)	Geologic Site Hazard and Foundation (Sec. 3.8)	Basic Nonstructural (Sec. 3.9.1)	Intermediate Nonstructural (Sec. 3.9.2)	Supplemental Nonstructural (Sec. 3.9.3)
Low	LS	▶						
	IO		▶		▶	▶		
Moderate	LS		▶		▶	▶		
	IO		▶	▶	▶	▶	▶	
High	LS		▶	▶	▶	▶	▶	
	IO		▶	▶	▶	▶	▶	▶

[1] A checkmark (▶) designates the checklist that must be completed for a Tier 1 Evaluation as a function of the level of seismicity and level of performance.
[2] LS = Life Safety; IO = Immediate Occupancy (defined in Section 2.4).
[3] Defined in Section 2.5.

CHECKING FOR LIFE SAFETY

Grid: 10x10 = 1"

AECOM

Calculation Index — Section 3.0

Client	Project Title	Project Number	Department:	Page 1 of 1
City of San Diego	Qualcomm Stadium ASCE 31-03 Tier 1 Assessment	60190822	Structural	

Calculation Number	Calculation Title	Made By	Date	Comments
	GEOLOGIC / UST	DK	1/26/11	NO NC ITEMS RELATED TO GEOLOGY

GEOLOGIC CHECK LIST

3.8 Geologic Site Hazards and Foundations Checklist

This Geologic Site Hazards and Foundations Checklist shall be completed where required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked Compliant (C), Non-compliant (NC), or Not Applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 Evaluation procedure; corresponding section numbers are in parentheses following each evaluation statement.

Geologic Site Hazards

The following statements shall be completed for buildings in levels of high or moderate seismicity.

(C) NC N/A LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance shall not exist in the foundation soils at depths within 50 feet under the building for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.7.1.1)

(C) NC N/A SLOPE FAILURE: The building site shall be sufficiently remote from potential earthquake-induced slope failures or rockfalls to be unaffected by such failures or shall be capable of accommodating any predicted movements without failure. (Tier 2: Sec. 4.7.1.2)

(C) NC N/A SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site is not anticipated. (Tier 2: Sec. 4.7.1.3)

Condition of Foundations

The following statement shall be completed for all Tier 1 building evaluations.

(C) NC N/A FOUNDATION PERFORMANCE: There shall be no evidence of excessive foundation movement such as settlement or heave that would affect the integrity or strength of the structure. (Tier 2: Sec. 4.7.2.1) NEW STADIUM SECTION ON SPREAD FTGS HAS SETTLED UNIFORMLY

The following statement shall be completed for buildings in levels of high or moderate seismicity being evaluated to the Immediate Occupancy Performance Level.

(C) NC N/A DETERIORATION: There shall not be evidence that foundation elements have deteriorated due to corrosion, sulfate attack, material breakdown, or other reasons in a manner that would affect the integrity or strength of the structure. (Tier 2: Sec. 4.7.2.2)

Capacity of Foundations

The following statement shall be completed for all Tier 1 building evaluations.

C NC (N/A) POLE FOUNDATIONS: Pole foundations shall have a minimum embedment depth of 4 feet for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.7.3.1)

The following statements shall be completed for buildings in levels of moderate seismicity being evaluated to the Immediate Occupancy Performance Level and for buildings in levels of high seismicity.

(C) NC N/A OVERTURNING: The ratio of the horizontal dimension of the lateral-force-resisting system at the foundation level to the building height (base/height) shall be greater than $0.6S_a$. (Tier 2: Sec. 4.7.3.2) .6(.953)78FT = 38FT < 41FT

C NC (N/A) TIES BETWEEN FOUNDATION ELEMENTS: The foundation shall have ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Class A, B, or C. (Section 3.5.2.3.1, Tier 2: Sec. 4.7.3.3)

C NC (N/A) DEEP FOUNDATIONS: Piles and piers shall be capable of transferring the lateral forces between the structure and the soil. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.7.3.4) LS ✓

C NC (N/A) SLOPING SITES: The difference in foundation embedment depth from one side of the building to another shall not exceed one story in height. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.7.3.5) LS ✓

AECOM

Calculation Index — Section 4.0

Client	Project Title	Project Number	Department:	Page 1 of 1
City of San Diego	Qualcomm Stadium ASCE 31-03 Tier 1 Assessment	60190822	Structural	

Calculation Number	Calculation Title	Made By	Date	Comments
33 PGS	MAIN STADIUM SEATING CHK	DK	1/20/11	1966 SEATING AREA

MAIN STADIUM SEATING STRUCT

CAST IN PLACE RIGID FRAMES W/ CAST IN PLACE SHEARWALLS — SYSTEMS ARE NOT II & ⊥

CHK LIST # 7.7.9 CONC SHEARWALLS W/ STIFF DIA.
7.7.8 CONC MOMENT FRAMES

3.7.8 Basic Structural Checklist for Building Type C1: Concrete Moment Frames — TRANS DIR.

This Basic Structural Checklist shall be completed where required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked Compliant (C), Non-compliant (NC), or Not Applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 Evaluation procedure; corresponding section numbers are in parentheses following each evaluation statement.

C3.7.8 Basic Structural Checklist for Building Type C1

These buildings consist of a frame assembly of cast-in-place concrete beams and columns. Floor and roof framing consists of cast-in-place concrete slabs, concrete beams, one-way joists, two-way waffle joists, or flat slabs. Lateral forces are resisted by concrete moment frames that develop their stiffness through monolithic beam-column connections. In older construction, or in levels of low seismicity, the moment frames may consist of the column strips of two-way flat slab systems. Modern frames in levels of high seismicity have joint reinforcing, closely spaced ties, and special detailing to provide ductile performance. This detailing is not present in older construction. Foundations consist of concrete spread footings, mat foundations, or deep foundations.

Building System TRANSVERSE DIRECTION

[C]	NC	N/A	LOAD PATH: The structure shall contain a minimum of one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)
[C]	NC	N/A	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building shall be greater than 4 percent of the height of the shorter building for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.1.2)
C	NC	[N/A]	MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)
[C]	NC	N/A	WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80 percent of the strength in an adjacent story, above or below, for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)
C	[NC]	N/A	SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70 percent of the lateral-force-resisting system stiffness in an adjacent story above or below, or less than 80 percent of the average lateral-force-resisting system stiffness of the three stories above or below for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)
[C]	NC	N/A	GEOMETRY: There shall be no changes in horizontal dimension of the lateral-force-resisting system of more than 30 percent in a story relative to adjacent stories for Life Safety and Immediate Occupancy, excluding one-story penthouses and mezzanines. (Tier 2: Sec. 4.3.2.3)
[C]	NC	N/A	VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)

SEE MSSS-8 FOR DISCUSSION ABOUT SOFT STORY

3.7.8

C NC N/A MASS: There shall be no change in effective mass more than 50 percent from one story to the next for Life Safety and Immediate Occupancy. Light roofs, penthouses, and mezzanines need not be considered. (Tier 2: Sec. 4.3.2.5) NC @ UPPER DECK *

C NC N/A TORSION: The estimated distance between the story center of mass and the story center of rigidity shall be less than 20 percent of the building width in either plan dimension for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.6)

C NC N/A DETERIORATION OF CONCRETE: There shall be no visible deterioration of concrete or reinforcing steel in any of the vertical- or lateral-force-resisting elements. (Tier 2: Sec. 4.3.3.4)

C NC N/A POST-TENSIONING ANCHORS: There shall be no evidence of corrosion or spalling in the vicinity of post-tensioning or end fittings. Coil anchors shall not have been used. (Tier 2: Sec. 4.3.3.5)

Lateral-Force-Resisting System

C NC N/A REDUNDANCY: The number of lines of moment frames in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. The number of bays of moment frames in each line shall be greater than or equal to 2 for Life Safety and 3 for Immediate Occupancy. (Tier 2: Sec. 4.4.1.1.1)

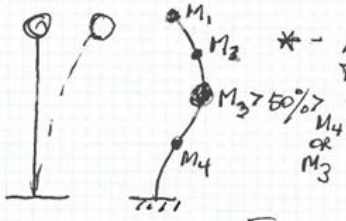
C NC N/A INTERFERING WALLS: All concrete and masonry infill walls placed in moment frames shall be isolated from structural elements. (Tier 2: Sec. 4.4.1.2.1)

C NC N/A SHEAR STRESS CHECK: The shear stress in the concrete columns, calculated using the Quick Check procedure of Section 3.5.3.2, shall be less than the greater of 100 psi or $2\sqrt{f'_c}$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.4.1) SHEAR STRESS IS ≈ 191 PSI

C NC N/A AXIAL STRESS CHECK: The axial stress due to gravity loads in columns subjected to overturning forces shall be less than $0.10f'_c$ for Life Safety and Immediate Occupancy. Alternatively, the axial stresses due to overturning forces alone, calculated using the Quick Check procedure of Section 3.5.3.6, shall be less than $0.30f'_c$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.4.2) $.1f_c' = 375$ PSI AXIAL STRESS = 438.8 PSI

Connections

C NC N/A CONCRETE COLUMNS: All concrete columns shall be doweled into the foundation for Life Safety, and the dowels shall be able to develop the tensile capacity of reinforcement in columns of lateral-force-resisting system for Immediate Occupancy. (Tier 2: Sec. 4.6.3.2)



* - ALTHOUGH IT DOESN'T CONFORM TO THE STATEMENT, THE HIGH UPPER FLR HAS MORE THAN 50% MORE MASS THAN THE NEXT LOWER LEVEL. THE REAL PROBLEM IS WHEN HIGHER MODE EFFECTS ARE SIGNIFICANT, BUT WE STILL HAVE A SYSTEM DOMINATED BY THE FIRST MODE.

3.7.8S Supplemental Structural Checklist for Building Type C1: Concrete Moment Frames

This Supplemental Structural Checklist shall be completed where required by Table 3-2. The Basic Structural Checklist shall be completed prior to completing this Supplemental Structural Checklist.

Lateral-Force-Resisting System

C NC [N/A] FLAT SLAB FRAMES: The lateral-force-resisting system shall not be a frame consisting of columns and a flat slab/plate without beams. (Tier 2: Sec. 4.4.1.4.3)

C NC [N/A] PRESTRESSED FRAME ELEMENTS: The lateral-force-resisting frames shall not include any prestressed or post-tensioned elements where the average prestress exceeds the lesser of 700 psi or $f'_c/6$ at potential hinge locations. The average prestress shall be calculated in accordance with the Quick Check procedure of Section 3.5.3.8. (Tier 2: Sec. 4.4.1.4.4)

[C] NC N/A CAPTIVE COLUMNS: There shall be no columns at a level with height/depth ratios less than 50 percent of the nominal height/depth ratio of the typical columns at that level for Life Safety and 75 percent for Immediate Occupancy. (Tier 2: Sec. 4.4.1.4.5)

C [NC] N/A NO SHEAR FAILURES: The shear capacity of frame members shall be able to develop the moment capacity at the ends of the members. (Tier 2: Sec. 4.4.1.4.6) — COLUMN ACT MORE LIKE A SHEAR WALL ∴ OK

[C] NC N/A STRONG COLUMN/WEAK BEAM: The sum of the moment capacity of the columns shall be 20 percent greater than that of the beams at frame joints. (Tier 2: Sec. 4.4.1.4.7)

[C] NC N/A BEAM BARS: At least two longitudinal top and two longitudinal bottom bars shall extend continuously throughout the length of each frame beam. At least 25 percent of the longitudinal bars provided at the joints for either positive or negative moment shall be continuous throughout the length of the members for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.4.8)

C [NC] N/A COLUMN-BAR SPLICES: All column bar lap splice lengths shall be greater than $35d_b$ for Life Safety and $50d_b$ for Immediate Occupancy, and shall be enclosed by ties spaced at or less than $8d_b$ for Life Safety and Immediate Occupancy. Alternatively, column bars shall be spliced with mechanical couplers with a capacity of at least 1.25 times the nominal yield strength of the spliced bar. (Tier 2: Sec. 4.4.1.4.9) INADEQUATE LAPS 30db & TIES e> 8db e EXTERIOR COLUMNS.

[C] NC N/A BEAM-BAR SPLICES: The lap splices or mechanical couplers for longitudinal beam reinforcing shall not be located within $l_b/4$ of the joints and shall not be located in the vicinity of potential plastic hinge locations. (Tier 2: Sec. 4.4.1.4.10)

C [NC] N/A COLUMN-TIE SPACING: Frame columns shall have ties spaced at or less than $d/4$ for Life Safety and Immediate Occupancy throughout their length and at or less than $8d_b$ for Life Safety and Immediate Occupancy at all potential plastic hinge locations. (Tier 2: Sec. 4.4.1.4.11) EXTERIOR COLUMN TIE SPACING DOES NOT COMPLY.

[C] NC N/A STIRRUP SPACING: All beams shall have stirrups spaced at or less than $d/2$ for Life Safety and Immediate Occupancy throughout their length. At potential plastic hinge locations, stirrups shall be spaced at or less than the minimum of $8d_b$ or $d/4$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.4.12)

[C] NC N/A JOINT REINFORCING: Beam-column joints shall have ties spaced at or less than $8d_b$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.4.13)

C NC [N/A] JOINT ECCENTRICITY: There shall be no eccentricities larger than 20 percent of the smallest column plan dimension between girder and column centerlines. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.1.4.14)

C NC [N/A] STIRRUP AND TIE HOOKS: The beam stirrups and column ties shall be anchored into the member cores with hooks of 135° or more. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.1.4.15)

[C] NC N/A DEFLECTION COMPATIBILITY: Secondary components shall have the shear capacity to develop the flexural strength of the components for Life Safety and shall meet the requirements of Sections 4.4.1.4.9, 4.4.1.4.10, 4.4.1.4.11, 4.4.1.4.12 and 4.4.1.4.15 for Immediate Occupancy. (Tier 2: Sec. 4.4.1.6.2)

C NC [N/A] FLAT SLABS: Flat slabs/plates not part of lateral-force-resisting system shall have continuous bottom steel through the column joints for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.6.3)

Diaphragms

[C] NC N/A DIAPHRAGM CONTINUITY: The diaphragms shall not be composed of split-level floors and shall not have expansion joints. (Tier 2: Sec. 4.5.1.1)

C NC [N/A] PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at re-entrant corners or other locations of plan irregularities. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.7)

C NC [N/A] DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragm openings larger than 50 percent of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8)

Connections

[C] NC N/A UPLIFT AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10)

3.7.9 Basic Structural Checklist for Building Type C2: Concrete Shear Walls with Stiff Diaphragms

PARALLEL TO SEATING (LONG)

This Basic Structural Checklist shall be completed where required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked Compliant (C), Non-compliant (NC), or Not Applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 Evaluation procedure; corresponding section numbers are in parentheses following each evaluation statement.

C3.7.9 Basic Structur Checklist for Building Type C2

These buildings have floor and roof framing that consists of cast-in-place concrete slabs, concrete beams, one-way joists, two-way waffle joists, or flat slabs. Floors are supported on concrete columns or bearing walls. Lateral forces are resisted by cast-in-place concrete shear walls. In older construction, shear walls are lightly reinforced but often extend throughout the building. In more recent construction, shear walls occur in isolated locations and are more heavily reinforced with boundary elements and closely spaced ties to provide ductile performance. The diaphragms consist of concrete slabs and are stiff relative to the walls. Foundations consist of concrete spread footings, mat foundations, or deep foundations.

Building System

[C] NC N/A	LOAD PATH: The structure shall contain a minimum of one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)
C NC (N/A)	MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)
(C) NC N/A	WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80 percent of the strength in an adjacent story, above or below, for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)
(C) NC N/A	SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70 percent of the lateral-force-resisting system stiffness in an adjacent story above or below, or less than 80 percent of the average lateral-force-resisting system stiffness of the three stories above or below for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)
(C) NC N/A	GEOMETRY: There shall be no changes in horizontal dimension of the lateral-force-resisting system of more than 30 percent in a story relative to adjacent stories for Life Safety and Immediate Occupancy, excluding one-story penthouses and mezzanines. (Tier 2: Sec. 4.3.2.3)
(C) NC N/A	VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)
(C) NC N/A	MASS: There shall be no change in effective mass more than 50 percent from one story to the next for Life Safety and Immediate Occupancy. Light roofs, penthouses, and mezzanines need not be considered. (Tier 2: Sec. 4.3.2.5)

3.7.9

(C) NC N/A TORSION: The estimated distance between the story center of mass and the story center of rigidity shall be less than 20 percent of the building width in either plan dimension for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.6)

(C) NC N/A DETERIORATION OF CONCRETE: There shall be no visible deterioration of concrete or reinforcing steel in any of the vertical- or lateral-force-resisting elements. (Tier 2: Sec. 4.3.3.4)

(C) NC N/A POST-TENSIONING ANCHORS: There shall be no evidence of corrosion or spalling in the vicinity of post-tensioning or end fittings. Coil anchors shall not have been used. (Tier 2: Sec. 4.3.3.5)

(C) NC N/A CONCRETE WALL CRACKS: All existing diagonal cracks in wall elements shall be less than 1/8 inch for Life Safety and 1/16 inch for Immediate Occupancy, shall not be concentrated in one location, and shall not form an X pattern. (Tier 2: Sec. 4.3.3.9)

Lateral-Force-Resisting System

C NC (N/A) COMPLETE FRAMES: Steel or concrete frames classified as secondary components shall form a complete vertical-load-carrying system. (Tier 2: Sec. 4.4.1.6.1)

(C) NC N/A REDUNDANCY: The number of lines of shear walls in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.1.1)

C (NC) N/A SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 3.5.3.3, shall be less than the greater of 100 psi or $2\sqrt{f'c}$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.1) ONLY 6% OVER ∴ TIER II REVIEW WILL PROBABLY FIND THIS IS OK

(C) NC N/A REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area shall be not less than 0.0015 in the vertical direction and 0.0025 in the horizontal direction for Life Safety and Immediate Occupancy. The spacing of reinforcing steel shall be equal to or less than 18 inches for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.2)

VERT = .00208 HOR = .00278

Connections

(C) NC N/A TRANSFER TO SHEAR WALLS: Diaphragms shall be connected for transfer of loads to the shear walls for Life Safety and the connections shall be able to develop the lesser of the shear strength of the walls or diaphragms for Immediate Occupancy. (Tier 2: Sec. 4.6.2.1)

(C) NC N/A FOUNDATION DOWELS: Wall reinforcement shall be doweled into the foundation for Life Safety, and the dowels shall be able to develop the lesser of the strength of the walls or the uplift capacity of the foundation for Immediate Occupancy. (Tier 2: Sec. 4.6.3.5)

3.7.9S Supplemental Structural Checklist for Building Type C2: Concrete Shear Walls with Stiff Diaphragms

This Supplemental Structural Checklist shall be completed where required by Table 3-2. The Basic Structural Checklist shall be completed prior to completing this Supplemental Structural Checklist.

Lateral-Force-Resisting System

(C) NC N/A — DEFLECTION COMPATIBILITY: Secondary components shall have the shear capacity to develop the flexural strength of the components for Life Safety and shall meet the requirements of Sections 4.4.1.4.9, 4.4.1.4.10, 4.4.1.4.11, 4.4.1.4.12 and 4.4.1.4.15 for Immediate Occupancy. (Tier 2: Sec. 4.4.1.6.2) VERIFIED FOR RIGID FRAMES ∴ OK BI

C NC (N/A) — FLAT SLABS: Flat slabs/plates not part of lateral-force-resisting system shall have continuous bottom steel through the column joints for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.6.3)

C NC (N/A) — COUPLING BEAMS: The stirrups in coupling beams over means of egress shall be spaced at or less than *d*/2 and shall be anchored into the confined core of the beam with hooks of 135° or more for Life Safety. All coupling beams shall comply with the requirements above and shall have the capacity in shear to develop the uplift capacity of the adjacent wall for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.3)

C NC (N/A) — OVERTURNING: All shear walls shall have aspect ratios less than 4-to-1. Wall piers need not be considered. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.4) LS CHK ONLY

C NC (N/A) — CONFINEMENT REINFORCING: For shear walls with aspect ratios greater than 2-to-1, the boundary elements shall be confined with spirals or ties with spacing less than $8d_b$. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.5) LS ONLY

C NC (N/A) — REINFORCING AT OPENINGS: There shall be added trim reinforcement around all wall openings with a dimension greater than three times the thickness of the wall. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.6) WALLS ARE SOLID

C NC (N/A) — WALL THICKNESS: Thickness of bearing walls shall not be less than 1/25 the unsupported height or length, whichever is shorter, nor less than 4 inches. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.7)

Diaphragms

(C) NC N/A — DIAPHRAGM CONTINUITY: The diaphragms shall not be composed of split-level floors and shall not have expansion joints. (Tier 2: Sec. 4.5.1.1)

(C) NC N/A — OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls shall be less than 25 percent of the wall length for Life Safety and 15 percent of the wall length for Immediate Occupancy. (Tier 2: Sec. 4.5.1.4)

C NC (N/A) — PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at re-entrant corners or other locations of plan irregularities. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.7)

C NC (N/A) — DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragm openings larger than 50 percent of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8)

Connections

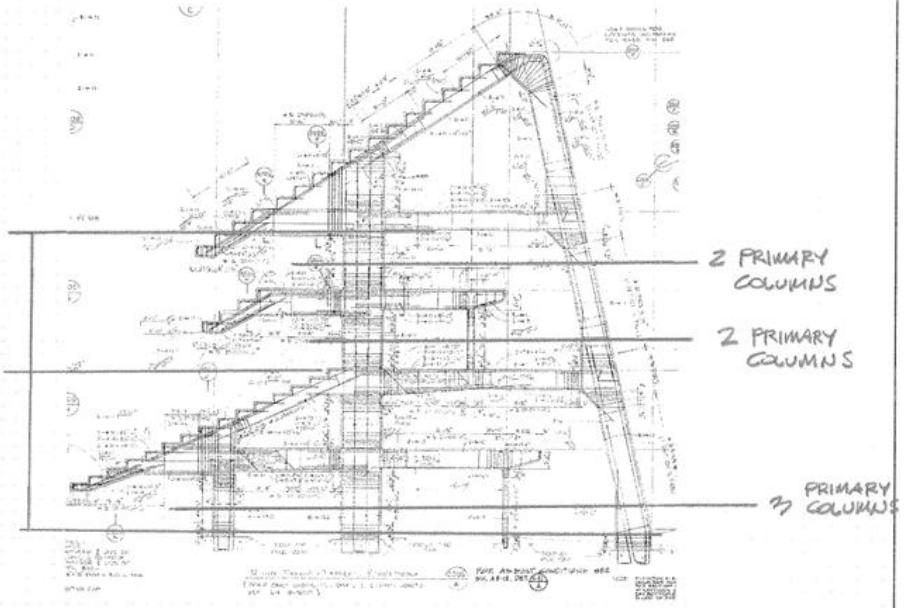
(C) NC N/A — UPLIFT AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10)

AECOM

JOB TITLE
JOB NO. CALCULATION NO.
ORIGINATOR DATE
REVIEWER DATE 1-26-11
SCALE SHEET NO. M555-8 OF

ESTIMATE WEAK STORY CONO. 4.3.2.1 TIER 2

THE PRIMARY MOMENT FRAME COLUMNS DO NOT DECREASE IN SIZE FROM ONE STORY TO THE NEXT ∴ OK PD I (INCREASE IN #)

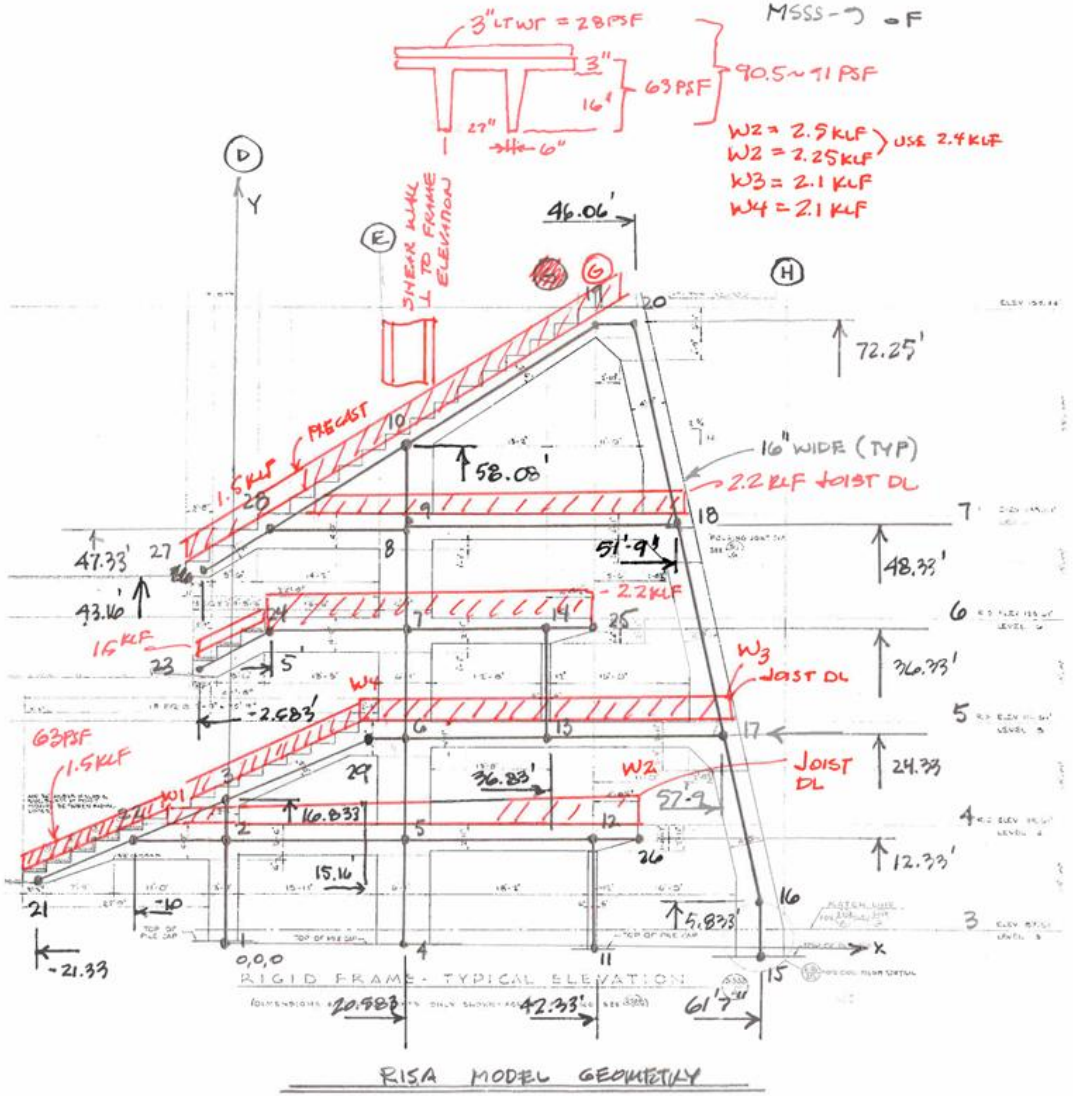


CHECK STORY STIFFNESS – CREATE RISA MODEL USE 40% MEMBER SECTION PROPERTIES.

BASED ON RISA MODEL UPPER LEVEL FRAME STIFFNESS = 212 K/11 WHILE THE FRAME BELOW W/ THE ADDED COLUMNS HAS A STIFFNESS = 689 K/1

212/689 = 30% ∴ DOESN'T COMPLY HOWEVER THIS CRITERIA IS MORE APPROPRIATE TO MULTI STORY BUILDINGS AND CAN BE PROBLEMATIC IN BUILDINGS 6 TO 15 STORIES IN HEIGHT. WE ONLY HAVE 2 LEVELS (EFFECTIVE) AND THE ASCE 7-10 WOULD ALLOW A 2 STEP STATIC CALC →

SEE M555-10



RISA MODEL GEOMETRY

LDCOMB 2 LOAD @ 18 = 100^K → SUPPORT @ 17

Δ_{18} = .472" K = 212 $^K/_{11}$

LD COMB 1 LOAD @ 17 = 100^K → SUPPORT RELEASED @ 17

Δ_{17} = .145" K = 689 $^K/_{11}$

FOR THIS TYPE OF SYSTEM. THERE OK.

THERE ARE TALLER FRAMES @ (20) (21) (19) (22) & (23)

LOAD @ N1 Δ = .143" K = 699 K/" ← 55% OF THE LOWER FLOOR LEVEL
LOAD @ N30 Δ = .08" K = 1250 K/"

∴ THE STIFFNESS APPEARS TO INCREASE FROM THE TOP OF THE BLDG TO THE BOTTOM. THIS SHOULD NOT CREATE A CRITICAL INSTABILITY IN THE FRAMING.

CHECK CENTER OF MASS VS CENTER OF RIGIDITY -
IN THE TRANSVERSE DIRECTION THE CM IS OK SINCE WE HAVE FRAMES AT ALL BAYS.

CREATE SEPERATE RISA MODELS TO DETERMINE CG @ VARIOUS LEVELS

@ LEVEL 7 PLACE SUPPORTS @ NODE 8 & 18 & REMOVE LOWER LEVEL FRAMING

@ LEVEL 6 PLACE SUPPORTS @ NODE 7 & 14

@ LEVEL 5 PLACE SUPPORTS @ NODE 6 & 17 & 3

@ LEVEL 4 " " NODE 2, 5 & 12

CENTER OF RIGIDITY IS APPROXIMATELY @

X = 20.58'

Δ_X @ 7 = 24.88 - 20.58 = 4.29'
@ 6 = 20.66 - 20.58 = .08'
@ 5 = 26.63 - 20.58 = 6.05'
@ 4 = 20.58 - 15.41 = -5.17'

CENTER OF MASS CONT.

PLAN WIDTH

20%

@ 7 = 51.75' + 2.583' = 54.33' X .20 = 10.87' > 4.29' OK

@ 6 = 42.33 + 2.583 = 44.91' X .20 = 8.98' > .08' OK

@ 5 = 57.75 + 10 = 67.75' X .20 = 13.55' > 6.05' OK

@ 4 = 68.33' X .20 = 13.67' > 5.17' ∴ OK

SHEAR STRESS CHK - 3.9.3.2 (SEE MSSS-16)

7 — 193.1^k

6 — 48.33 — 103.3^k — ↑36.33

5 — ↑24.33 — 144.3^k

4 — 148.1^k — ↑12.33'

588.8K

V_{BASE} = 588.8^K(.853) = 502.25^K

- V @ 6'-1" x 1'-4" COLUMN

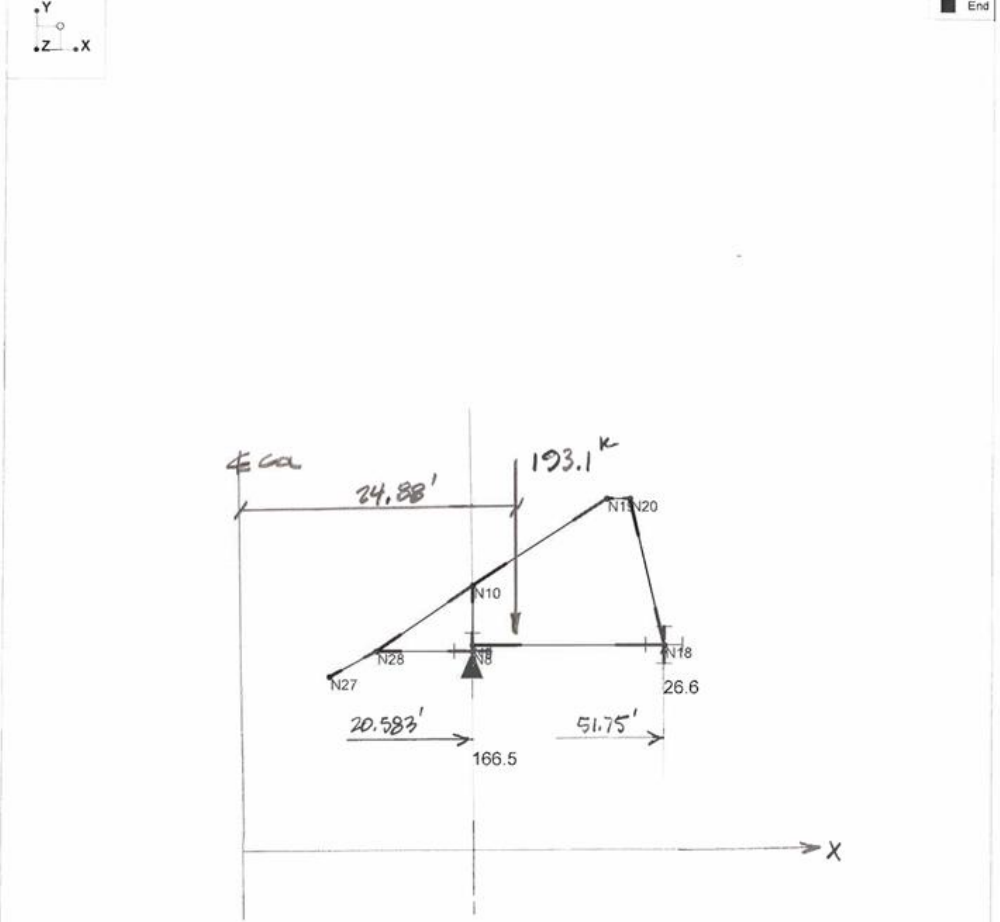
$V = \frac{446.4^k}{2(73 \times 16)}$ = 191 PSI > 100 PSI

∴ NOT COMPLIANT @ ... THIS MOST HEAVILY LOADED MEMBERS.

$> 2\sqrt{3750}$ = 122.5 PSI

Ct=	0.016	Hn=	72	Ta=	0.751	k=	0.900	Cs=	0.853	x=	0.9				
Level	Wx (kips)	Hx (ft)	Wx(Hx)^k (kip-ft)	WxHx^k/SumWiHi^k	Story Shear Fx(kips)	Sum Story Shears	Sum (Wx)	Sum(FX)/Sum(Wx)	Diaphragm Shear Fpx(kips)		Fpx(min)kips	Fpx(max)kips	Required Fpx (kips)for diaphragm	Omega *Fpx	Fpx for collector Design
7th	193.1	48.33	6332.532	49.00%	246.0788	246.08	193.10	1.274	246.08		32.94	65.89	65.89	246.08	246.08
6th	103.3	36.33	2620.229	20.27%	101.8207	347.90	296.40	1.174	121.25		17.62	35.25	35.25	121.25	121.25
5th	144.3	24.33	2551.492	19.74%	99.1496	447.05	440.70	1.014	146.38		24.62	49.24	49.24	146.38	146.38
4th	148.1	12.33	1420.437	10.99%	55.19739	502.25	588.80	0.853	126.33		25.27	50.53	50.53	126.33	126.33
	0	0	0	0.00%	0	502.25	588.80	0.853	0.00		0.00	0.00	0.00	0.00	0.00
	0	0	0	0.00%	0	502.25	588.80	0.853	0.00		0.00	0.00	0.00	0.00	0.00
	0	0	0	0.00%	0	502.25	588.80	0.853	0.00		0.00	0.00	0.00	0.00	0.00
	0	0	0	0.00%	0	502.25	588.80	0.853	0.00		0.00	0.00	0.00	0.00	0.00
	0	0	0	0.00%	0	502.25	588.80	0.853	0.00		0.00	0.00	0.00	0.00	0.00
	588.8		12924.69		502.2464										
Vbase=	502.25														
Sds=	0.853														
I=	1														
Omega=	1				R= 1.0										

MESS-12

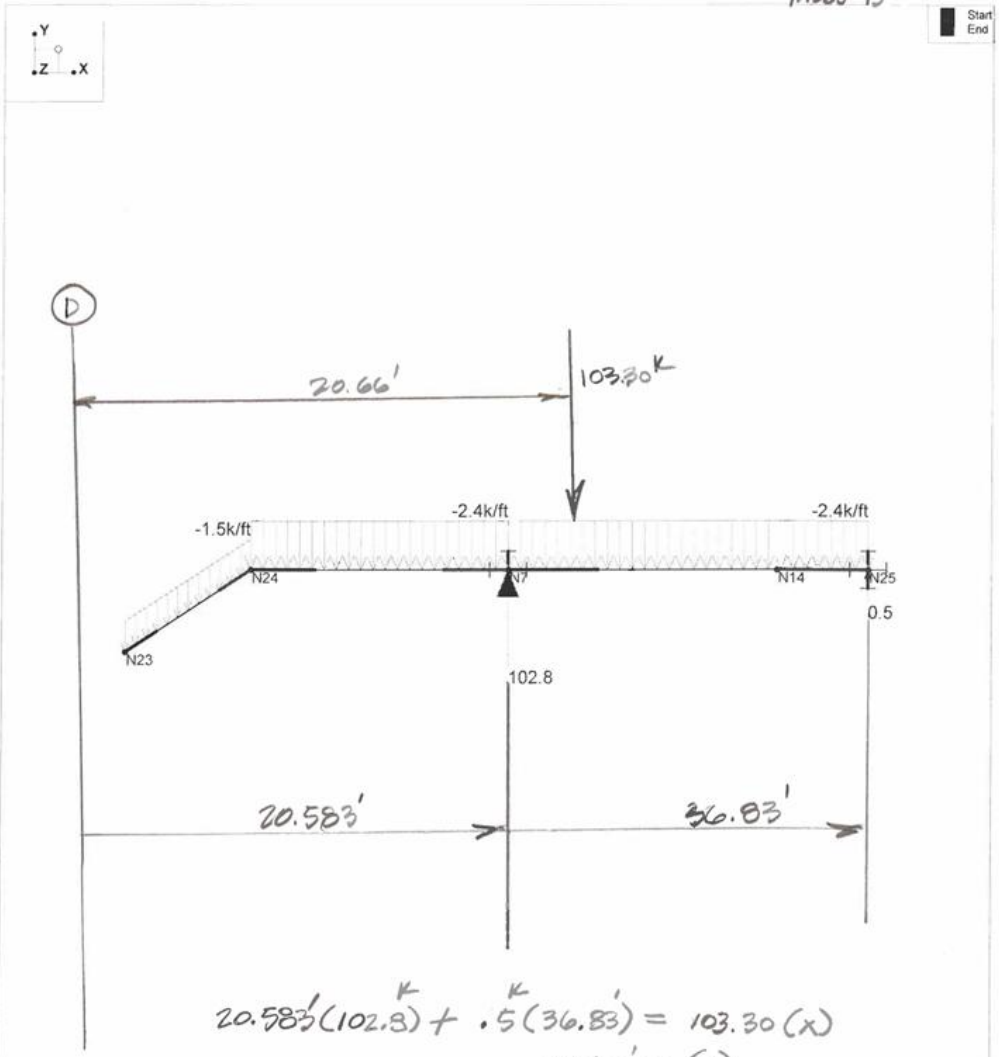


$166.5^{K}(20.583) + 26.6^{K}(51.75) = 193.1^{K}(X)$

$24.88' = (X)$

Results for LC 1, DL Only
Y-direction Reaction units are k and k-ft

		SK - 1
		Jan 13, 2011 at 10:14 AM
		Level 7 CG model.r3d



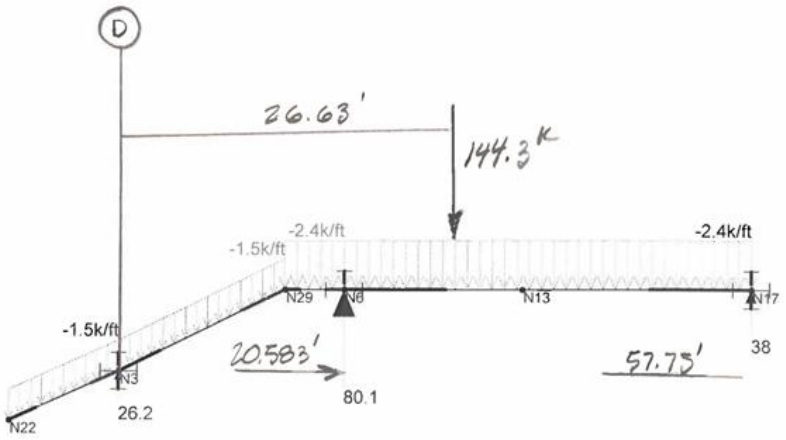
$20.583'\left(\frac{102.8}{K}\right) + .5\left(\frac{36.83'}{K}\right) = 103.30(x)$

$20.66' = (x)$

Loads: LC 1,
Results for LC 1,
Y-direction Reaction units are k and k-ft

		SK - 1
		Jan 13, 2011 at 10:26 AM
		Level 6 Model.r3d

M5S514



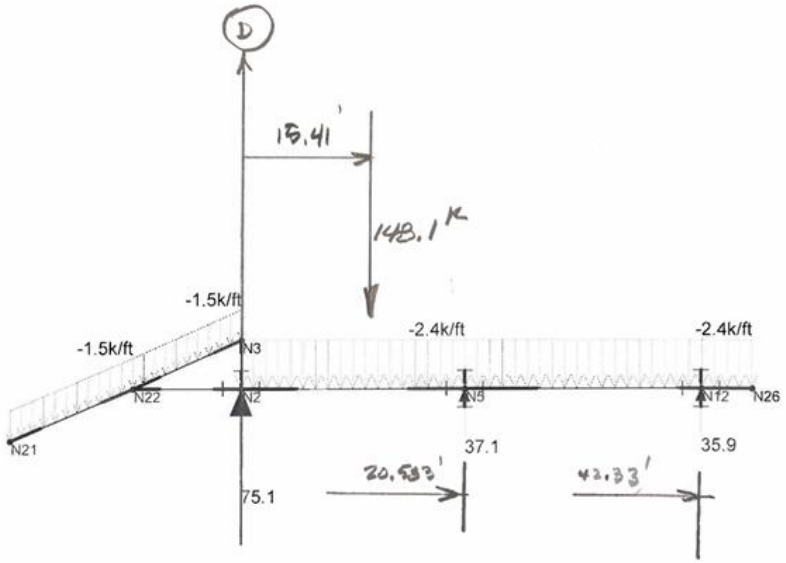
$26.2(0) + 80.1(20.583') + 38(57.75) = 144.30(x)$

$26.63' = (x)$

Loads: LC 1,
Results for LC 1,
Y-direction Reaction units are k and k-ft

	SK - 2
	Jan 13, 2011 at 11:36 AM
	Level 5.r3d

MSSS-15



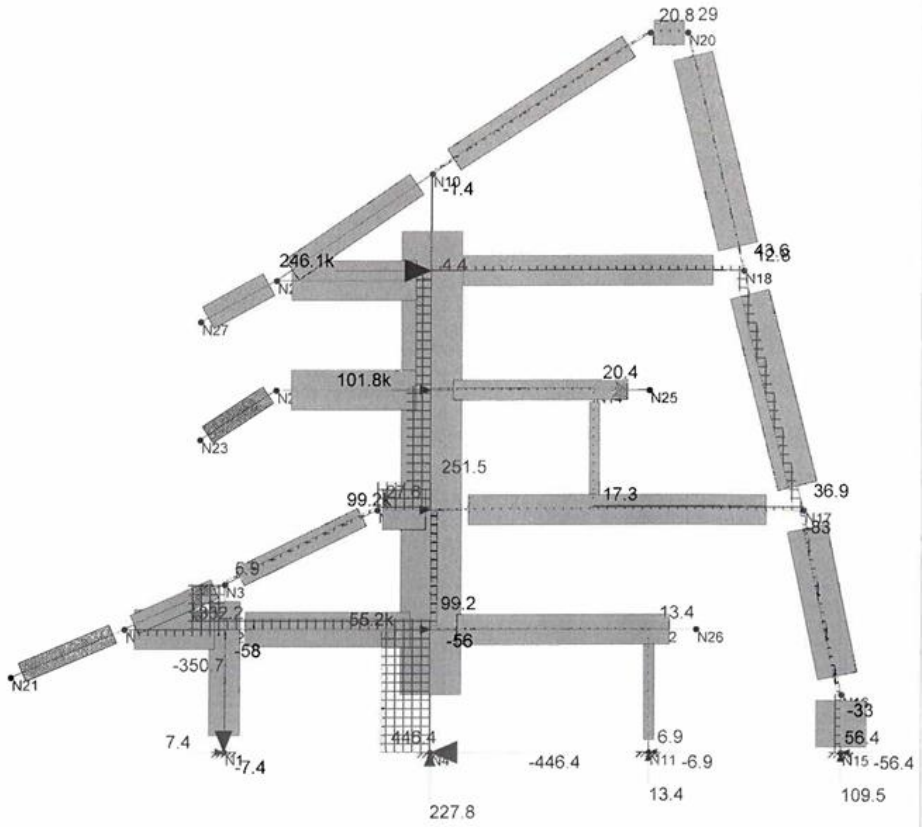
$75.1(0) + 37.1(20.583') + 35.9(42.33) = 148.1(x)$

$15.41' = (x)$

Loads: LC 1,
Results for LC 1,
Y-direction Reaction units are k and k-ft

		SK - 1
		Jan 13, 2011 at 11:43 AM
A2-28	AECOM + MAGELLAN CONSULTING	typical frame model.r3d

MSS - 15



Loads: BLC 1, eq
Results for LC 2, EQ Load
Member y Shear Forces (k)
Y-direction Reaction units are k and k-ft

	SK - 1
	Jan 13, 2011 at 3:19 PM
	typical frame model.r3d

AXIAL LOAD CHECK DUE TO DL -

6'-1 x 1'-4 COL P_{DL} = 512.5^K f_c = 438.8 PSI

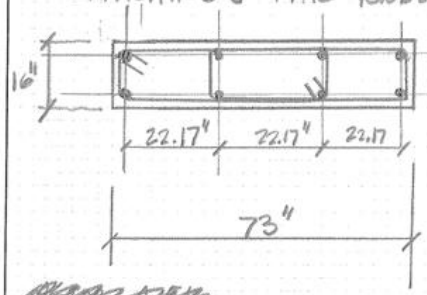
.10(3750) = 375 PSI < 438.8 PSI ∴ NG

3'-4 x 1'-4 COL P_{DL} = 164^K f_c = 256.3 PSI ∴ OK

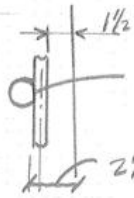
12" SQ COLUMN = 40.9^K f_c = 284 PSI ∴ OK

4' x 16" COLUMN = 153.9^K f_c = 200 PSI ∴ OK

CHK FOR SHEAR FAILURES - SHEAR CAPACITY OF FRAME MEMBERS MUST BE ABLE TO DEVELOP THE MOMENT CAPACITIES @ THE ENDS OF THE MEMBERS -



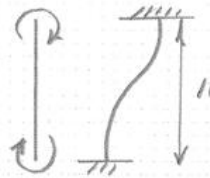
#5 TIES $\frac{5}{8} + 1\frac{4}{8} = 2\frac{1}{8}$



40KSI STEEL
INTERMEDIATE A-15 1966

ϕM_N = 3028.321 K-FT

LARGEST LOWEST LEVEL COL.



∴ V = 2(3028.32)/10.5 = 576 KIPS

$V_c = 2\left(1 + \frac{N_u}{2000A_g}\right)\sqrt{f_c'}\,bd$

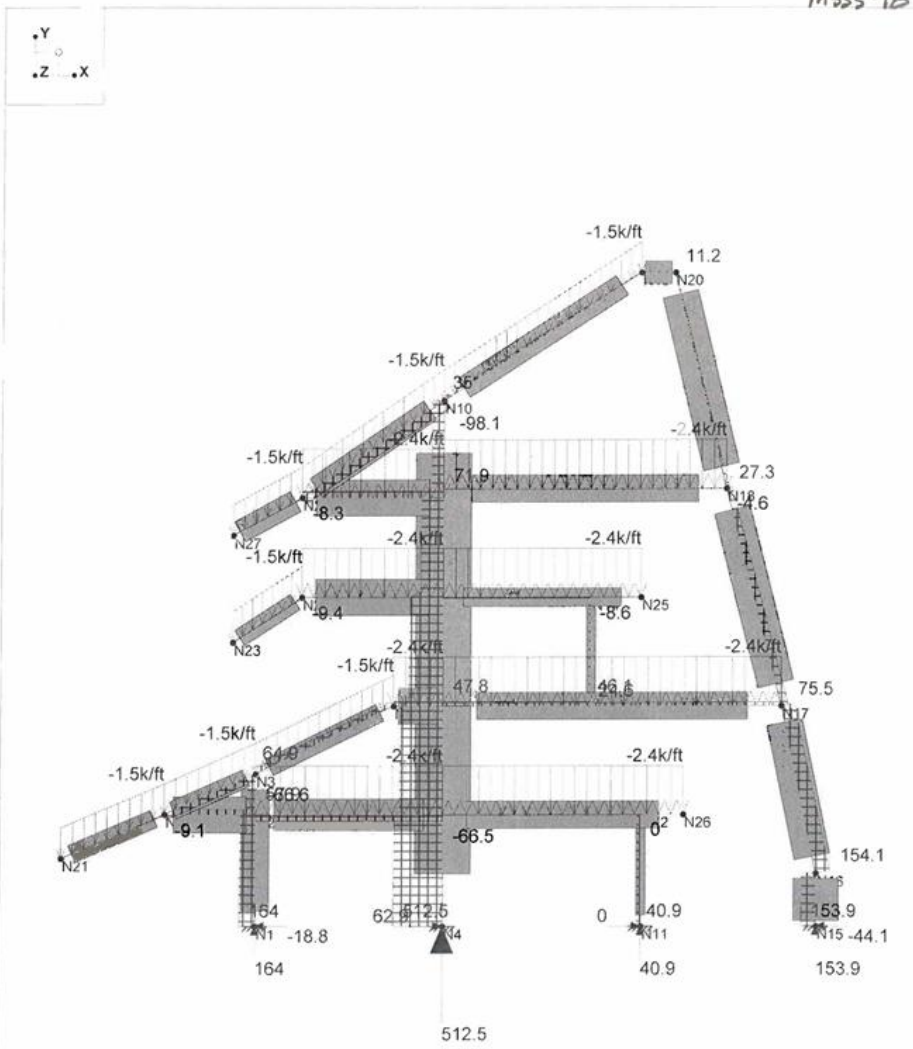
$N_u = .9(512.5 \times 1000) = 461250\#$

$V_c = \frac{2(1+.197)\sqrt{3750}\,(16)(69)}{1000}$

V_c = 161.9 KIPS

↓ M555-20

M555-1B



Loads: LC 1, Dead Load
Results for LC 1, Dead Load
Member Axial Forces (k)
Y-direction Reaction units are k and k-ft

	SK - 2
	Jan 13, 2011 at 3:22 PM
	typical frame model.r3d

Qualcomm Rigid Frame Moment Capacity Estimate

MSS-19

Strain Compatibility:									Inches	
Wall Length=	73		Pu=	0	Kips			Wall Ht=	1144	
Wall Width=	16		γ=	0.85				Cd=	5	
Rebar Yield=	40	β_1=	.85-.05(fc-4000)/1000					Delta Elastic=	1.55	
28Day Strength=	3.75	β_1=	0.85					Delta Ult/Hw=	0.0068	
n=	8.31	Ec=		3490.52	ksi			lw/600(du/hw)=	17.38	
C=	15.351788		ϕ=	0.9000	Based on ACI 318-05 section 10.3.3				Special Bdry Elem Not Required	
			Pn=	0	Kips					
Rebar Number	As (in^2)	y (location)	Dist to NA	Strain	fs(ksi)	Ts(kips)	Cs(kips)	Moment Arm to Center	Moment Calculation	
1	8	3.25	54.39821	0.01063	40.00	320.000	0.000	33.25	10640	0
2	8	25.42	32.22821	0.006298	40.00	320.000	0.000	11.08	3545.6	0
3	8	47.59	10.05821	0.001966	40.00	320.000	0.000	-11.09	-3548.8	0
4	8	69.75	-12.1018	-0.002365	40.00	0.000	294.500	-33.25	0	9792.125
5	0	73	-15.3518	-0.003	40.00	0.000	0.000	-36.5	0	0
6	0	82	-24.3518	-0.004759	40.00	0.000	0.000	-45.5	0	0
7	0	91	-33.3518	-0.006518	40.00	0.000	0.000	-54.5	0	0
8	0	100	-42.3518	-0.008276	40.00	0.000	0.000	-63.5	0	0
9	0	109	-51.3518	-0.010035	40.00	0.000	0.000	-72.5	0	0
42	0	366	-308.352	-0.060257	60.00	0.000	0.000	-329.5	0	
				Sum Forces in Rebar=		960.000	294.500		10636.8	9792.125
Comp on Zone							665.500	29.9754902		19948.69
					a=	13.049				
					Pn=	0.000				
						960.000	960.000	Delta=	0.00000	
					Mn=	40377.614	K-inches			
					Mn=	3364.801	K-Ft			
					ϕMn=	3028.321	K-Ft			
					ϕPn=	0.000	Kips			

$V_s = \frac{A_v f_y t d}{s}$ $\quad A_v = 2(.31) = .62$

$V_s = \frac{.62(40)(69)}{3} = 570$ KIPS $\quad \phi = .75$

$.75(V_s + V_c) = 550^{KIPS} \approx 576^{KIPS}$ ∴ OK

NEXT LEVEL COLUMN W/ SIGNIFICANT MOMENT DEMAND

SIMILAR REBAR PATTERN W/ 4-#11 @ THEN INTERIOR OF THE COLUMN. -

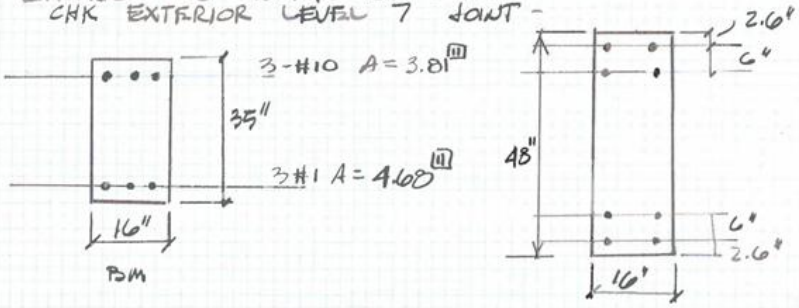
$\phi M_N = 3312$ k-FT $\quad$ HT = 12'-0 − 4' = 8'

$V = 3312(2)/8 = 828$ KIPS >> CAPACITY OF THE COLUMN FOR SHEAR.

- NOTE COLUMNS DO NOT TRUELY ACT FIXED-FIXED AT THE BEAM FACE. THE DEEP COLUMN MEMBER ACTUALLY BEHAVES MORE AS A CANTILEVER SHEAR WALL ∴ THIS IS NOT APPLICABLE. (NOT A REAL MOMENT FRAME)

STRONG COL WEAK BM CHK

CHK EXTERIOR LEVEL 7 JOINT -



BI COLUMN MOMENT CAP >> BM COL

(TRUE @ ALL BM COL CONN.)

COLUMN BAR SPLICES -
35d_b FOR LIFE SAFETY -

GENERAL NOTE INDICATES SPLICES = 30d
TIE SPACING MUST BE LESS THAN 8d_b

#11 BARS $d_b = 1.410 \times 8'' = 11\frac{1}{4}''$

AT EXTERIOR COLUMNS LAPS ARE ENCLOSED BY TIES @ 16" oc

↑ EXTERIOR COLUMNS DO NOT APPEAR TO TAKE VERY MUCH BENDING ∴ SOME OF THIS MAY BE OK, TIER 2 REQUIRED.

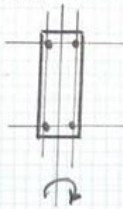
BEAM BAR SPLICES - MUST BE OUTSIDE OF $l_b/4$
$30.5/4 = 7'-8''$

COLUMN TIES $d/4 = (73 - 3\frac{1}{2})/4 = 17\frac{3}{8}'' > 16''$ SPACING
∴ OK @ MAIN LATERAL LOAD ELEMENT

$(48 - 2\frac{3}{8})/4 = 11.4'' < 16''$ @ EXTERIOR COLUMNS

BEAM TIE SPACING $d/2$ $(48'' - 2'')/2 = 23''$
$d/4$ $= 11.5''$ @ HINGES
$8d_b = 11.36 > 10''$ ∴ OK

SECONDARY COMPONENTS - ~~COLUMNS~~ 12"x16" COLUMNS



$d = 12$ $b = 16$

$\phi M_N = 35.6$ K-FT

$V = 35.16(2)/4.25' = 7.6^K$

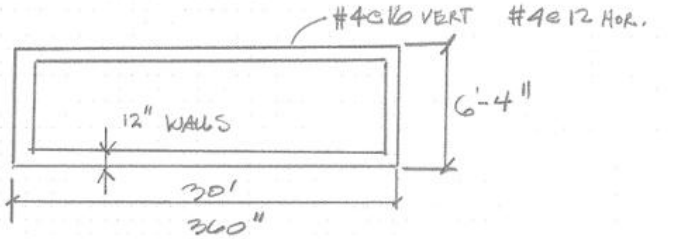
$V_c = \frac{2\sqrt{3750}(16)(9.7'')}{1000} = 19.0^K$

$.75V_c = 14.25^K > 7.6^K$ ∴ OK

CHK SHEAR WALL SHEAR -

@ MOST CRITICAL WALLS - 8 FRAMES @ 588^{K}/FRAME = 4704^{K}

V = .853 (4704) = 4013 KIPS



$$V_{AVE} = \frac{4013^{k}}{(4)(360'' \times 12'' \times 2)} \times 1000 = 116 PSI > 100 PSI$$

$2\sqrt{3000 PSI} = 109.5 PSI$

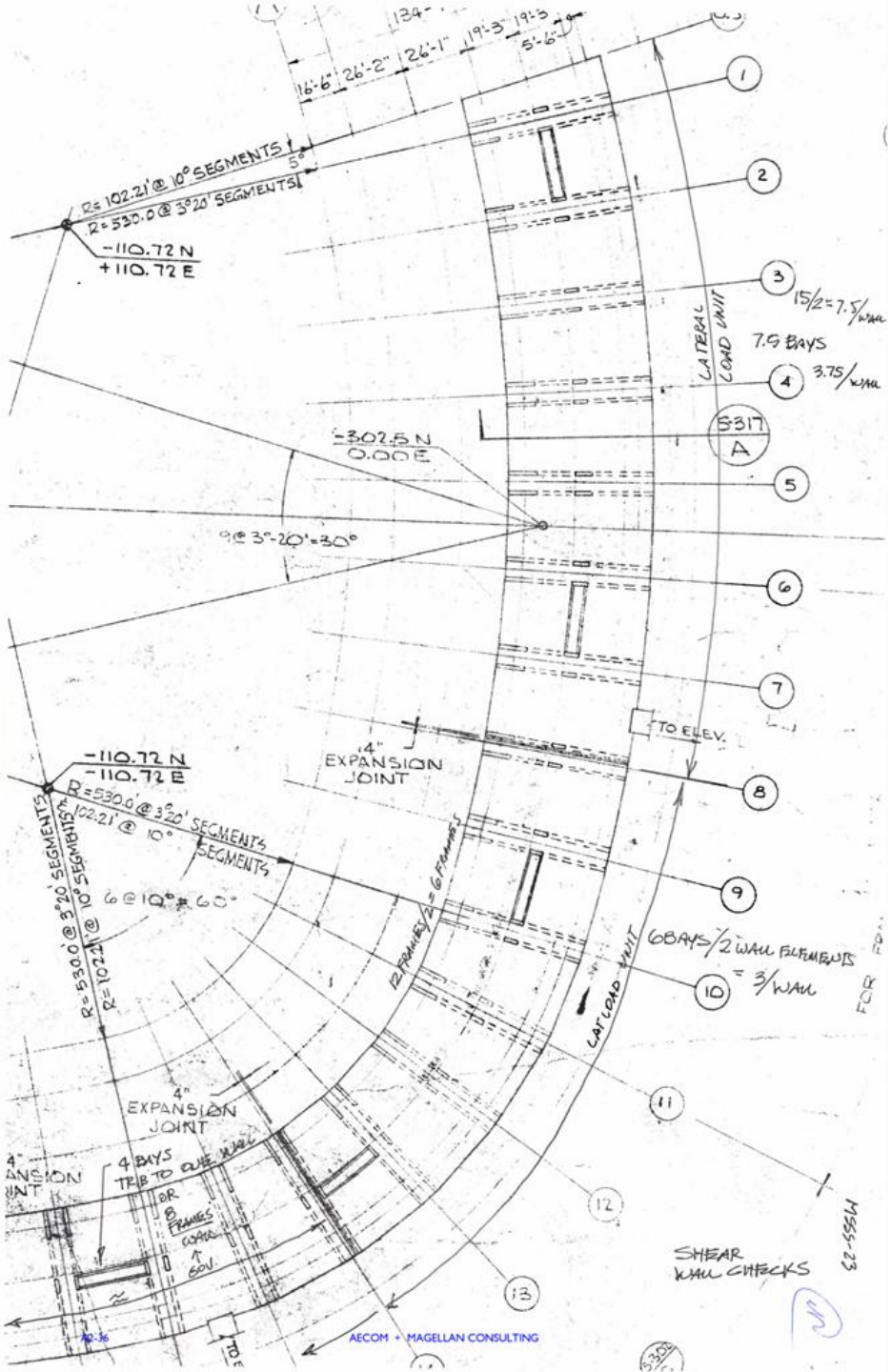
6% OVER STRESS

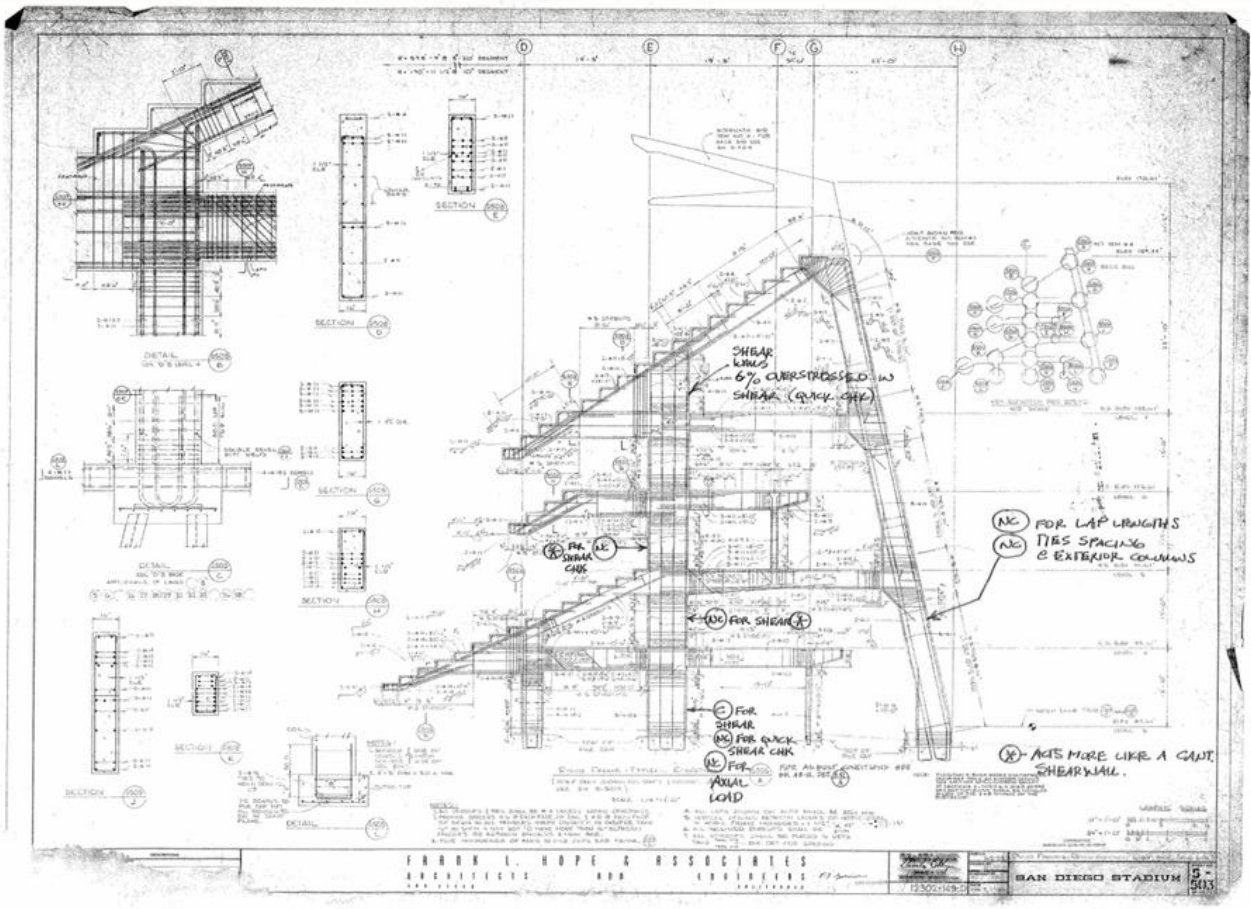
#4@16 = .2/1.33 = .1504^{in}/FT $\frac{.1504}{12 \times 12} = .00104$ x 2 FACES = .00208 > .0015 OK

#4@12 = (.200/144) x 2 FACES = .00278 > .0025 ∴ OK

SHEAR TRANSFER @ DIA. LEVELS. — DETAIL S-210/K

THICKENED SLAB EXISTS @ ALL WALL SLAB INTERFACES. (FULL LENGTH OF THE WALL)


16'-6"
26'-2"
26'-1"
19'-3"
19'-3"
5'-6"
R=102.21' @ 10° SEGMENTS
R=530.0 @ 3°20' SEGMENTS
-110.72 N
+110.72 E
LATERAL LOAD UNIT
15/2=7.5/WALL
7.5 BAYS
3.75/WALL
S317
A
-302.5 N
0.00 E
9 @ 3°-20'=30°
TO ELEV.
4" EXPANSION JOINT
-110.72 N
-110.72 E
R=530.0 @ 3°20' SEGMENTS
R=102.21' @ 10° SEGMENTS
6 @ 10° = 60°
12 FRAMES/2 = 6 FRAMES
6 BAYS/2 WALL ELEMENTS
= 3/WALL
LAT LOAD UNIT
4" EXPANSION JOINT
4 BAYS TRIB TO SHEAR WALL
OR
8 FRAMES
M551-23
SHEAR WALL CHECKS



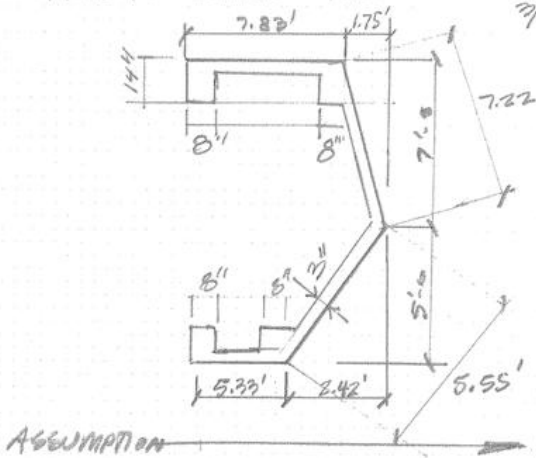
A2-37

AECOM + MAGELLAN CONSULTING

AECOM

JOB TITLE
JOB NO. CALCULATION NO.
ORIGINATOR DATE
REVIEWER (RW) DATE 1-26-11
SCALE SHEET NO. OF

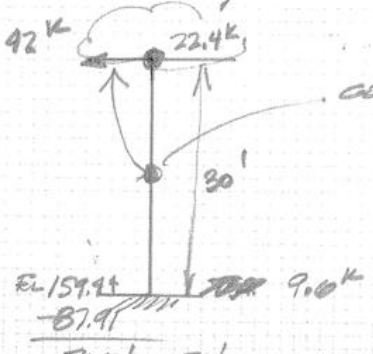
REVIEW LIGHTING RINGS -



3/12 (150) = 37.5 PSF x 1' = 37.5 PLF
L = 26' = 674 lb/FT
DMS = 1.167 x .67 x 150
= 117.7 lb/FT
x 4
469 lb/FT
TOTAL = 1143 lb/FT
TYPICAL LENGTH
= 28'
28 x 1143 = 32,000 lb
EQUIPMENT = 25 PSF
x 28' x 8' = 5600 lbs

ASSUMPTION

END DIAPHRAGMS + INTERIOR DIAPHRAM
3 x 32 FT² x .5 x 150 = 7200 lbs
TOTAL WT = 44.8 KIPS / 2 SUPPORT COLUMNS
= 22.4 KIPS / COL

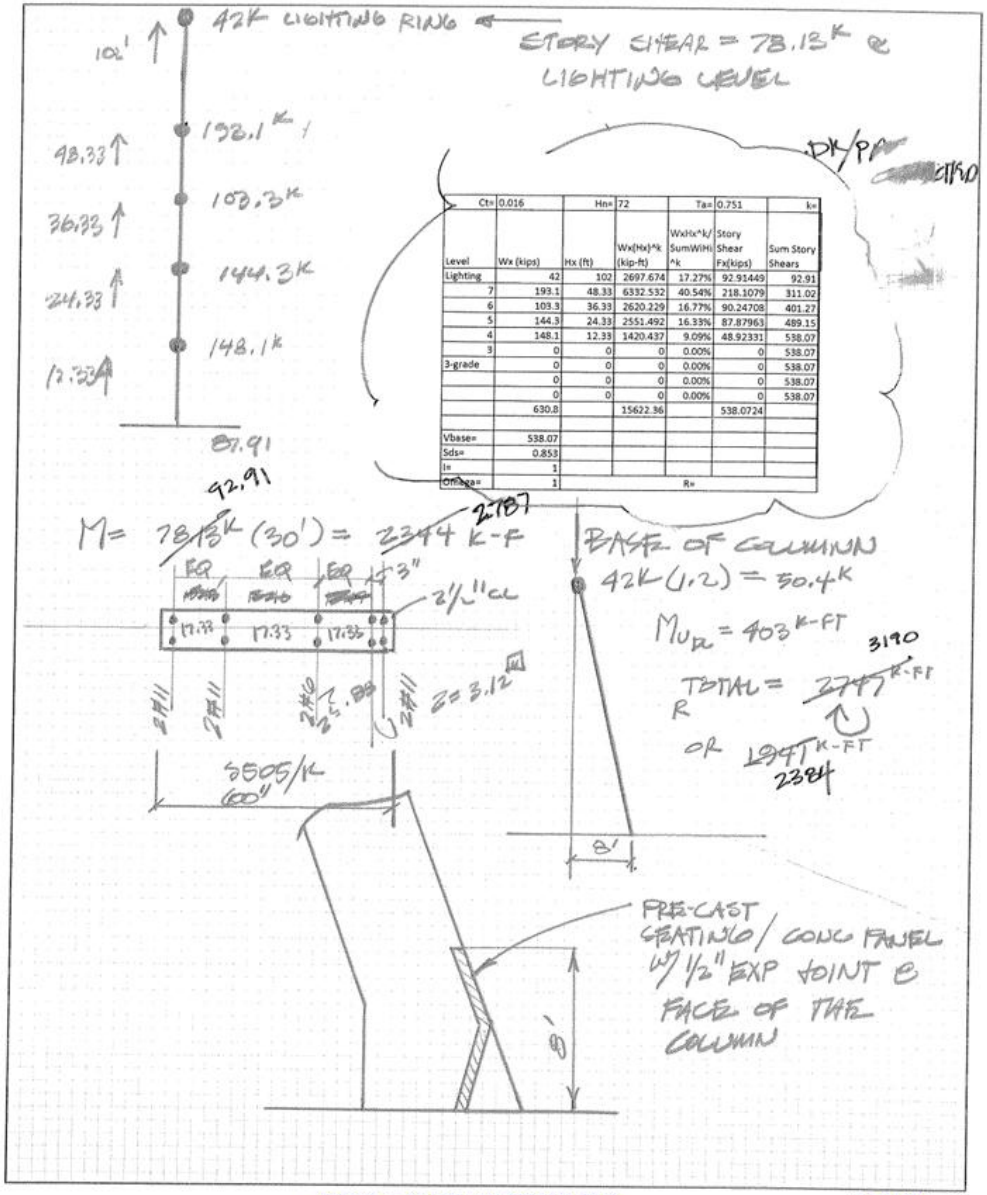


COL SELF WT = 1.33 x 1' x .150 x 24'
= 19.2 KIP

ADJUST ORIGINAL LOAD @ THE MOMENT FRAMES

AECOM

JOB TITLE
JOB NO. CALCULATION NO.
ORIGINATOR DATE
REVIEWER APN DATE 1-26-11
SCALE SHEET NO. OF



Ct=	0.016	Hn=	72	Ta=	0.751	k=
Level	Wx (kips)	Hx (ft)	Wx(Hx)^k (kip-ft)	WxHx^k/ SumWiHi ^k	Story Shear Fx(kips)	Sum Story Shears
Lighting	42	102	2697.674	17.27%	92.91449	92.91
7	193.1	48.33	6332.532	40.54%	218.1079	311.02
6	103.3	36.33	2620.229	16.77%	90.24708	401.27
5	144.3	24.33	2551.492	16.33%	87.87963	489.15
4	148.1	12.33	1420.437	9.09%	48.92331	538.07
3	0	0	0	0.00%	0	538.07
3-grade	0	0	0	0.00%	0	538.07
	0	0	0	0.00%	0	538.07
	0	0	0	0.00%	0	538.07
	630.8		15622.36		538.0724	
Vbase=	538.07					
Sds=	0.853					
I=	1					
Omega=	1		R=			

LIGHTING SUPPORT COL STRENGTH

Strain Compatibility:										Inches	
Wall Length=	60		Pu=	50.4	Kips				Wall Ht=	1144	
Wall Width=	16		γ=	0.85					Cd=	5	
Rebar Yield=	40	β_1=	.85-.05(fc-4000)/1000						Delta Elastic=	1.55	
3Day Strength=	3.75	β_1=	0.85						Delta Ult/Hw=	0.0068	
n=	8.31	Ec=		3490.52	ksi				lw/600(du/hw)=	14.29	
C=	5.3724387		ϕ=	0.9000	Based on ACI 318-05 section 10.3.3					Special Bdry Elem Not Required	
			Pn=	56	Kips						
Rebar Number	As (in^2)	y (location)	Dist to NA	Strain	fs(ksi)	Ts(kips)	Cs(kips)	Moment Arm to Center	Moment Calculation		
1	3.12	2.5	52.12756	0.029108	40.00	124.800	0.000	27.5	3432		0
2	3.12	19.83	34.79756	0.019431	40.00	124.800	0.000	10.17	1269.216		0
3	0.88	37.16	17.46756	0.009754	40.00	35.200	0.000	-7.16	-252.032		0
4	3.12	54.49	0.137561	7.68E-05	2.23	6.950	0.000	-24.49	-170.2108842		0
5	3.12	57.49	-2.86244	-0.001598	40.00	0.000	114.855	-27.49	0		3157.364
6	0	60	-5.37244	-0.003	40.00	0.000	0.000	-30	0		0
7	0	69	-14.3724	-0.008026	40.00	0.000	0.000	-39	0		0
8	0	78	-23.3724	-0.013051	40.00	0.000	0.000	-48	0		0
9	0	87	-32.3724	-0.018077	40.00	0.000	0.000	-57	0		0
10	0	96	-41.3724	-0.023103	40.00	0.000	0.000	-66	0		0
11	0	105	-50.3724	-0.028128	40.00	0.000	0.000	-75	0		0
				Sum Forces in Rebar=		291.750	114.855		4278.973116		3157.364
Comp on Zone						232.895	27.7167135				6455.09
					a=	4.567					
					Pn=	56.000					
						347.750	347.750	Delta=	0.00000		
					Mn=	13891.427	K-inches				
					Mn=	1157.619	K-Ft				
					ϕMn=	1041.857	K-Ft				
					ϕPn=	50.400	Kips				

STRONG AXIS LOAD ACTING OUT SIDE OF THE FIELD

Strain Compatibility:										Inches	
Wall Length=	60		Pu=	50.4	Kips				Wall Ht=	1144	
Wall Width=	16		γ=	0.85					Cd=	5	
Rebar Yield=	40	β_1=	.85-.05(fc-4000)/1000						Delta Elastic=	1.55	
3Day Strength=	3.75	β_1=	0.85						Delta Ult/Hw=	0.0068	
n=	8.31	Ec=		3490.52	ksi				lw/600(du/hw)=	14.29	
C=	8.0910035		ϕ=	0.9000	Based on ACI 318-05 section 10.3.3					Special Bdry Elem Not Required	
			Pn=	56	Kips						
Rebar Number	As (in^2)	y (location)	Dist to NA	Strain	fs(ksi)	Ts(kips)	Cs(kips)	Moment Arm to Center	Moment Calculation		
1	3.12	2.5	49.409	0.01832	40.00	124.800	0.000	27.5	3432		0
2	3.12	5.5	46.409	0.017208	40.00	124.800	0.000	24.5	3057.6		0
3	0.88	22.83	29.079	0.010782	40.00	35.200	0.000	7.17	252.384		0
4	3.12	40.16	11.749	0.004356	40.00	124.800	0.000	-10.16	-1267.968		0
5	3.12	57.5	-5.591	-0.002073	40.00	0.000	114.855	-27.5	0		3158.513
6	0	60	-8.091	-0.003	40.00	0.000	0.000	-30	0		0
7	0	69	-17.091	-0.006337	40.00	0.000	0.000	-39	0		0
8	0	78	-26.091	-0.009674	40.00	0.000	0.000	-48	0		0
9	0	87	-35.091	-0.013011	40.00	0.000	0.000	-57	0		0
10	0	96	-44.091	-0.016348	40.00	0.000	0.000	-66	0		0
11	0	105	-53.091	-0.019685	40.00	0.000	0.000	-75	0		0
				Sum Forces in Rebar=		409.600	114.855		5474.016		3158.513
Comp on Zone							350.745	26.5613235			9316.251
					a=	6.877					
					Pn=	56.000					
						465.600	465.600	Delta=	0.00000		
					Mn=	17948.780	K-inches				
					Mn=	1495.732	K-Ft				
					ϕMn=	1346.158	K-Ft				
					ϕPn=	50.400	Kips				

USE $\phi = 1.0$ (WE CAN USE 40KSI (1.25) OR EXPECTED 3.75KSI (1.2) STRENGTHS

BUT FOR THIN QUICK CHK

USE $\phi = 1.0$

$P_u/A_g f_c' = \frac{50.4^K}{60 \times 16 \times 3.750} = .014 > .1 < .4$

	LS	
.0/0	5	
.014	4.6	} M
.04	2	

$\therefore$ $4.6(1495.73) = 6880$ K-FT $> \cancel{2744}$ 3190 K-FT $\therefore$ OK } STRONG DIRECTION

$4.6(1152.61) = 5322$ K-FT $> \cancel{1497}$ 2196 K-FT $\therefore$ OK }

AECOM

JOB TITLE
JOB NO. CALCULATION NO.
ORIGINATOR DATE
REVIEWER PW DATE 1-26-11
SCALE SHEET NO. OF

CHECK WEAK DIRECTION -

Strain Compatibility										
Wall Length=	16		Pu=	50.4	Kips				Inches	
Wall Width=	60		γ=	0.85				Wall Ht=	1144	
Rebar Yield=	40	β_1=	.85- 05(fc-4000)/1000					Cd=	5	
28Day Strength=	3.75	β_1=	0.85					Delta Elastic=	1.55	
n=	8.31	Ec=		3490.52	ksi			Delta Ult/Hw=	0.0068	
C=	2.2996388		ϕ=	0.9000	Based on ACI 318-05 section 10.3.3			lw/600(du/hw)	3.81	
									Special Bdry Elem Not Required	
			Pn=	56	Kips					
Rebar Number	As (in^2)	y (location)	Dist to NA	Strain	fs(ksi)	Ts(kips)	Cs(kips)	Moment Arm to Center	Moment Calculation	
1	6.68	2.5	11.20036	0.014611	40.00	267.200	0.000	5.5	1469.6	0
2	6.68	13.5	0.200361	0.000261	7.58	50.635	0.000	-5.5	-278.4918598	0
3	0	16	-2.29964	-0.003	40.00	0.000	0.000	-8	0	0
4	0	40.16	-26.4596	-0.034518	40.00	0.000	0.000	-32.16	0	0
5	0	57.5	-43.7996	-0.057139	40.00	0.000	0.000	-49.5	0	0
6	0	60	-46.2996	-0.0604	40.00	0.000	0.000	-52	0	0
7	0	69	-55.2996	-0.072141	40.00	0.000	0.000	-61	0	0
8	0	78	-64.2996	-0.083882	40.00	0.000	0.000	-70	0	0
9	0	87	-73.2996	-0.095623	40.00	0.000	0.000	-79	0	0
10	0	96	-82.2996	-0.107364	40.00	0.000	0.000	-88	0	0
11	0	105	-91.2996	-0.119105	40.00	0.000	0.000	-97	0	0
				Sum Forces in Rebar=		317.835	0.000		1191.10814	0
Comp on Zone							373.835	7.02265353		2625.314
					a=	1.955				
					Pn=	56.000				
						373.835	373.835	Delta=	-0.00014	
					Mn=	3816.422	K-inches			
					Mn=	318.035	K-Ft			
					ϕMn=	286.232	K-Ft			
					ϕPn=	50.400	Kips			

$M(M_N) = 4.6(318.0) = 1463$ K-FT $<$ ~~2294~~ 2787 K-FT

LIGHTING RING COLUMNS HAVE D/C = ~~1.6~~ 1.9

∴ NO GOOD

3.9.1 – 1 Basic Nonstructural Component Checklist

This Basic Nonstructural Component Checklist shall be completed where required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked Compliant (C), Non-compliant (NC), or Not Applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 Evaluation procedure; corresponding section numbers are in parentheses following each evaluation statement.

Partitions

C NC (N/A) UNREINFORCED MASONRY: Unreinforced masonry or hollow clay tile partitions shall be braced at a spacing equal to or less than 10 feet in levels of low or moderate seismicity and 6 feet in levels of high seismicity. (Tier 2: Sec. 4.8.1.1)

Ceiling Systems

(C) NC N/A SUPPORT: The integrated suspended ceiling system shall not be used to laterally support the tops of gypsum board, masonry, or hollow clay tile partitions. Gypsum board partitions need not be evaluated where only the Basic Nonstructural Component Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.2.1)

Light Fixtures

(C) NC N/A EMERGENCY LIGHTING: Emergency lighting shall be anchored or braced to prevent falling during an earthquake. (Tier 2: Sec. 4.8.3.1)

Cladding and Glazing

C NC (N/A) CLADDING ANCHORS: Cladding components weighing more than 10 psf shall be mechanically anchored to the exterior wall framing at a spacing equal to or less than 4 feet. A spacing of up to 6 feet is permitted where only the Basic Nonstructural Component Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.1)

(C) NC N/A DETERIORATION: There shall be no evidence of deterioration, damage or corrosion in any of the connection elements. (Tier 2: Sec. 4.8.4.2)

C NC (N/A) CLADDING ISOLATION: For moment frame buildings of steel or concrete, panel connections shall be detailed to accommodate a story drift ratio of 0.02. Panel connection detailing for a story drift ratio of 0.01 is permitted where only the Basic Nonstructural Component Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.3)

C NC (N/A) MULTI-STORY PANELS: For multi-story panels attached at each floor level, panel connections shall be detailed to accommodate a story drift ratio of 0.02. Panel connection detailing for a story drift ratio of 0.01 is permitted where only the Basic Nonstructural Component Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.4)

C NC (N/A) BEARING CONNECTIONS: Where bearing connections are required, there shall be a minimum of two bearing connections for each wall panel. (Tier 2: Sec. 4.8.4.5)

3.9.1-2

C NC N/A INSERTS: Where inserts are used in concrete connections, the inserts shall be anchored to reinforcing steel or other positive anchorage. (Tier 2: Sec. 4.8.4.6)

C NC N/A PANEL CONNECTIONS: Exterior cladding panels shall be anchored out-of-plane with a minimum of 4 connections for each wall panel. Two connections per wall panel are permitted where only the Basic Nonstructural Component Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.4.7)

Masonry Veneer

C NC N/A SHELF ANGLES: Masonry veneer shall be supported by shelf angles or other elements at each floor 30 feet or more above ground for Life Safety and at each floor above the first floor for Immediate Occupancy. (Tier 2: Sec. 4.8.5.1)

C NC N/A TIES: Masonry veneer shall be connected to the back-up with corrosion-resistant ties. The ties shall have a spacing equal to or less than 24 inches with a minimum of one tie for every 2-2/3 square feet. A spacing of up to 36 inches is permitted where only the Basic Nonstructural Component Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.5.2)

C NC N/A WEAKENED PLANES: Masonry veneer shall be anchored to the back-up adjacent to weakened planes, such as at the locations of flashing. (Tier 2: Sec. 4.8.5.3)

C NC N/A DETERIORATION: There shall be no evidence of deterioration, damage, or corrosion in any of the connection elements. (Tier 2: Sec. 4.8.5.4)

Parapets, Cornices, Ornamentation, and Appendages

C NC N/A URM PARAPETS: There shall be no laterally unsupported unreinforced masonry parapets or cornices with height-to-thickness ratios greater than 1.5. A height-to-thickness ratio of up to 2.5 is permitted where only the Basic Nonstructural Component Checklist is required by Table 3-2. (Tier 2: See. 4.8.8.1)

C NC N/A CANOPIES: Canopies located at building exits shall be anchored to the structural framing at a spacing of 6 feet or less. An anchorage spacing of up to 10 feet is permitted where only the Basic Nonstructural Component Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.8.2)

Masonry Chimneys

C NC N/A URM CHIMNEYS: No unreinforced masonry chimney shall extend above the roof surface more than twice the least dimension of the chimney. A height above the roof surface of up to three times the least dimension of the chimney is permitted where only the Basic Nonstructural Component Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.9.1)

Stairs

C NC N/A URM WALLS: Walls around stair enclosures shall not consist of unbraced hollow clay tile or unreinforced masonry with a height-to-thickness ratio greater than 12-to-1. A height-to-thickness ratio of up to 15-to-1 is permitted where only the Basic Nonstructural Component Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.10.1)

C NC N/A STAIR DETAILS: In moment frame structures, the connection between the stairs and the structure shall not rely on shallow anchors in concrete. Alternatively, the stair details shall be capable of accommodating the drift calculated using the Quick Check procedure of Section 3.5.3.1 without including tension in the anchors. (Tier 2: Sec. 4.8.10.2)

3.9.2 Intermediate Nonstructural Component Checklist

This Intermediate Nonstructural Component Checklist shall be completed where required by Table 3-2. The Basic Nonstructural Component Checklist shall be completed prior to completing this Intermediate Nonstructural Component Checklist.

Ceiling Systems

C NC (N/A) LAY-IN TILES: Lay-in tiles used in ceiling panels located at exits and corridors shall be secured with clips. (Tier 2: Sec. 4.8.2.2) ONE STRUCTURE W/NO A CEILING

C NC (N/A) INTEGRATED CEILINGS: Integrated suspended ceilings at exits and corridors or weighing more than 2 pounds per square foot shall be laterally restrained with a minimum of four diagonal wires or rigid members attached to the structure above at a spacing equal to or less than 12 feet. (Tier 2: Sec. 4.8.2.3)

C NC (N/A) SUSPENDED LATH AND PLASTER: Ceilings consisting of suspended lath and plaster or gypsum board shall be attached to resist seismic forces for every 12 square feet of area. (Tier 2: Sec. 4.8.2.4) ONLY LOCATED IN PRESS BOX CORRIDOR 4'-0 WIRE OK B.I.

Light Fixtures

(C) NC N/A INDEPENDENT SUPPORT: Light fixtures in suspended grid ceilings shall be supported independently of the ceiling suspension system by a minimum of two wires at diagonally opposite corners of the fixtures. (Tier 2: Sec. 4.8.3.2)

Cladding and Glazing

C NC (N/A) GLAZING: Glazing in curtain walls and individual panes over 16 square feet in area, located up to a height of 10 feet above an exterior walking surface, shall have safety glazing. Such glazing located over 10 feet above an exterior walking surface shall be laminated annealed or laminated heat-strengthened safety glass or other glazing system that will remain in the frame when glass is cracked. (Tier 2: Sec. 4.8.4.8)

Parapets, Cornices, Ornamentation, and Appendages

(C) NC N/A CONCRETE PARAPETS: Concrete parapets with height-to-thickness ratios greater than 2.5 shall have vertical reinforcement. (Tier 2: Sec. 4.8.8.3)

(C) NC N/A APPENDAGES: Cornices, parapets, signs, and other appendages that extend above the highest point of anchorage to the structure or cantilever from exterior wall faces and other exterior wall ornamentation shall be reinforced and anchored to the structural system at a spacing equal to or less than 10 feet for Life Safety and 6 feet for Immediate Occupancy. This requirement need not apply to parapets or cornices compliant with Section 4.8.8.1 or 4.8.8.3. (Tier 2: Sec. 4.8.8.4)

Masonry Chimneys

C NC (N/A) ANCHORAGE: Masonry chimneys shall be anchored at each floor level and the roof. (Tier 2: Sec. 4.8.9.2)

Mechanical and Electrical Equipment

(C) NC N/A VIBRATION ISOLATORS: Equipment mounted on vibration isolators shall be equipped with restraints or snubbers. (Tier 2: Sec. 4.8.12.5)

Ducts

C NC (N/A) STAIR AND SMOKE DUCTS: Stair pressurization and smoke control ducts shall be braced and shall have flexible connections at seismic joints. (Tier 2: Sec. 4.8.14.1)

3.9.2-2

Building Contents and Furnishing

C NC N/A TALL NARROW CONTENTS: Contents over 4 feet in height with a height-to-depth or height-to-width ratio greater than 3-to-1 shall be anchored to the floor slab or adjacent structural walls. A height-to-depth or height-to-width ratio of up to 4-to-1 is permitted where only the Basic Nonstructural Component Checklist is required by Table 3-2. (Tier 2: Sec. 4.8.11.1)

Mechanical and Electrical Equipment

C NC N/A EMERGENCY POWER: Equipment used as part of an emergency power system shall be mounted to maintain continued operation after an earthquake. (Tier 2: Sec. 4.8.12.1)

C NC N/A HAZARDOUS MATERIAL EQUIPMENT: HVAC or other equipment containing hazardous material shall not have damaged supply lines or unbraced isolation supports. (Tier 2: Sec. 4.8.12.2)

C NC N/A DETERIORATION: There shall be no evidence of deterioration, damage, or corrosion in any of the anchorage or supports of mechanical or electrical equipment. (Tier 2: Sec. 4.8.12.3)

C NC N/A ATTACHED EQUIPMENT: Equipment weighing over 20 lb that is attached to ceilings, walls, or other supports 4 feet above the floor level shall be braced. (Tier 2: Sec. 4.8.12.4)

Piping

C NC N/A FIRE SUPPRESSION PIPING: Fire suppression piping shall be anchored and braced in accordance with NFPA-13 (NFPA, 1996). (Tier 2: Sec. 4.8.13.1)

C NC N/A FLEXIBLE COUPLINGS: Fluid, gas, and fire suppression piping shall have flexible couplings. (Tier 2: Sec. 4.8.13.2)

Hazardous Materials Storage and Distribution

C NC N/A TOXIC SUBSTANCES: Toxic and hazardous substances stored in breakable containers shall be restrained from falling by latched doors, shelf lips, wires, or other methods. (Tier 2: Sec. 4.8.15.1)

AECOM

Calculation Index — Section 5.0

Client	Project Title	Project Number	Department:	Page 1 of 1
City of San Diego	Qualcomm Stadium ASCE 31-03 Tier 1 Assessment	60190822	Structural	

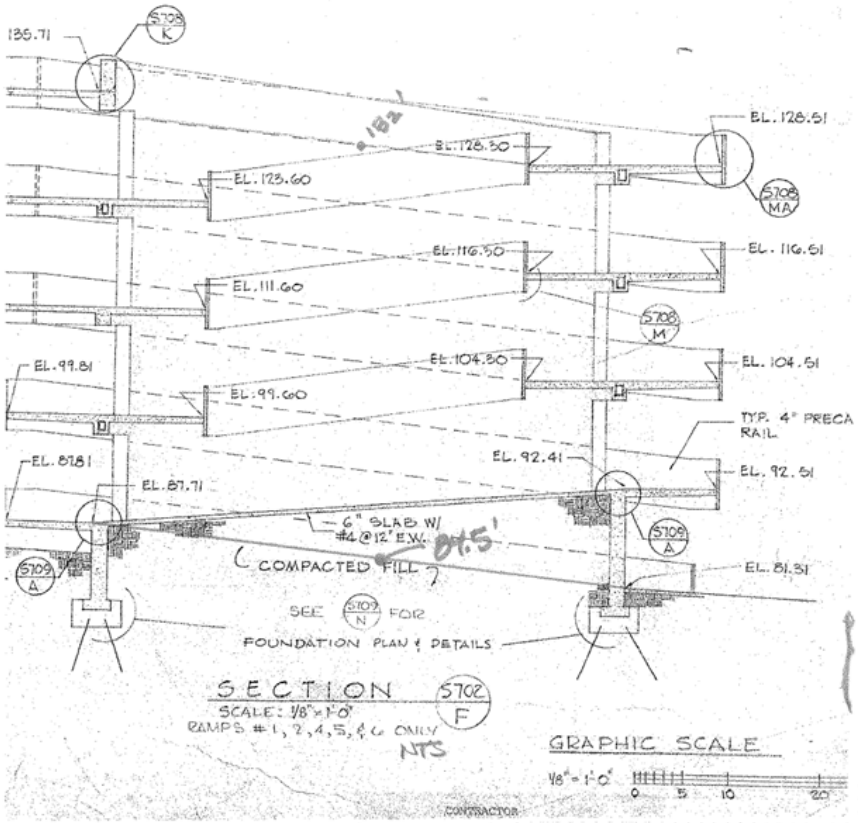
Calculation Number	Calculation Title	Made By	Date	Comments
7 PGS	SPIRAL RAMP	DK	1/20/11	MAJOR FIND CANT. BOT STL

AECOM

JOB TITLE
JOB NO. CALCULATION NO.
ORIGINATOR DATE
REVIEWER (AW) DATE 1-26-11
SCALE SHEET NO. OF

RAMP STRUCTURE -

THE RAMP CIRUCTURE DOES NOT FIT THE CLASSIC CASE OF A BUILDING HOWEVER THE SHEARWALL STYLE CHECKLIST WILL BE USED.



Grid: 10x10 = 1"

AECOM

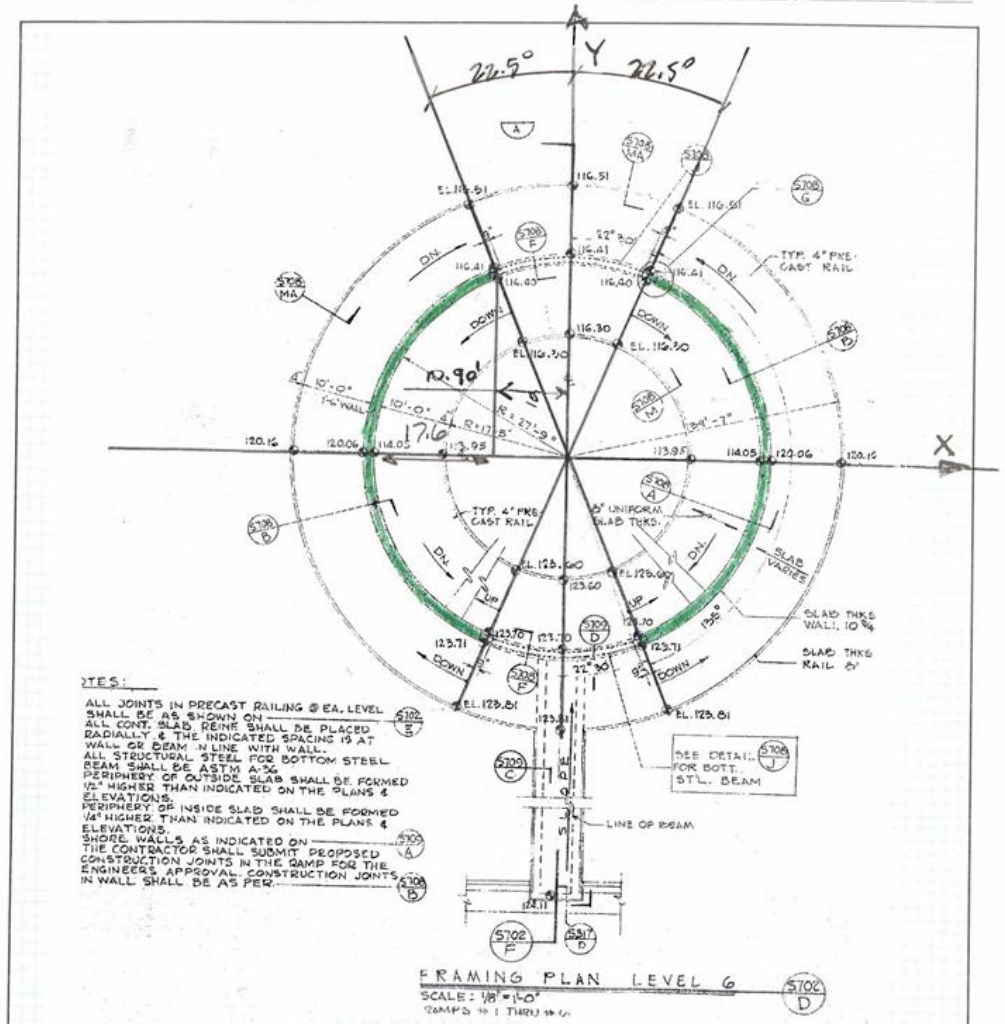
JOB TITLE _____

JOB NO. _____ CALCULATION NO. _____

ORIGINATOR _____ DATE _____

REVIEWER _____ DATE 1-26-11

SCALE _____ SHEET NO. _____ OF _____



NOTES:

ALL JOINTS IN PRECAST RAILING @ EA. LEVEL SHALL BE AS SHOWN ON S102 E
ALL CONT. SLAB REINF. SHALL BE PLACED RADIALLY & THE INDICATED SPACING IS AT WALL OR BEAM N LINE WITH WALL.
ALL STRUCTURAL STEEL FOR BOTTOM STEEL BEAM SHALL BE ASTM A-36
PERIPHERY OF OUTSIDE SLAB SHALL BE FORMED 1/2" HIGHER THAN INDICATED ON THE PLANS & ELEVATIONS.
PERIPHERY OF INSIDE SLAB SHALL BE FORMED 1/4" HIGHER THAN INDICATED ON THE PLANS & ELEVATIONS.
SHORE WALLS AS INDICATED ON S305 A
THE CONTRACTOR SHALL SUBMIT PROPOSED CONSTRUCTION JOINTS IN THE RAMP FOR THE ENGINEERS APPROVAL. CONSTRUCTION JOINTS IN WALL SHALL BE AS PER S108 B

FRAMING PLAN LEVEL 6 S702 D

SCALE: 1/8" = 1'-0"

RAMPS 1 THRU 6

AECOM

JOB TITLE
JOB NO. CALCULATION NO.
ORIGINATOR DATE
REVIEWER DPW DATE 1-26-11
SCALE SHEET NO. OF

RAMP
STRUCT
(CIRCULAR)

3.7.9 Basic Structural Checklist for Building Type C2: Concrete Shear Walls with Stiff Diaphragms

This Basic Structural Checklist shall be completed where required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked Compliant (C), Non-compliant (NC), or Not Applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 Evaluation procedure; corresponding section numbers are in parentheses following each evaluation statement.

C3.7.9 Basic Structural Checklist for Building Type C2

These buildings have floor and roof framing that consists of cast-in-place concrete slabs, concrete beams, one-way joists, two-way waffle joists, or flat slabs. Floors are supported on concrete columns or bearing walls. Lateral forces are resisted by cast-in-place concrete shear walls. In older construction, shear walls are lightly reinforced but often extend throughout the building. In more recent construction, shear walls occur in isolated locations and are more heavily reinforced with boundary elements and closely spaced ties to provide ductile performance. The diaphragms consist of concrete slabs and are stiff relative to the walls. Foundations consist of concrete spread footings, mat foundations, or deep foundations.

Building System

(C) NC N/A — LOAD PATH: The structure shall contain a minimum of one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)

C NC (N/A) — MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)

(C) NC N/A — WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80 percent of the strength in an adjacent story, above or below, for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)

(C) NC N/A — SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70 percent of the lateral-force-resisting system stiffness in an adjacent story above or below, or less than 80 percent of the average lateral-force-resisting system stiffness of the three stories above or below for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)

(C) NC N/A — GEOMETRY: There shall be no changes in horizontal dimension of the lateral-force-resisting system of more than 30 percent in a story relative to adjacent stories for Life Safety and Immediate Occupancy, excluding one-story penthouses and mezzanines. (Tier 2: Sec. 4.3.2.3)

(C) NC N/A — VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)

(C) NC N/A — MASS: There shall be no change in effective mass more than 50 percent from one story to the next for Life Safety and Immediate Occupancy. Light roofs, penthouses, and mezzanines need not be considered. (Tier 2: Sec. 4.3.2.5)

(C) NC N/A — TORSION: The estimated distance between the story center of mass and the story center of rigidity shall be less than 20 percent of the building width in either plan dimension for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.6)

(C) NC N/A — DETERIORATION OF CONCRETE: There shall be no visible deterioration of concrete or reinforcing steel in any of the vertical- or lateral-force-resisting elements. (Tier 2: Sec. 4.3.3.4)

(C) NC N/A — POST-TENSIONING ANCHORS: There shall be no evidence of corrosion or spalling in the vicinity of post-tensioning or end fittings. Coil anchors shall not have been used. (Tier 2: Sec. 4.3.3.5)

(C) NC N/A — CONCRETE WALL CRACKS: All existing diagonal cracks in wall elements shall be less than 1/8 inch for Life Safety and 1/16 inch for Immediate Occupancy, shall not be concentrated in one location, and shall not form an X pattern. (Tier 2: Sec. 4.3.3.9)

CIRC RAMP

3.7.9.-2

Lateral-Force-Resisting System

C NC (N/A) COMPLETE FRAMES: Steel or concrete frames classified as secondary components shall form a complete vertical-load-carrying system. (Tier 2: Sec. 4.4.1.6.1)

(C) NC N/A REDUNDANCY: The number of lines of shear walls in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.1.1)

(C) NC N/A SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 3.5.3.3, shall be less than the greater of 100 psi or $2\sqrt{f'c}$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.1)

(C) NC N/A REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area shall be not less than 0.0015 in the vertical direction and 0.0025 in the horizontal direction for Life Safety and Immediate Occupancy. The spacing of reinforcing steel shall be equal to or less than 18 inches for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.2)

Connections

(C) NC N/A TRANSFER TO SHEAR WALLS: Diaphragms shall be connected for transfer of loads to the shear walls for Life Safety and the connections shall be able to develop the lesser of the shear strength of the walls or diaphragms for Immediate Occupancy. (Tier 2: Sec. 4.6.2.1)

(C) NC N/A FOUNDATION DOWELS: Wall reinforcement shall be doweled into the foundation for Life Safety, and the dowels shall be able to develop the lesser of the strength of the walls or the uplift capacity of the foundation for Immediate Occupancy. (Tier 2: Sec. 4.6.3.5)

3.7.9S Supplemental Structural Checklist for Building Type C2: Concrete Shear Walls with Stiff Diaphragms

This Supplemental Structural Checklist shall be completed where required by Table 3-2. The Basic Structural Checklist shall be completed prior to completing this Supplemental Structural Checklist.

Lateral-Force-Resisting System

C NC (N/A) DEFLECTION COMPATIBILITY: Secondary components shall have the shear capacity to develop the flexural strength of the components for Life Safety and shall meet the requirements of Sections 4.4.1.4.9, 4.4.1.4.10, 4.4.1.4.11, 4.4.1.4.12 and 4.4.1.4.15 for Immediate Occupancy. (Tier 2: Sec. 4.4.1.6.2)

C NC (N/A) FLAT SLABS: Flat slabs/plates not part of lateral-force resisting system shall have continuous bottom steel through the column joints for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.6.3)

C NC (N/A) COUPLING BEAMS: The stirrups in coupling beams over means of egress shall be spaced at or less than $d/2$ and shall be anchored into the confined core of the beam with hooks of 135° or more for Life Safety. All coupling beams shall comply with the requirements above and shall have the capacity in shear to develop the uplift capacity of the adjacent wall for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.3)

C NC (N/A) OVERTURNING: All shear walls shall have aspect ratios less than 4-to-1. Wall piers need not be considered. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.4) LC ✓

C NC (N/A) CONFINEMENT REINFORCING: For shear walls with aspect ratios greater than 2-to-1, the boundary elements shall be confined with spirals or ties with spacing less than $8d_b$. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.5) LS ✓

C NC (N/A) REINFORCING AT OPENINGS: There shall be added trim reinforcement around all wall openings with a dimension greater than three times the thickness of the wall. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.6) LS ✓

C NC (N/A) WALL THICKNESS: Thickness of bearing walls shall not be less than 1/25 the unsupported height or length, whichever is shorter, nor less than 4 inches. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.2.7) LS ✓

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3.7.9-S-2

CIRC RAMP

Diaphragms

C NC N/A DIAPHRAGM CONTINUITY: The diaphragms shall not be composed of split-level floors and shall not have expansion joints. (Tier 2: Sec. 4.5.1.1)

C NC N/A OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls shall be less than 25 percent of the wall length for Life Safety and 15 percent of the wall length for Immediate Occupancy. (Tier 2: Sec. 4.5.1.4)

C NC N/A PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at re-entrant corners or other locations of plan irregularities. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.7) LS ✓

C NC N/A DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragm openings larger than 50 percent of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8) LS ✓

Connections

C NC N/A UPLIFT AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10)

– THERE ARE NO SECONDARY COMPONENTS ASSOCIATED W/ THE RAMPS

SHEAR QUICK CHECK
WALL TAKE THE FORM OF CIRCULAR SEGMENTS

WALL LENGTH ~ $2\pi(28.5') \times \frac{(360-90)}{360} = 134.3\,FT$

WALL WT ~ $134.3\,FT \times 1.5' \times 47.5' \times .150\,K/FT^3 = 1436\,KIP$

RAMP WT AREA $= (39.25^2 - 17.42^2)\pi = 3887\,FT^2$/LEVEL
X 4 LEVELS
$15,546\,FT^2$
$t_{AVE} = \frac{9.25''}{12} = .770\,FT$
$11,983\,FT^3$
X .15
1777 KIP

TOTAL W/O GUARD RAILS = 3233 KIPS

GUARD RAIL
$\pi(39.42') = 124\,FT$
$124' \times .33' \times 5.583' \times .150 \times 4.5$ LEVELS
$= 155$ KIPS

$\Sigma = 3887K \sim 3400$ KIPS
$V_{BASE} = .853(\ ^{k}\ ) = 2900$ KIPS

IN THE Y DIRECTION - USE 45° WEDGE AS THE EFFECTIVE WALL LENGTH -

$L = 2\pi(28.5) \times \frac{45}{360} \times 2 \sim 44.7 \sim 45$ FT ← VERY CONSERVA.

$V_{AVE} = \frac{2900 \text{ KIPS} \times 1000}{(4.0)(45\times12)(18)} = 75 \text{ PSI} < 100 \text{ PSI} \therefore \text{OK}$

CHECK X DIRECTION - THE WALLS CURVE & THEREFORE ARE NOT ⊥ WITH THE LOAD DIRECTION -

$17.6' \times 4 = 70 \text{ FT} > 45' \therefore \text{OK}$

THERE IS A LOT OF SHEAR WALL LENGTH.

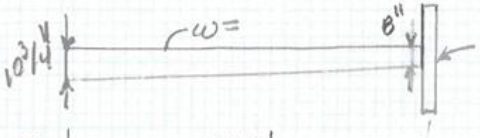
#4 @ 12" oc VERTICAL @ EA FACE

$.2\times2 = \frac{.4^{\text{IN}}}{18\times12} = .00185 > .0015 \therefore \text{OK}$

#5 @ 12" HOR

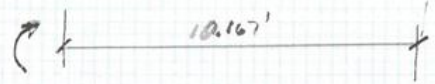
$.31(2) = \frac{.62}{18\times12} = .0028 > .0025 \therefore \text{OK}$

CHECK ASCE 7-05 .2DL ↑ ON CANT. SECTION 12.4.4



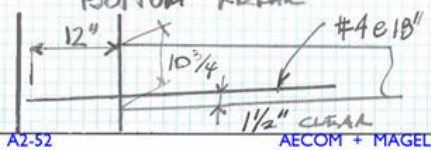
$.333' \times 6.583' \times 1' \times .15 = .29 \text{ KLF}$

$w = \frac{(10\frac{3}{4}+8)}{12\times2}(.150) = .117 \text{ KLF}$



$M_U = [.28(10.167) + .117(10^2/2)]\times.2$

$= 1.74 \text{ K-FT/FT}$



$d = 9"$ $b = 18"$ $A_S = .20^{\text{IN}}$ $\rho = .001235$

$\omega = .001235 \times \frac{40}{3} = .016646$

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$$a_U = \frac{.9(40)(1-.59(.01646))(100)}{12000} = 2.97$$

$M_U = \phi M_N = .2\,(2.97)(9) = 5.34$ K-FT $\geq$ 1.74 K-FT

ALTERNATE MOMENT CAP FIT = ϕM_N = 5.34 K-FT ∴ OK

∴ OK

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Client City of San Diego	Project Title Qualcomm Stadium ASCE 31-03 Tier 1 Assessment	Project Number 60190822	Department: Structural	Page 1 of 1

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6 PGS	ELEVATOR TOWER	DK	1/24/11	NO MAJOR NEG. FINDINGS

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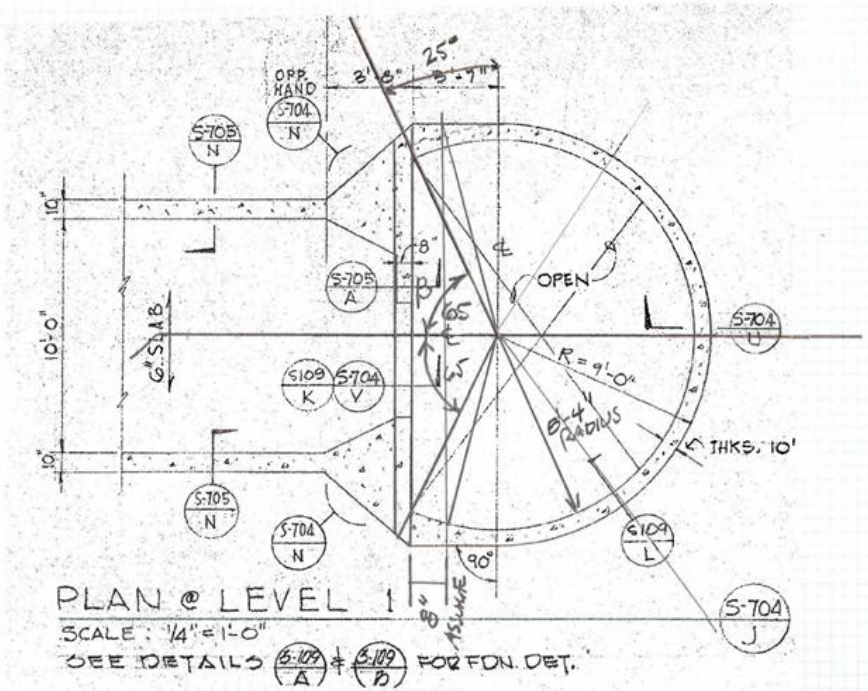
ELEVATOR TOWER

THE ELEVATOR TOWER IS A CAST IN PLACE CONCRETE TUBE THAT DOESN'T SPECIFICALLY FALL INTO AN ASCE 31-03 CHECKLIST. THE STRUCTURE IS COMPLIANT W/ THE MAJORITY OF THE CHECKLIST ITEMS -

VERIFY QUICK CHK SHEAR WALL SHEAR CAPACITY
VERIFY AMOUNT OF WALL STEEL



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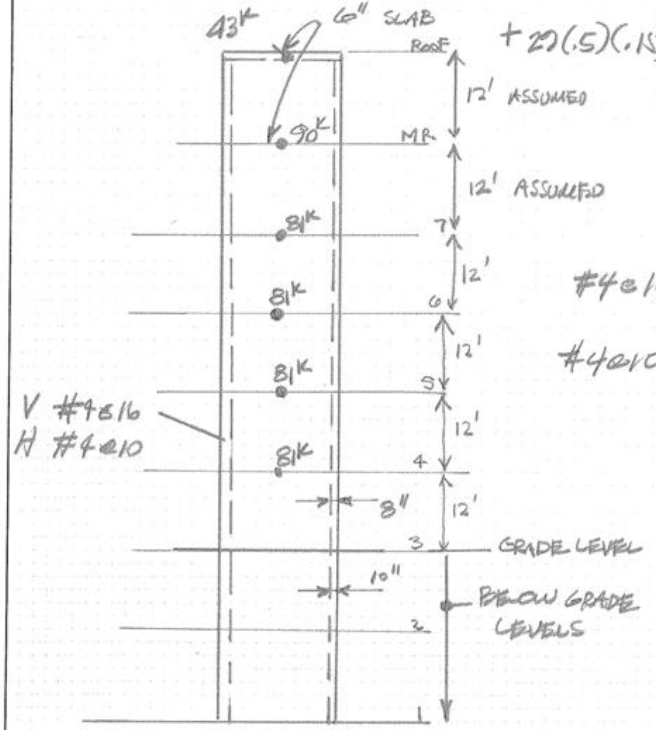

$+ 20(.5)(.15) = 2.17$ KIP

$\#4@16 = \frac{.20}{16" \times 8} = .00156$ ∴ OK

$\#4@10 \quad \frac{.20}{10 \times 8} = .0025$ ∴ OK

OD = 9'
ID = 8'-4"

$A = [(9)^2 - (8.33)^2]\pi \times \frac{230}{360} = 23.30 \text{ FT}^2$

$+ 18(.67) = 12.06 \text{ FT}^2$

$+ 2(3)(3)/2 = 9 \text{ FT}^2$

TOTAL $= 45 \text{ FT}^2 \times 12' \times .150 = 81$ KIP

$V_{BASE} = 389^K \quad 2\pi R\left(\frac{90}{360}\right) = 2\pi(8.67)(90)/360 = 13.6'$

$V_{AVE} = \frac{389^K \times 1000}{4(13.6)(.67)(144)} = 73.7 \text{ PSI} < 100 \text{ PSI} \therefore \text{OK}$

QUICK SHEAR CHECK IS COMPLIANT

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Ct=	0.016	Hn=	72	Ta=	0.751	k=	
Level	Wx (kips)	Hx (ft)	Wx(Hx)^k (kip-ft)	WxHx^k/ SumWiHi ^k	Story Shear Fx(kips)	Sum Story Shears	Fdn otm
roof	43	72	2018.681	16.21%	63.18108	63.18	4549.03786
machine room	90	60	3585.739	28.79%	112.2272	175.41	6733.62982
7	81	48	2639.989	21.20%	82.6269	258.04	3966.09143
6	81	36	2037.78	16.36%	63.77884	321.81	2296.03827
5	81	24	1414.735	11.36%	44.27866	366.09	1062.68789
4	81	12	758.1378	6.09%	23.72835	389.82	284.740169
3-grade	0	0	0	0.00%	0	389.82	0
	0	0	0	0.00%	0	389.82	0
	0	0	0	0.00%	0	389.82	0
	457		12455.06		389.821		18892.2254
Vbase=	389.82						
Sds=	0.853						
I=	1						
Omega=	1	R=					

CHECK REINFORCING STL FOR OTM - $P_u = .9(457) = 411^{K}$

$n = 1.0$

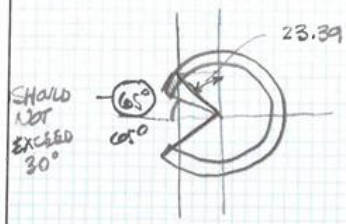
$\beta = 30°$

ASSUME 24" "

$A_s = \frac{.2}{1.33} \times \pi \times 2 \times 8.67' \times \frac{230}{360} = 5.23^{in^2}$

$\frac{18,892}{5} = 3778^{K\text{-}FT} \approx 3776^{K\text{-}FT}$

∴ OK PENDING GAP.



ASSUMING COMPLETE CIRCLE

$\phi M_N = 2643\ K\text{-}FT \ll 18,892\ K\text{-}FT$

$\phi = .7 \quad \therefore M_N = 3775.7$

$\frac{P_u}{A_g f'_c} \sim \frac{411}{30.393 \times 144 \times 3} = .0312 < .1$

$m = 5$

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$kip := 1000 \cdot lbf$ $ksi := \frac{kip}{in^2}$ $\beta := 30 \cdot deg$ $\alpha := 23.39 \cdot deg$

ACI307 Silo Design (Circular Section in Bending)

$n_1 := 1$ $A_s := 5.2 \cdot in^2$

$OD := 18 \cdot ft$ $ID := 16.66 \cdot ft$ $r := \frac{\left(\frac{OD}{2} + \frac{ID}{2}\right)}{2}$ $t := \frac{OD - ID}{2}$

$\gamma := 0$ $f_y := 40 \cdot ksi$

$t = 8.04 \cdot in$ $r = 103.98 \cdot in$

$P_u := 411 \cdot kip$ $f_c := 3 \cdot ksi$ $\phi := .7$

$A_c := \left(OD^2 - ID^2\right) \cdot \frac{\pi}{4} - 2 \cdot \beta \cdot r \cdot t$ $A_c = 30.398 \cdot ft^2$ $E_s := 29000 \cdot ksi$

$\rho_t := \frac{A_s}{A_c}$ $\rho_t = 0.001188$ $\omega_t := \rho_t \cdot \frac{f_y}{f_c}$ $\omega_t = 0.016$ $K_e := \frac{E_s}{f_y}$ $K_e = 725$

$\beta 11 := .85 - .05 \cdot \left(\frac{f_c}{ksi} - 4\right)$ $\beta 11 = 0.9$ $\beta 12 := if(.65 \le \beta 11, \beta 11, .65)$

$\beta_1 := if\left(\frac{f_c}{ksi} \le 4, .85, \beta 12\right)$ $\beta_1 = 0.85$

$\tau := acos\left[1 - \beta_1 \cdot (1 - \cos(\alpha))\right]$ $\tau = 21.542 \cdot deg$ $\tau = 0.376 \cdot rad$

$\varepsilon_m := \frac{(1 - \cos(\alpha))}{1 + \cos(\alpha)} \cdot .07$ $\varepsilon_m = 0.0029994$ Must be less than or equal to .003

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$$\psi := \operatorname{acos}\left[\cos(\alpha) - \left(\frac{1-\cos(\alpha)}{\varepsilon_m}\right)\cdot\frac{1}{K_e}\right] \qquad \psi = 28.353\cdot\text{deg} \quad \cos(\psi) = 0.88 \quad \psi = 0.495\cdot\text{rad}$$

Must be greater than -1

$$\mu := \operatorname{acos}\left[\cos(\alpha) + \left(\frac{1-\cos(\alpha)}{\varepsilon_m}\right)\cdot\frac{1}{K_e}\right] \qquad \mu = 17.135\cdot\text{deg} \quad \cos(\mu) = 0.956 \quad \mu = 0.299\cdot\text{rad}$$

Must be less than 1

$$Q_{512a} := \left[(-.523) + .181\cdot\frac{\alpha}{\text{deg}} - \left[.0154\cdot\left(\frac{\alpha}{\text{deg}}\right)^2\right] + \left[(41.3) - 13.2\cdot\frac{\alpha}{\text{deg}} + 1.32\cdot\left(\frac{\alpha}{\text{deg}}\right)^2\right]\cdot\frac{t}{r}\right] \qquad Q_{512a} = 30.445$$

$$Q_{512b} := -.154 + .01773\cdot\frac{\alpha}{\text{deg}} + .00249\cdot\left(\frac{\alpha}{\text{deg}}\right)^2 + \left[16.42 - \left[1.98\cdot\frac{\alpha}{\text{deg}} + .0674\cdot\left(\frac{\alpha}{\text{deg}}\right)^2\right]\right]\cdot\frac{t}{r} \qquad Q_{512b} = -3.54$$

$$Q_{512c} := -.488 + .076\cdot\frac{\alpha}{\text{deg}} + \left(9.758 - .64\cdot\frac{\alpha}{\text{deg}}\right)\cdot\frac{t}{r} \qquad Q_{512c} = 0.887$$

$$Q_{512d} := \left[(-1.345) + .2018\cdot\frac{\alpha}{\text{deg}} - .004434\cdot\left(\frac{\alpha}{\text{deg}}\right)^2\right] + \left[15.83 - \left[1.676\cdot\frac{\alpha}{\text{deg}} + .03994\cdot\left(\frac{\alpha}{\text{deg}}\right)^2\right]\right]\cdot\frac{t}{r} \qquad Q_{512d} = -2.547$$

$$Q_{512e} := \left(.993 - .00258\cdot\frac{\alpha}{\text{deg}}\right) + \left(-3.27 + .0862\cdot\frac{\alpha}{\text{deg}}\right)\cdot\frac{t}{r} \qquad Q_{512e} = 0.836$$

$$Q_{512f} := .89$$

$$Q := \text{if}\left[\alpha \le 5\cdot\text{deg}, Q_{512a}, \text{if}\left[(5\cdot\text{deg} < \alpha \le 10\cdot\text{deg}), Q_{512b}, \text{if}\left[(10\cdot\text{deg} < \alpha \le 17\cdot\text{deg}), Q_{512c}, \text{if}\left[(17\cdot\text{deg} < \alpha \le 25\cdot\text{deg}), Q_{512d}, \text{if}\left[(25\cdot\text{deg} < \alpha \le 35\cdot\text{deg}), Q_{512e}\right.\right.\right.\right.\right.$$

$$Q = -2.547$$

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$\lambda_1 := \mu + \psi - \pi$

$Q_1 := \dfrac{\sin(\psi) - \sin(\mu) - (\psi - \mu)\cdot\cos(\alpha)}{1 - \cos(\alpha)}$

$\lambda_1 = -134.512\cdot deg$ $\lambda := \tau - n_1\cdot\beta$ $\lambda = -0.148\cdot rad$

$Q_1 = 0.0070137$

$\lambda_1 = -2.348\cdot rad$

$Q_2 := \dfrac{(\psi - \mu)\cdot\left(1 + 2\cdot\cos(\alpha)^2\right) + \frac{1}{2}\cdot[(4)\cdot\sin(2\cdot\alpha) + \sin(2\cdot\psi) - \sin(2\cdot\mu)] - 4\cdot\cos(\alpha)\cdot[(\sin(\alpha)) + \sin(\psi) - \sin(\mu)]}{(1 - \cos(\alpha))}$ $Q_2 = 0.0023209$

$R1 := \sin(\tau) - \left(\tau - n_1\cdot\beta\right)\cdot\cos(\alpha) - \dfrac{n_1}{2}\cdot(\sin(\gamma + \beta) - \sin(\gamma - \beta))$ $R1 = 0.0027$

$K_{prime} := \sin(\psi) + \sin(\mu) + (180deg - \psi - \mu)\cdot\cos(\alpha)$ $K_{prime} = 2.924$

$K_1 := (1.7\cdot Q\cdot\lambda) + \left(2\cdot\varepsilon_m\cdot K_e\cdot\omega_t\cdot Q_1\right) + 2\cdot\omega_t\cdot\lambda_1$ $K_1 = 0.565$ $\dfrac{P_u}{r\cdot t\cdot f_c} = 0.164$

$K_2 := (1.7\cdot Q\cdot R1) + \left(\varepsilon_m\cdot K_e\cdot\omega_t\cdot Q_2\right) + 2\cdot\omega_t\cdot K_{prime}$ $K_2 = 0.081$

$K_3 := \cos(\alpha) + \dfrac{K_2}{K_1}$ $K_3 = 1.061$

$\phi M_n := \phi\cdot P_u\cdot r\cdot K_3$ $\phi M_n = 2645.83\cdot kip\cdot ft$

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Calculation Number	Calculation Title	Made By	Date	Comments
9 PGS	ESCALATOR STRUCTURE	DK	1/20/11	DEFLECTION MAY BE AN ISSUE.

ESC

3.7.8 Basic Structural Checklist for Building Type C1: Concrete Moment Frames

This Basic Structural Checklist shall be completed where required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked Compliant (C), Non-compliant (NC), or Not Applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 Evaluation procedure; corresponding section numbers are in parentheses following each evaluation statement.

C3.7.8 Basic Structural Checklist for Building Type C1

These buildings consist of a frame assembly of cast-in-place concrete beams and columns. Floor and roof framing consists of cast-in-place concrete slabs, concrete beams, one-way joists, two-way waffle joists, or flat slabs. Lateral forces are resisted by concrete moment frames that develop their stiffness through monolithic beam-column connections. In older construction, or in levels of low seismicity, the moment frames may consist of the column strips of two-way flat slab systems. Modern frames in levels of high seismicity have joint reinforcing, closely spaced ties, and special detailing to provide ductile performance. This detailing is not present in older construction. Foundations consist of concrete spread footings, mat foundations, or deep foundations.

Building System

C NC N/A — LOAD PATH: The structure shall contain a minimum of one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)

X NC N/A — ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building shall be greater than 4 percent of the height of the shorter building for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.1.2)

C NC N/A — MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)

C NC N/A — WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80 percent of the strength in an adjacent story, above or below, for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)

C NC N/A — SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70 percent of the lateral-force-resisting system stiffness in an adjacent story above or below, or less than 80 percent of the average lateral-force-resisting system stiffness of the three stories above or below for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)

C NC N/A — GEOMETRY: There shall be no changes in horizontal dimension of the lateral-force-resisting system of more than 30 percent in a story relative to adjacent stories for Life Safety and Immediate Occupancy, excluding one-story penthouses and mezzanines. (Tier 2: Sec. 4.3.2.3)

C NC N/A — VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)

55.3'X 9/100 X12 = 26.5" - ON 2½" PROVIDED ∴ NC

ESC

(C) NC N/A MASS: There shall be no change in effective mass more than 50 percent from one story to the next for Life Safety and Immediate Occupancy. Light roofs, penthouses, and mezzanines need not be considered. (Tier 2: Sec. 4.3.2.5)

3.7.8-2

(C) NC N/A TORSION: The estimated distance between the story center of mass and the story center of rigidity shall be less than 20 percent of the building width in either plan dimension for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.6)

[C] NC N/A DETERIORATION OF CONCRETE: There shall be no visible deterioration of concrete or reinforcing steel in any of the vertical- or lateral-force-resisting elements. (Tier 2: Sec. 4.3.3.4)

C NC [N/A] POST-TENSIONING ANCHORS: There shall be no evidence of corrosion or spalling in the vicinity of post-tensioning or end fittings. Coil anchors shall not have been used. (Tier 2: Sec. 4.3.3.5)

Lateral-Force-Resisting System

[C] NC N/A REDUNDANCY: The number of lines of moment frames in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. The number of bays of moment frames in each line shall be greater than or equal to 2 for Life Safety and 3 for Immediate Occupancy. (Tier 2: Sec. 4.4.1.1.1)

[C] NC N/A INTERFERING WALLS: All concrete and masonry infill walls placed in moment frames shall be isolated from structural elements. (Tier 2: Sec. 4.4.1.2.1)

(C) NC N/A SHEAR STRESS CHECK: The shear stress in the concrete columns, calculated using the Quick Check procedure of Section 3.5.3.2, shall be less than the greater of 100 psi or $2\sqrt{f'c}$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.4.1)

(C) NC N/A AXIAL STRESS CHECK: The axial stress due to gravity loads in columns subjected to overturning forces shall be less than $0.10f'_c$ for Life Safety and Immediate Occupancy. Alternatively, the axial stresses due to overturning forces alone, calculated using the Quick Check procedure of Section 3.5.3.6, shall be less than $0.30f'_c$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.4.2)

Connections

[C] NC N/A CONCRETE COLUMNS: All concrete columns shall be doweled into the foundation for Life Safety, and the dowels shall be able to develop the tensile capacity of reinforcement in columns of lateral-force-resisting system for Immediate Occupancy. (Tier 2: Sec. 4.6.3.2)

3.7.8S Supplemental Structural Checklist for Building Type C1: Concrete Moment Frames

ESC

This Supplemental Structural Checklist shall be completed where required by Table 3-2. The Basic Structural Checklist shall be completed prior to completing this Supplemental Structural Checklist.

Lateral-Force-Resisting System

C NC [N/A] FLAT SLAB FRAMES: The lateral-force-resisting system shall not be a frame consisting of columns and a flat slab/plate without beams. (Tier 2: Sec. 4.4.1.4.3)

C NC [N/A] PRESTRESSED FRAME ELEMENTS: The lateral-force-resisting frames shall not include any prestressed or post-tensioned elements where the average prestress exceeds the lesser of 700 psi or $f'_c/6$ at potential hinge locations. The average prestress shall be calculated in accordance with the Quick Check procedure of Section 3.5.3.8. (Tier 2: Sec. 4.4.1.4.4)

(C) NC N/A CAPTIVE COLUMNS: There shall be no columns at a level with height/depth ratios less than 50 percent of the nominal height/depth ratio of the typical columns at that level for Life Safety and 75 percent for Immediate Occupancy. (Tier 2: Sec. 4.4.1.4.5)

* C (NC) N/A NO SHEAR FAILURES: The shear capacity of frame members shall be able to develop the moment capacity at the ends of the members. (Tier 2: Sec. 4.4.1.4.6)
PROBABLY
(TRANSVERSE BMS ARE 60% OVERSTRESSED BUT OK W/ TIER 2

(C) NC N/A STRONG COLUMN/WEAK BEAM: The sum of the moment capacity of the columns shall be 20 percent greater than that of the beams at frame joints. (Tier 2: Sec. 4.4.1.4.7)

(C) NC N/A BEAM BARS: At least two longitudinal top and two longitudinal bottom bars shall extend continuously throughout the length of each frame beam. At least 25 percent of the longitudinal bars provided at the joints for either positive or negative moment shall be continuous throughout the length of the members for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.4.8)

C (NC) N/A COLUMN-BAR SPLICES: All column bar lap splice lengths shall be greater than $35d_b$ for Life Safety and $50d_b$ for Immediate Occupancy, and shall be enclosed by ties spaced at or less than $8d_b$ for Life Safety and Immediate Occupancy. Alternatively, column bars shall be spliced with mechanical couplers with a capacity of at least 1.25 times the nominal yield strength of the spliced bar. (Tier 2: Sec. 4.4.1.4.9)
(30db USED)

(C) NC N/A BEAM-BAR SPLICES: The lap splices or mechanical couplers for longitudinal beam reinforcing shall not be located within $l_b/4$ of the joints and shall not be located in the vicinity of potential plastic hinge locations. (Tier 2: Sec. 4.4.1.4.10)

C (NC) N/A COLUMN-TIE SPACING: Frame columns shall have ties spaced at or less than $d/4$ for Life Safety and Immediate Occupancy throughout their length and at or less than $8d_b$ for Life Safety and Immediate Occupancy at all potential plastic hinge locations. (Tier 2: Sec. 4.4.1.4.11)

C (NC) N/A STIRRUP SPACING: All beams shall have stirrups spaced at or less than $d/2$ for Life Safety and Immediate Occupancy throughout their length. At potential plastic hinge locations, stirrups shall be spaced at or less than the minimum of $8d_b$ or $d/4$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.4.12)
NC

C (NC) N/A JOINT REINFORCING: Beam-column joints shall have ties spaced at or less than $8d_b$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.4.13) DETAILED AS A WALL
NOT A COLUMN.

(C) NC N/A JOINT ECCENTRICITY: There shall be no eccentricities larger than 20 percent of the smallest column plan dimension between girder and column centerlines. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.1.4.14)

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C ~~NC~~ N/A STIRRUP AND TIE HOOKS: The beam stirrups and column ties shall be anchored into the member cores with hooks of 135° or more. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.1.4.15) LS ✓ ESC

3.7.8.5-2

C NC N/A DEFLECTION COMPATIBILITY: Secondary components shall have the shear capacity to develop the flexural strength of the components for Life Safety and shall meet the requirements of Sections 4.4.1.4.9, 4.4.1.4.10, 4.4.1.4.11, 4.4.1.4.12 and 4.4.1.4.15 for Immediate Occupancy. (Tier 2: Sec. 4.4.1.6.2)

C NC [N/A] FLAT SLABS: Flat slabs/plates not part of lateral-force-resisting system shall have continuous bottom steel through the column joints for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.1.6.3)

Diaphragms

C NC N/A DIAPHRAGM CONTINUITY: The diaphragms shall not be composed of split-level floors and shall not have expansion joints. (Tier 2: Sec. 4.5.1.1)

C NC N/A PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at re-entrant corners or other locations of plan irregularities. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.7)

C NC N/A DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragm openings larger than 50 percent of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8)

Connections

[C] NC N/A UPLIFT AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10)

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- EVALUATE THE ESCALATOR STRUCTURE SIMILAR TO THE ELEVATION. (TRANSVERSE DIRECTION = MOMENT FRAME)

- SIDE WALLS 10" conc. 6'-11"

WT = .83' x 6.92' x 2 SIDES x .15 = 1.72 KLF
6/12" SLABS x 8' x .15 = .60 KLF
2.32 KLF

ESCALATOR EQ/FT ~ .30 KLF
2.67 ~ 2.7 KLF

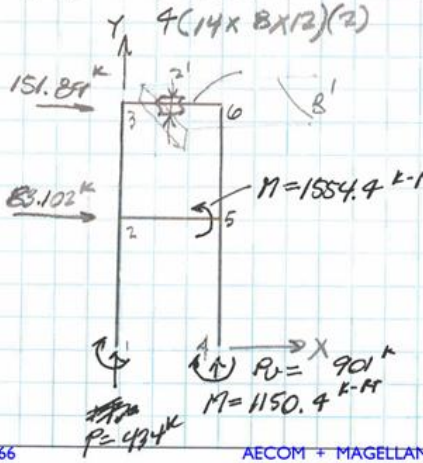
COLUMNS = 8' x 1.167' x .15 x 2 = 2.8 KLF

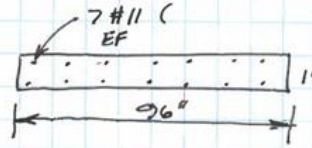
$W_1 = (22' + 3' + 4' + 9.83')(2.7) + \frac{20.5'}{2}(2.8) = 133.5^K$

$W_2 = (20' + 12.25')2.7 + \frac{(20.5 + 18.45)}{2}(2.8) = 142.0^K$

$V_{BASE} = 235^K$

$V_{AVG} = \frac{235^K(1000)}{4(14 \times 8 \times 12)(2)} = 21.9 \text{ PSI} < 100 \text{ PSI} \therefore \text{OK}$





7(1.56) = 10.92 K

w/ P_u = 900K ϕM_n = 617.9 K-FT

$\frac{900 \times 1000}{96 \times 14 \times 3000} = .222 > .1 < .4$

M = 3.89

$\frac{1150.4}{3.89} = 295 \text{ K-FT} < 618 \text{ K-FT}$ ∴ OK

AECOM

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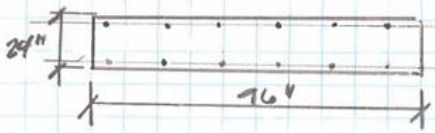
ESCALATOR DOWN MOMENT CAPACITY

Strain Compatibility:										Inches	
Wall Length=	14		Pu=	900	Kips				Wall Ht=	1144	
Wall Width=	96		γ=	0.85					Cd=	5	
Rebar Yield=	40		β_1=	.85-.05(fc-4000)/1000					Delta Elastic=	1.55	
3Day Strength=	3.75		β_1=	0.85					Delta Ult/Hw=	0.0068	
n=	8.31		Ec=	3490.52	ksi				lw/600(du/hw)	3.33	
C=	4.7769136		ϕ=	0.7452	Based on ACI 318-05 section 10.3.3					Special Bdry Elem Reqd	
			Pn=	1207.668	Kips						
Rebar Number	As (in^2)	y (location)	Dist to NA	Strain	fs(ksi)	Ts(kips)	Cs(kips)	Moment Arm to Center	Moment Calculation		
1	10.92	2.5	6.723086	0.004222	40.00	436.800	0.000	4.5	1965.6		0
2	10.92	11.5	-2.27691	-0.00143	40.00	0.000	401.993	-4.5	0		1808.966
3	0	14	-4.77691	-0.003	40.00	0.000	0.000	-7	0		0
4	0	69.75	-60.5269	-0.038012	40.00	0.000	0.000	-62.75	0		0
5	0	73	-63.7769	-0.040053	40.00	0.000	0.000	-66	0		0
6	0	82	-72.7769	-0.045705	40.00	0.000	0.000	-75	0		0
				Sum Forces in Rebar=		436.800	401.993		1965.6		1808.966
Comp on Zone							1242.475	4.96981171			6174.868
					a=	4.060					
					Pn=	1207.668					
						1644.468	1644.468	Delta=	0.00000		
					Mn=	9949.434	K-inches				
					Mn=	829.120	K-Ft				
					ϕMn=	617.891	K-Ft				
					ϕPn=	900.000	Kips				

FOOT. MOM CAP OF 24" DEEP BM -



8-#10 (10.16 in²)

Strain Compatibility:										Inches	
Wall Length=	24		Pu=	0	Kips				Wall Ht=	1144	
Wall Width=	96		γ=	0.85					Cd=	5	
Rebar Yield=	40	β_1=	.85-.05(fc-4000)/1000						Delta Elastic=	1.55	
3Day Strength=	3.75	β_1=	0.85						Delta Ult/Hw=	0.0068	
n=	8.31	Ec=		3490.52	ksi				lw/600(du/hw)	5.71	
C=	2.1379583	ϕ	0.9000		Based on ACI 318-05 section 10.3.3					Special Bdry Elem Not Required	
		Pn=	0		Kips						
Rebar Number	As (in^2)	y (location)	Dist to NA	Strain	fs(ksi)	Ts(kips)	Cs(kips)	Moment Arm to Center	Moment Calculation		
1	10.16	2.5	19.36204	0.027169	40.00	406.400	0.000	9.5	3860.8		0
2	10.16	21.5	0.362042	0.000508	14.73	149.683	0.000	-9.5	-1421.988038		0
3	0	14	7.862042	0.011032	40.00	0.000	0.000	-2	0		0
4	0	69.75	-47.888	-0.067197	40.00	0.000	0.000	-57.75	0		0
5	0	73	-51.138	-0.071757	40.00	0.000	0.000	-61	0		0
6	0	82	-60.138	-0.084386	40.00	0.000	0.000	-70	0		0
				Sum Forces in Rebar=		556.083	0.000		2438.811962		0
Comp on Zone							556.083	11.0913677			6167.721
					a=	1.817					
					Pn=	0.000					
						556.083	556.083	Delta=	0.00000		
					Mn=	8606.532	K-inches				
					Mn=	717.211	K-Ft				
					ϕMn=	645.490	K-Ft				
					ϕPn=	0.000	Kips				

Grid: 4x4 = 1 in

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JOB TITLE
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CHK SHEAR CAP – CROSS BM

M_N = 717.211 K-FT

$V = 2(717.211)/6.833' = 209.9$ KIPS

$V_c = \frac{2\sqrt{3000}(76)(21.5)}{1000} = 226$ KIPS

STIRRUPS #4 @ 9" $A_V = 2(.2) = .4$ in²

$V_s = \frac{.4(90)(21.5)}{9} = 38.22$ KIPS

V_N TOTAL = 264.3 KIPS

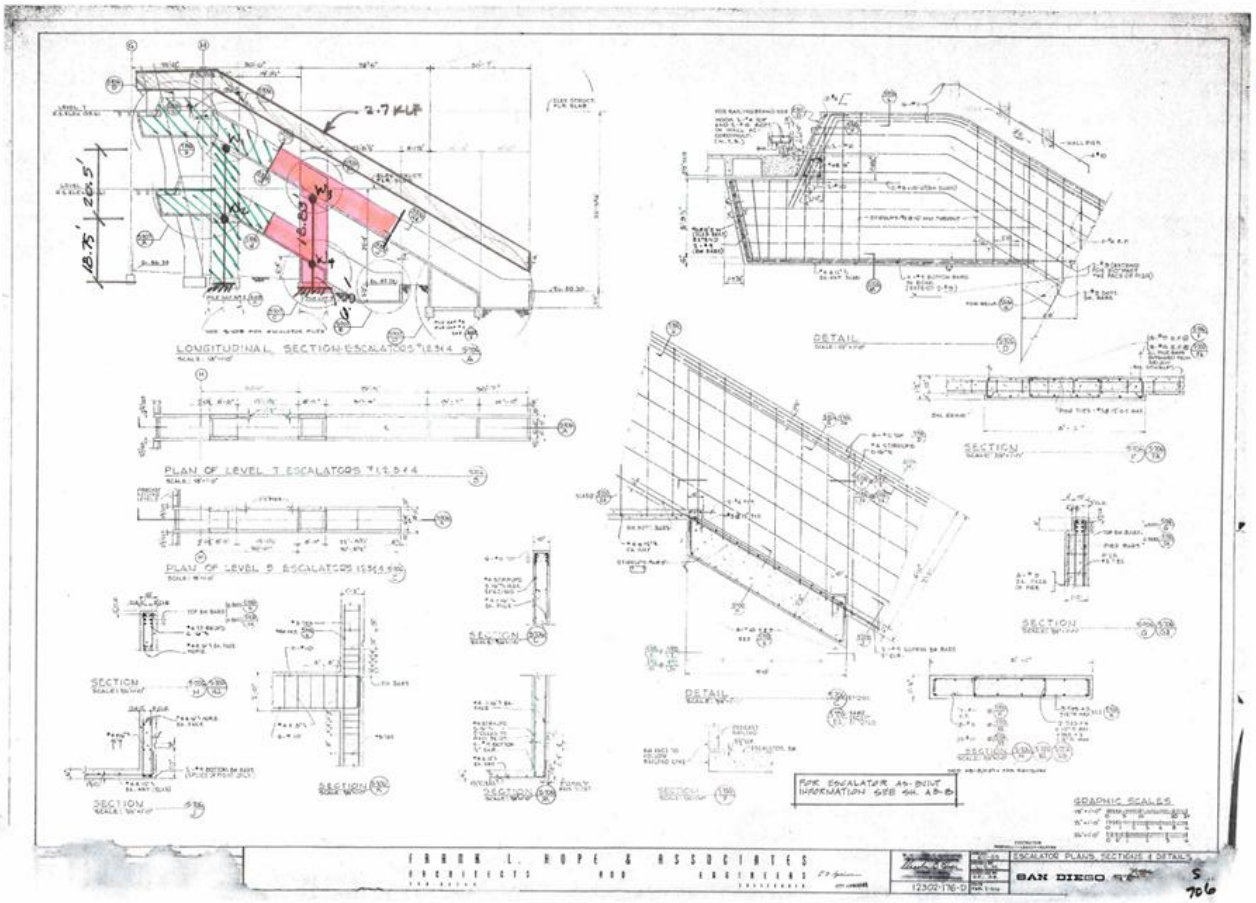
$\phi = .75$ ∴ $\phi V_N = 198.2$ KIPS

D/C = 1.06 6% OVERSTRESS ≈ OK BUT NOT

COLUMNS ARE OK

$d/4 = 11.5/4 = 2.87" << 12"$ TIE SPACING NOT COMPLIANT.

$d/2 = 21.5/2 = 10.75" > 9"$ ∴ OK



A2-69

AECOM + MAGELLAN CONSULTING

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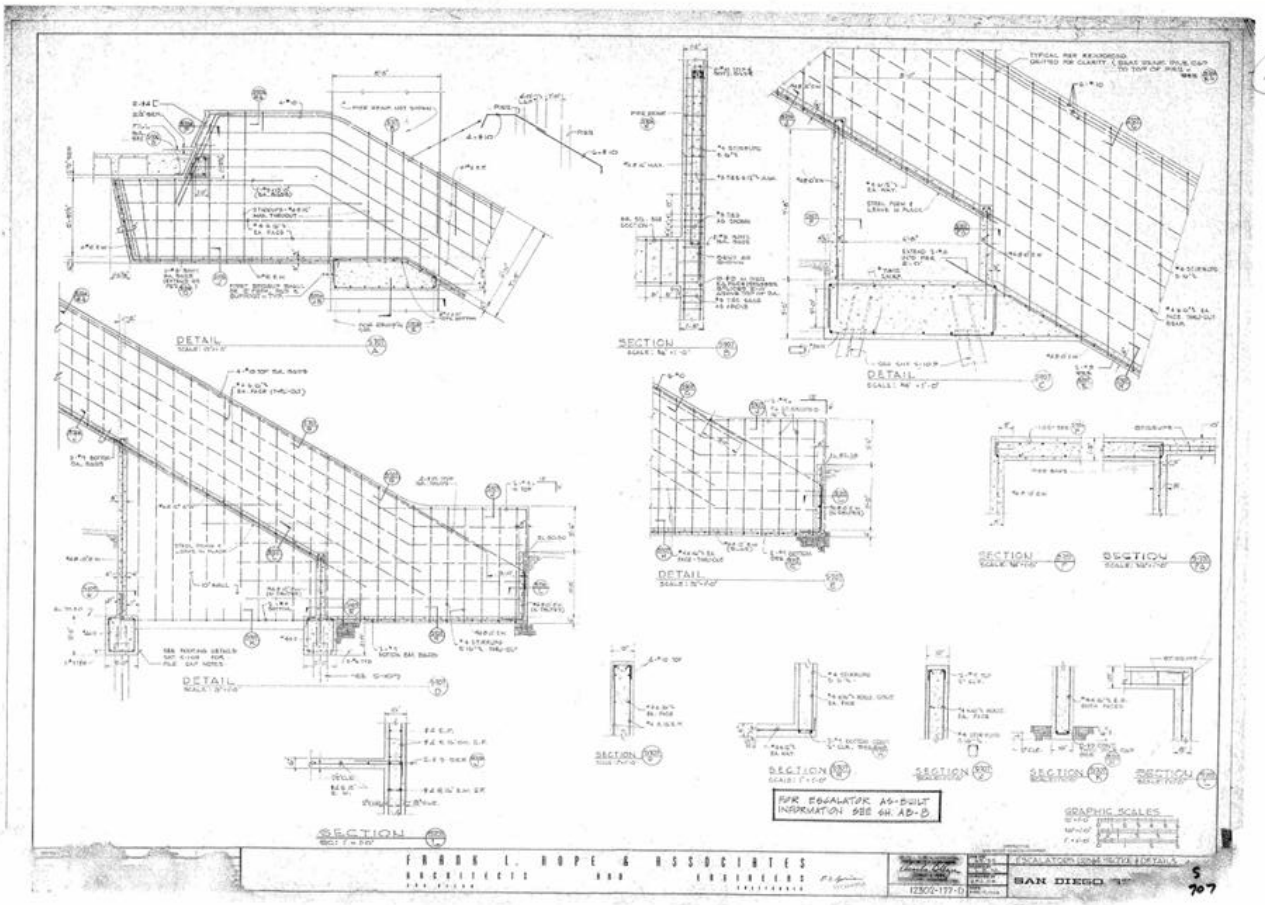
706



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Calculation Index — Section 8.0

Client	Project Title	Project Number	Department:	Page 1 of 1
City of San Diego	Qualcomm Stadium ASCE 31-03 Tier 1 Assessment	60190822	Structural	

Calculation Number	Calculation Title	Made By	Date	Comments
	PERIMETER BLDGS	DK	1/25/11	NO NEGATIVE FINDINGS

AECOM

JOB TITLE
JOB NO. CALCULATION NO.
ORIGINATOR DATE
REVIEWER DATE 1-26-11
SCALE SHEET NO. OF

REVIEW EXTERIOR (PERIMETER STRUCTURE)
DRAWINGS S-001 → S-006 FRAMING
S-110 → S-111 FOUNDATIONS

LATERAL SYSTEM – PRE-CAST EXTERIOR WALLS & MASONRY INTERIOR WALLS FRAMED TO FLEXIBLE METAL DECK ROOF STRUCTURE

– BLOCK VERTICAL STL 8" BL = #5@32 V
FOUND CONN. #5@48 H
5@16" OC 8" 6" BL #4@32 V
4@16" OC 6" #5@48 H

– PRECAST WALLS TIED TO FDN W/ #4@ 24" OC
– PRECAST BMS & FLEXIBLE DECK

USE PRECAST/FLEXIBLE DIA. CHECKLISTS

3.7.11 Basic Structural Checklist for Building Type PC1: Precast/Tilt-Up Concrete Shear Walls with Flexible Diaphragms

This Basic Structural Checklist shall be completed where required by Table 3-2.

Each of the evaluation statements on this checklist shall be marked Compliant (C), Non-compliant (NC), or Not Applicable (N/A) for a Tier 1 Evaluation. Compliant statements identify issues that are acceptable according to the criteria of this standard, while non-compliant statements identify issues that require further investigation. Certain statements may not apply to the buildings being evaluated. For non-compliant evaluation statements, the design professional may choose to conduct further investigation using the corresponding Tier 2 Evaluation procedure; corresponding section numbers are in parentheses following each evaluation statement.

C3.7.11 Basic Structural Checklist for Building Type PC1

These buildings have precast concrete perimeter wall panels that are cast on-site and tilted into place. Floor and roof framing consists of wood joists, glulam beams, steel beams, or open web joists. Framing is supported on interior steel or concrete columns and perimeter concrete bearing walls. The floors and roof consist of wood sheathing or untopped metal deck. Lateral forces are resisted by the precast concrete perimeter wall panels. Wall panels may be solid or have large window and door openings that cause the panels to behave more as frames than as shear walls. In older construction, wood framing is attached to the walls with wood ledgers. Foundations consist of concrete spread footings or deep pile foundations.

Building System

(C) NC N/A — LOAD PATH: The structure shall contain a minimum of one complete load path for Life Safety and Immediate Occupancy for seismic force effects from any horizontal direction that serves to transfer the inertial forces from the mass to the foundation. (Tier 2: Sec. 4.3.1.1)

(C) NC N/A — ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building shall be greater than 4 percent of the height of the shorter building for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.1.2)

C NC (N/A) — MEZZANINES: Interior mezzanine levels shall be braced independently from the main structure, or shall be anchored to the lateral-force-resisting elements of the main structure. (Tier 2: Sec. 4.3.1.3)

C NC (N/A) — WEAK STORY: The strength of the lateral-force-resisting system in any story shall not be less than 80 percent of the strength in an adjacent story, above or below, for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.1)

C NC (N/A) — SOFT STORY: The stiffness of the lateral-force-resisting system in any story shall not be less than 70 percent of the lateral-force-resisting system stiffness in an adjacent story above or below, or less than 80 percent of the average lateral-force-resisting system stiffness of the three stories above or below for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.3.2.2)

C NC (N/A) — GEOMETRY: There shall be no changes in horizontal dimension of the lateral-force-resisting system of more than 30 percent in a story relative to adjacent stories for Life Safety and Immediate Occupancy, excluding one-story penthouses and mezzanines. (Tier 2: Sec. 4.3.2.3)

C NC (N/A) — VERTICAL DISCONTINUITIES: All vertical elements in the lateral-force-resisting system shall be continuous to the foundation. (Tier 2: Sec. 4.3.2.4)

C NC (N/A) MASS: There shall be no change in effective mass more than 50 percent from one story to the next for Life Safety and Immediate Occupancy. Light roofs, penthouses, and mezzanines need not be considered. (Tier 2: Sec. 4.3.2.5)

C NC (N/A) DETERIORATION OF WOOD: There shall be no signs of decay, shrinkage, splitting, fire damage, or sagging in any of the wood members, and none of the metal connection hardware shall be deteriorated, broken, or loose. (Tier 2: Sec. 4.3.3.1)

(C) NC N/A PRECAST CONCRETE WALLS: There shall be no visible deterioration of concrete or reinforcing steel or evidence of distress, especially at the connections. (Tier 2: Sec. 4.3.3.6)

Lateral-Force-Resisting System

(C) NC N/A REDUNDANCY: The number of lines of shear walls in each principal direction shall be greater than or equal to 2 for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.1.1)

(C) NC N/A SHEAR STRESS CHECK: The shear stress in the precast panels, calculated using the Quick Check procedure of Section 3.5.3.3, shall be less than the greater of 100 psi or $2\sqrt{f'c}$ for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.3.1)

(C) NC N/A REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area shall be not less than 0.0015 in the vertical direction and 0.0025 in the horizontal direction for Life Safety and Immediate Occupancy. The spacing of reinforcing steel shall be equal to or less than 18 inches for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.3.2)

Connections

(C) NC N/A WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support shall be anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections shall have adequate strength to resist the connection force calculated in the Quick Check procedure of Section 3.5.3.7. (Tier 2: Sec. 4.6.1.1)

C NC (N/A) WOOD LEDGERS: The connection between the wall panels and the diaphragm shall not induce cross-grain bending or tension in the wood ledgers. (Tier 2: Sec. 4.6.1.2)

(C) NC N/A TRANSFER TO SHEAR WALLS: Diaphragms shall be connected for transfer of loads to the shear walls for Life Safety and the connections shall be able to develop the lesser of the shear strength of the walls or diaphragms for Immediate Occupancy. (Tier 2: Sec. 4.6.2.1)

(C) NC N/A PRECAST WALL PANELS: Precast wall panels shall be connected to the foundation for Life Safety and the connections shall be able to develop the strength of the walls for Immediate Occupancy. (Tier 2: Sec. 4.6.3.7)

(C) NC N/A GIRDER/COLUMN CONNECTION: There shall be a positive connection utilizing plates, connection hardware, or straps between the girder and the column support. (Tier 2: Sec. 4.6.4.1)

3.7.11S Supplemental Structural Checklist for Building Type PC1: Precast/Tilt-Up Concrete Shear Walls with Flexible Diaphragms

This Supplemental Structural Checklist shall be completed where required by Table 3-2. The Basic Structural Checklist shall be completed prior to completing this Supplemental Structural Checklist.

Lateral-Force-Resisting System

C NC (N/A) COUPLING BEAMS: The stirrups in coupling beams over means of egress shall be spaced at or less than *d*/2 and shall be anchored into the confined core of the beam with hooks of 135° or more for Life Safety. All coupling beams shall comply with the requirements above and shall have the capacity in shear to develop the uplift capacity of the adjacent wall for Immediate Occupancy. (Tier 2: Sec. 4.4.2.2.3)

C NC (N/A) WALL OPENINGS: The total width of openings along any perimeter wall line shall constitute less than 75 percent of the length of any perimeter wall for Life Safety and 50 percent for Immediate Occupancy with the wall piers having aspect ratios of less than 2-to-1 for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.4.2.3.3)

C NC (N/A) CORNER OPENINGS: Walls with openings at a building corner larger than the width of a typical panel shall be connected to the remainder of the wall with collector reinforcing. (Tier 2: Sec. 4.4.2.3.4)

C NC (N/A) PANEL-TO-PANEL CONNECTIONS: Adjacent wall panels shall be interconnected to transfer overturning forces between panels by methods other than welded steel inserts. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.3.5)

C NC (N/A) WALL THICKNESS: Thickness of bearing walls shall not be less than 1/25 the unsupported height or length, whichever is shorter, nor less than 4 inches. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.4.2.3.6)

Diaphragms

(C) NC N/A CROSS TIES: There shall be continuous cross ties between diaphragm chords. (Tier 2: Sec. 4.5.1.2)

C NC (N/A) PLAN IRREGULARITIES: There shall be tensile capacity to develop the strength of the diaphragm at re-entrant corners or other locations of plan irregularities. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.7)

C NC (N/A) DIAPHRAGM REINFORCEMENT AT OPENINGS: There shall be reinforcing around all diaphragm openings larger than 50 percent of the building width in either major plan dimension. This statement shall apply to the Immediate Occupancy Performance Level only. (Tier 2: Sec. 4.5.1.8)

C NC (N/A) STRAIGHT SHEATHING: All straight sheathed diaphragms shall have aspect ratios less than 2-to-1 for Life Safety and 1-to-1 for Immediate Occupancy in the direction being considered. (Tier 2: Sec. 4.5.2.1)

C NC (N/A) SPANS: All wood diaphragms with spans greater than 24 feet for Life Safety and 12 feet for Immediate Occupancy shall consist of wood structural panels or diagonal sheathing. (Tier 2: Sec. 4.5.2.2)

C NC (N/A) UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms shall have horizontal spans less than 40 feet for Life Safety and 30 feet for Immediate Occupancy and shall have aspect ratios less than or equal to 4-to-1 for Life Safety and 3-to-1 for Immediate Occupancy. (Tier 2: Sec. 4.5.2.3)

(C) NC N/A OTHER DIAPHRAGMS: The diaphragm shall not consist of a system other than wood, metal deck, concrete, or horizontal bracing. (Tier 2: Sec. 4.5.7.1)

Connections

(C) NC N/A PRECAST PANEL CONNECTIONS: There shall be at least two anchors from each precast wall panel into the diaphragm elements for Life Safety and the anchors shall be able to develop the strength of the panels for Immediate Occupancy. (Tier 2: Sec. 4.6.1.3)

(C) NC N/A UPLIFT AT PILE CAPS: Pile caps shall have top reinforcement and piles shall be anchored to the pile caps for Life Safety, and the pile cap reinforcement and pile anchorage shall be able to develop the tensile capacity of the piles for Immediate Occupancy. (Tier 2: Sec. 4.6.3.10)

(C) NC N/A GIRDERS: Girders supported by walls or pilasters shall have at least two ties securing the anchor bolts for Life Safety and Immediate Occupancy. (Tier 2: Sec. 4.6.4.2)

AECOM

JOB TITLE
JOB NO. CALCULATION NO.
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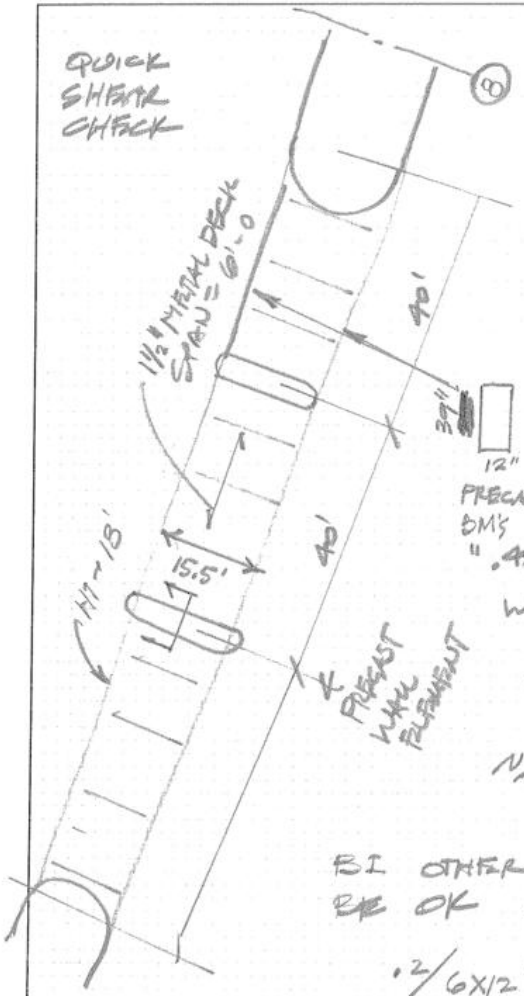
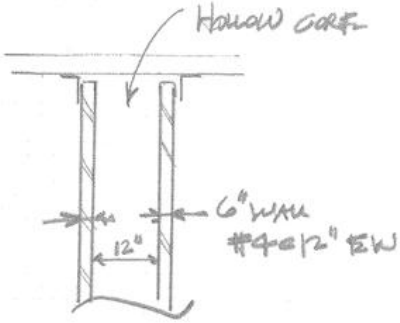
QUICK SHEAR CHECK





Roof LL = 20PSF
∴ TRIB TO WALL

≈ .02(40')(15.5') = 12.4ᴷ

" .488KLF x 2 x 40' = 39.0ᴷ

WALL = 1'x15.5'x9'x.150 = 20.9ᴷ

∴ V = .85₃ (72.33ᴷ) = 62ᴷ

$N_{AVE} = \frac{62^K \times 1000}{1(12 \times 15.5 \times 12)} = 6.9\,PSI$

<<100PSI
∴ OK

BI OTHER WALLS WILL BE OK ALSO,

.2/6X12 = .0028 V & H ∴ OK

AECOM

JOB TITLE _____
JOB NO. _____ CALCULATION NO. _____
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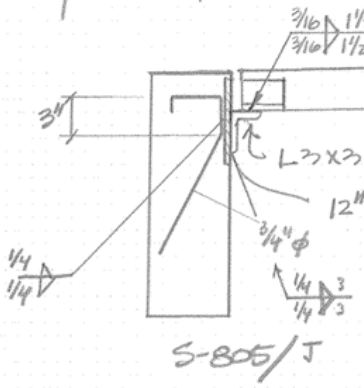
(39'X12')

DIAPHRAGM / WALL ANCHORAGE 2.5.3.7 @ LIGHTIL BM

$T_c = .9 S_{DS} W_p A_p = .9(.853) W_p = .768 W_p$

W_p @ 39X12 BM = .488 KLF X 6' X .768 = 2.25 KIPS



S-805/J

3/16 FILLET = .75(.60)(3/16)(.707)(60)
= 3.58 K/11
X 3"
10.74 K >> 2.25 K

ANGLE TO PL WELD CAPACITY >
JOIST TO ANGLE ∴ OK

PL T= 3/4" ROD ANCHORS

(E) = .4(R) R = 3/8
∴ .150
.75X.6X.150X60 = 4.05 K/11

∴ CAP = 2(3")X2 ANCHORS X 4.05 = 48.6 KIPS >> 2.25 K

@ 6" WALL PANEL
WT = .5X.15X9'X6' = 4.05 K
X.768
3.11 K/CONN ← OK
BUT OK BI

AECOM

Calculation Index — Section 9.0

Client	Project Title	Project Number	Department:	Page 1 of 1
City of San Diego	Qualcomm Stadium ASCE 31-03 Tier 1 Assessment	60190822	Structural	

Calculation Number	Calculation Title	Made By	Date	Comments
2 PGS	NEWER BLDGS AFTER 1996	DK	1/25/11	THEY FALL INTO BENCH MARK CAT.

AECOM

JOB TITLE _____

JOB NO. _____ CALCULATION NO. _____

ORIGINATOR _____ DATE _____

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SCALE _____ SHEET NO. _____ OF _____

NEWER END ZONE INFILL FRAMING - BTW 1966 AND 1995 A STADIUM ADDITION FILLED IN THE STADIUM AREA BTW GRID LINE .5 → 40.5. IN 1995 ADD'L FRAMING AND LATERAL SUPPORT (SEISMIC RESISTING ELEMENTS) WERE ADDED. ASCE 31-03 DEFINES "BENCHMARK" BUILDINGS. BY DEFINITION A BENCHMARK BUILDING WILL BE COMPLIANT AND THEREFORE NO ASCE 31-03 EVALUATION IS REQUIRED.

- CONCRETE SHEARWALL PRE UBC ∴ 1966 UBC IS OK

REF TABLE 3.1

Table 3-1. Benchmark Buildings

	Model Building Seismic Design Provisions							
Building Type[1, 2]	**NBC**[3a]	**SBC**[3a]	**UBC**[3a]	**IBC**[3a]	**NEHRP**[3a]	**FEMA 178**[3a]	**FEMA 310**[3a, 3b]	**CBC**[3b]
Wood Frame, Wood Shear Panels (Type W1 & W2)	1993	1994	1976	2000	1985	*	1998	1973
Wood Frame, Wood Shear Panels (Type W1A)	*	*	1997	2000	1997	*	1998	1973
Steel Moment-Resisting Frame (Type S1 & S1A)	*	*	1994[4]	2000	**	*	1998	1995
Steel Braced Frame (Type S2 & S2A)	1993	1994	1988	2000	1991	1992	1998	1973
Light Metal Frame (Type S3)	*	*	*	2000	*	1992	1998	1973
Steel Frame w/ Concrete Shear Walls (Type S4)	1993	1994	1976	2000	1985	1992	1998	1973
Reinforced Concrete Moment-Resisting Frame (Type C1)[3]	1993	1994	1976	2000	1985	*	1998	1973
Reinforced Concrete Shear Walls (Type C2 & C2A)	1993	1994	1976	2000	1985	*	1998	1973
Steel Frame with URM Infill (Type S5, S5A)	*	*	*	2000	*	*	1998	*
Concrete Frame with URM Infill (Type C3 & C3A)	*	*	*	2000	*	*	1998	*
Tilt-up Concrete (Type PC1 & PC1A)	*	*	1997	2000	*	*	1998	*
Precast Concrete Frame (Type PC2 & PC2A)	*	*	*	2000	*	1992	1998	1973
Reinforced Masonry (Type RM1)	*	*	1997	2000	*	*	1998	*
Reinforced Masonry (Type RM2)	1993	1994	1976	2000	1985	*	1998	*
Unreinforced Masonry (Type URM)[5]	*	*	1991[6]	2000	*	1992	*	*
Unreinforced Masonry (Type URMA)	*	*	*	2000	*	*	1998	*

[1] "Building Type" refers to one of the Common Building Types defined in Table 2-2.
[2] Buildings on hillside sites shall not be considered Benchmark Buildings.
[3] Flat Slab Buildings shall not be considered Benchmark Buildings.
[4] Steel Moment-Resisting Frames shall comply with the 1994 UBC Emergency Provisions, published September/October 1994, or subsequent requirements.
[5] URM buildings evaluated using the ABK Methodology (ABK, 1984) may be considered benchmark buildings.
[6] Refers to the GSREB or its predecessor, the Uniform Code of Building Conservation (UCBC).

[a] Only buildings designed and constructed or evaluated in accordance with these documents and being evaluated to the Life Safety (LS) Performance Level may be considered Benchmark Buildings.
[b] Buildings designed and constructed or evaluated in accordance with these documents and being evaluated to either the Life Safety or Immediate Occupancy (IO) Performance Level may be considered Benchmark Buildings.

* No benchmark year; buildings shall be evaluated using this standard.
** Local provisions shall be compared with the UBC.

NBC = *National Building Code* (BOCA, 1993).
SBC = *Standard Building Code* (SBCC, 1994).
UBC = *Uniform Building Code* (ICBO, 1997)
GSREB = *Guidelines for Seismic Retrofit of Existing Buildings* (ICBO, 2001).
IBC = *International Building Code* (ICC, 2000).
NEHRP = FEMA 368 and 369, *NEHRP Recommended Provisions for the Development of Seismic Regulations for New Buildings* (BSSC, 2000)
FEMA 178 (*See* BSSC, 1992a)
FEMA 310 (*See* FEMA, 1998)
CBC = *California Building Code*, *California Code of Regulations, Title 24* (CBSC, 1995)

GRAPH PAPER 10x10 = 1"

AECOM

JOB TITLE
JOB NO. CALCULATION NO.
ORIGINATOR DATE
REVIEWER DATE 1-26-4
SCALE SHEET NO. OF

NEW RAMP SYSTEMS USE SHEAR WALLS AFTER 1976
∴ OK

CLUB LEVEL AREA C & F (STEEL) MOMENT FRAME STRUCTURE

1996 – BENCHMARK BUILDING 1994 W/ EMERGENCY PROVISIONS PUB SEP/OCT 1994

PLAN CHK SET 1996 ∴ WE CAN ASSUME THAT THE EMERGENCY PROVISIONS PUBLISHED IN 1994 ARE INCLUDED BASED ON SHT 4S0.1 CODE REF 1994 UBC W/ AMENDMENTS.

AECOM

Calculation Index — Section 10.0 Reference Drwgs

Client	Project Title	Project Number	Department:	Page 1 of 1
City of San Diego	Qualcomm Stadium ASCE 31-03 Tier 1 Assessment	60190822	Structural	

Calculation Number	Calculation Title	Made By	Date	Comments
	REF DWG LIST	DK		3 - SETS 1996 LEO A DALY USED TO ESTABLISH BENCHMARK STATUS

AECOM

JOB TITLE
JOB NO. CALCULATION NO.
ORIGINATOR DATE
REVIEWER DATE 1-20-11
SCALE SHEET NO. OF

REFERENCE DWGS USED FOR EVALUATIONS -

SET 3 RACK 2. FRANK L HOPE & ASSOCIATES 1966 (FLH & A)

S1 → S3
S101 → S129
S-202 → S-213
S-301 → S-318

SET 4 RACK 2. (FLH & A)

S-401 → S-406
S-501 → S-508
S-601 → S-616
S-701 → S-709
S-801 → S-806
S-901 → S-908
S-1001 → S-1010

SET 25 RACK 2. LEO A DALY 1996

S0.01 → S0.13
1S1.01 → 1S1.02
1S2.01
1S2.01A
1S2.01B
1S2.02
1S2.02A
1S2.02B
1S2.03
1S2.04 → 1S2.12
1S3.01 → 1S3.10
2S0.01 → 2S0.02
2S1.00 → 2S1.12
2S2.01 → 2S2.14
3S0.0 → 3S0.1
3S1.0
3S2.0 → 3S2.1
3S3.0
3S6.0 → 3S6.1
3S7.0 → 3S7.2
3S8.0
3S9.0 → 3S9.4
3S10.0 → 3S10.1
4S0.1 → 4S0.2
4S1.1 → 4S1.8
4S2.1 → 4S2.2
7SE1.1 → 7SE1.17
7SE3.1 → 7SE3.6
7SE4.1 → 7SE4.2
7SE5.1 → 7SE5.3
7SE6.1 → 7SE6.2