STATE OF CALIFORNIA
Department of General Services - Office of Procurement
PURCHASE ORDER

Form GSOP 1-PIN (04/98)

Purchase Order No.	Rev.	Date
62113		6/30/2008

Supplier No.	Solicitation No.	Delivery Date	FOB Point	Invoice Terms
811447	56979	287 Days ARO	Destination	1%/10 DAYS

TAYLOR DEVICES, INC.
90 TAYLOR DRIVE
NORTH TONAWANDA, NY 14120
Attn: DOUGLAS TAYLOR

Phone: 916-694-0800

Ship To: IETMC
13892 VICTORIA STREET
FONTANA, CA 92336

Charge To: GENERAL SERVICES Z-01
RESD - RAFT ALAFRANJI
707 3RD STREET
WEST SACRAMENTO, CA 95608

Agency Billing	Agency Purchase Estimate	Purchase Estimate	Revision
30331	3119707	67070	1

Agency Contact	Phone	Date Received
RAFAT ALAFRANJI	916-376-1738	

Item No.	Quantity	Unit	Commodity Code	Description	Unit Price	Extension

This purchase order is being awarded on AUGUST 6, 2008 pursuant to Government Code Section 13332.17. Any encumbrances made pursuant to this purchase order shall be construed to have been made on the last day of the preceding fiscal year.

The general provisions for Non-IT commodities are hereby incorporated by reference. These General Provisions can be obtained by phoning (916) 375-4400 or by accessing our website at:

www.documents.dgs.ca.gov/pd/modellang/GPnonIT0407.pdf

THE FOLLOWING INFORMATION IS PROVIDED FOR AGENCY USE ONLY:

Prime Contractor: NS

8	EA		5700-000-0000-0	CONSTRUCTION MATERIAL (AS DESCRIBED)	42,500.0000	340,000.00

VISCOUS FLUID DAMPERS

Designing, manufacturing and testing viscous fluid dampers in accordance with specifications, designs and plans.

A total of eight (8) shall be supplied. Two (2) units shall be manufactured first and used for prototype testing.

Brand: TAYLOR DEVICES FLUID VISCOUS
Model: 67DP-18325-01

PO Miscellaneous Charges and Discounts	Dollar Value
BATCH ADJUSTMENT (CHARGE)	55,000.00
Total Value:	395,000.00

FOR THE PURPOSE OF THIS AWARD

Only Free On Board (F.O.B.) Destination will be accepted.

Sales and/or use tax to be extra unless noted above

Buyer	Phone	BOC Number
TIM PATTON	916-375-4412	

STATE OF CALIFORNIA
Department of General Services - Office of Procurement

PURCHASE ORDER CONTINUATION

Form GSOP 2-PIN (04/98)

Purchase Order No.	Revision	Date	Supplier No.	Supplier Name
62113		6/30/2008	811447	TAYLOR DEVICES, INC.

Item No.	Quantity	Unit	Commodity Code	Description	Unit Price	Extension

PROGRESS PAYMENTS OPTION AND PERFORMANCE BOND REQUIREMENT

PAYMENT SHALL BE MADE AFTER DELIVERY, INSPECTION AND ACCEPTANCE IN ACCORDANCE WITH TERMS AND CONDITIONS STATED IN THE ATTACHED GENERAL PROVISIONS (GSPD-401Non-IT Commodities) UNLESS THE CONTRACTOR OPTS TO RECEIVE PROGRESS PAYMENTS.

IF THE CONTRACTOR OPTS TO RECEIVE PROGRESS PAYMENTS, BEFORE STARTING MANUFACTURE, THE CONTRACTOR SHALL FURNISH TO THE DEPARTMENT OF GENERAL SERVICES, AT NO COST TO THE STATE, A FAITHFUL PERFORMANCE BOND, IN THE AMOUNT OF 100% OF THE BID. THE BOND SHALL BE ON A FORM FROM AN ADMITTED SURETY INSURER AND MUST GUARANTEE CONTRACTOR'S COMPLIANCE WITH THE TERMS OF THIS CONTRACT. THE PERFORMANCE BOND SHALL BE PROVIDED TO PROCUREMENT DIVISION WITHIN TWENTY-ONE DAYS OF RECEIPT OF ORDER. THE SCHEDULE, NUMBER AND AMOUNT OF PROGRESS PAYMENTS SHALL BE DETERMINED AFTER BID AWARD BY THE STATE REPRESENTATIVE.

TRAVEL PER DIEM

A batch adjustment totaling $55,000.00 has been added to the purchase order. This amount is to cover travel costs for State Personnel. The travel costs shall be for up to seven (7) people taking two (2) eight (8) day trips. The total time for both trips will be sixteen (16) days. Travel arrangements for the transportation, lodging and meals shall be made for State personnel and invoiced for direct, documented costs only.

NOTE :
The travel allowance is estimated based on two 8-day site visits by 7 staff members (sixteen days total). If the testing, called out in the specifications, fails and additional trips or extended stay is requir ed to allow staff the confirmation of the testing success, then the additional travel or stay expense, as necessary, shall be paid by the manufacturer.

SERVICE REPRESENTATIVE

The supplier, at his expense, shall provide a qualified factory authorized service representative to be in attendance at the purchase order delivery site to make any necessary adjustments to the units and to give instructions to the equipment receiving inspectors to assure correct installation of the units supplied. The supplier shall supply the service representative for seven (7) 8-hour day at the delivery destination. The days on-site may be non-consecutive.

LIQUIDATED DAMAGES

In the event that the Contractor fails to deliver in accordance with the Contract requirements, the parties agree that the delay will interfere with the proper implementation of the State's programs, to the loss and damage of the State. From the nature of the case, it would be impracticable and extremely difficult to fix the actual damages sustained in the event of any such delay. The State and Contractor, therefore, presume that in the event of any such delay the amount of damage which will be sustained from a delay will be the amount $10,416.00 per day

STATE OF CALIFORNIA

Department of General Services - Office of Procurement

PURCHASE ORDER CONTINUATION

Form GSOP 2-PIN (04/98)

Purchase Order No.	*Revision*	*Date*	*Supplier No.*	*Supplier Name*
62113		6/30/2008	811447	TAYLOR DEVICES, INC.

Item No.	*Quantity*	*Unit*	*Commodity Code*	*Description*	*Unit Price*	*Extension*

and the State and the Contractor agree that in the event of any such delay, the Contractor shall pay such amounts as liquidated damages and not as a penalty. Amounts due the State as liquidated damages may be deducted by the State from any money payable to the Contractor. The State shall notify the Contractor in writing of any claim for liquidated damages pursuant to this Paragraph on or before the date State deducts such sums for money payable To the Contractor.

Liquidated damages shall be incurred 287 days after receipt of order.

Delivery Delays

If the Contractor does not deliver all the deliverables listed on the Statement of Work ready for use in substantial accordance with the Contractor's specifications, on or before the Delivery Dates specified in the Statement of Work, the Contractor shall be liable for liquidated damages in the amount of $10,416.00 per day in lieu of all other damages for such nondelivery. Liquidated damages shall accrue for each calendar day between the Delivery Date specified and the actual date of the delivery of such deliverables.

If the State is unable to use the equipment on the installation date because Contractor failed to deliver the product listed in the Statement of Work by the Delivery Date specified in the Statement of Work liquidated damages for equipment noninstallation shall be paid to the State in lieu of damages for nondelivery.

SALES TAX

Sales tax was not included in the bid pricing and is not part of this award. Sales tax should be added at time of invoicing. The sales tax rate applied should be based on the rate of the area the product is to be delivered to.

CHANGE ORDERS

This Purucase Order may be amended, modified, or terminated at any time by mutual agreement of the parties in writing. Change orders amending, modifying or terminating the Purchase Order, including any modifications of the compensation payable, may be issued only by the State Procurement Officer. All such change orders shall be in writing and issued only upon written concurrence of the supplier. Termination, as that term is used in this section, does not include the following provisions as stated in the General Provisions (GSPD-401 Non-IT Commodities, Revised and Effective 4/12/2007): Page 3 - Section 22: Termination for Non-Appropriation of Funds, Page 3 - Section 23: Termination for the Convenience of the State, and Page 3 - Section 24: Termination for Default.

SCPRS

This Purchase Order has been registered into the State Contract and Procurement Registration System (https://www.scprs.dgs.ca.gov/). The registration number is 17600808326596.

STATE OF CALIFORNIA DEPARTMENT OF GENERAL SERVICES

REAL ESTATE SERVICES DIVISION
PROJECT MANAGEMENT BRANCH

PROJECT MANUAL

SPECIFICATIONS

FOR:

VISCOUS FLUID DAMPERS

FOR

INLAND EMPIRE TRANSPORTATION MANAGEMENT CENTER
DEPARTMENT OF TRANSPORTATION – DISTRICT 8

AND

CALIFORNIA HIGHWAY PATROL – INLAND DIVISION
SAN BERNARDINO, CALIFORNIA

Rafat Alafrangi, Project Director
Telephone Number: (916) 376-1738
West Sacramento, California

Consultants: DMJM /Holmes & Narver (A/E)

July 11, 2008 118480

NO. TITLE

SPECIFICATIONS GROUP

General Requirements Subgroup

DIVISION 01 – GENERAL REQUIREMENTS

Facility Construction Subgroup

DIVISION 13 - SPECIAL CONSTRUCTION

END OF TABLE OF CONTENTS

NO. TITLE

SECTION 134867 – VISCOUS FLUID DAMPERS

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 1 Specification Sections, apply to this section.

1.2 DESCRIPTION

A. The Work specified herein consists of designing, manufacturing and testing viscous fluid damping devices (hereinafter referred to as "damper") for seismic applications. The dampers shall meet the external dimensions, performance requirements and other detailed requirements as shown on the plans and specified herein.

B. The number of dampers to be supplied shall be 8 units, two of which shall be manufactured first and used for prototype testing. Upon acceptance of these prototypes by the SEoR and the Owner, they shall be installed in the building along with the 6 other dampers.

C. Only those Manufacturers (herein referred to as "Manufacturer") of the required dampers who have designed, manufactured, tested and supplied similar dampers (similar in dimensional, technical and performance properties) on at least two similar projects within the past ten years shall be permitted to bid on this project. Evidence of satisfactory performance on previous similar projects, including complete information on the Manufacturer and the proposed dampers, shall be submitted. The Owner reserves the right to accept or reject such evidence, solely at the Owner's discretion. Only those damper Manufacturers whose qualifications package (3.1) has been accepted by the Owner shall be allowed to participate in the bidding process for this project. Only pure viscous fluid dampers with nonlinear response shall be considered acceptable for use as dampers on this project.

D. Only those Manufacturers (1.2.C) who guarantee testing, manufacture and delivery of the dampers specified herein within the schedule requirements of this project as shown elsewhere in these specifications shall be allowed to bid on this project.

B. The Manufacturer shall provide all necessary technical support and coordination with the structural engineering and construction management team, as required, to facilitate the final design, fabrication, acceptance testing, delivery and installation of dampers.

1.4 REFERENCED CODES AND STANDARDS

The dampers shall be manufactured in accordance with the latest revision of the following codes and standards unless otherwise specified:

A. 2001 California Building Code, Appendix Chapter 16A, Division VII, "Earthquake Regulations for Seismic-Isolated Structures," applicable sections of Chapter 16A, Division IV and other pertinent requirements of the CBC.
B. Specification for the Design, Fabrication, and Erection of Structural Steel for Buildings, American Institute of Steel Construction (AISC).
C. Code of Standard Practice for Steel Buildings and Bridges, American Institute of Steel Construction (AISC).
D. Structural materials with published yield and tensile values from the American Society for Testing and Materials (ASTM).
E. Structural materials with published yield and tensile values from the American Society of Mechanical Engineering (ASME) Section II – Part D and associated Code Cases.
F. Federal Specification for Industrial Chrome Plating, QQ-C-320.
G. Steel Structures Painting Council Commercial Blast Cleaning, SSPC-SP6.
H. American Welding Society Structural Steel Welding Code, AWS D1.1.
I. Electroless Nickel Coating, MIL-C-26074.
J. Quality Assurance System, ANSI/ASQC Q91.
K. Model Quality Assurance Program, ISO 9001
L. Quality Program Requirements, MIL-Q-9858A
M. Inspection System Requirements, MIL-I-45208A
N. Calibration System Requirements, MIL-STD-45662A

1.5 QUALITY ASSURANCE

A. Product Quality

The dampers shall be designed and manufactured under an established and maintained Quality Assurance Program developed by the Manufacturer, reviewed and approved by the SEoR and DSA. The QA Program shall include written process specifications and procedures to ensure that the design, manufacturing, inspection, and testing activities are accomplished in accordance with the approved system. The QA Program shall be based on one of the following three programs, an alternate program may be considered acceptable after review and approval by DSA and the Engineer of Record:

1. ISO 9001
2. MIL-Q-9858A
3. MIL-I-45208A

B. Manufacturing Process Control

In addition to the minimum requirements established by the selected QA Program, the following Manufacturing Process Control requirements must be met by the job specific quality system in place:

1. CMTR's for structural material
2. Special process certification
3. Detailed manufacturing drawings with revision levels

C. Calibration Control
In addition to the minimum requirements established by the selected QA Program, the job specific quality system must ensure that all devices used to measure, gage, test, inspect or otherwise examine items to determine compliance with this specification and/or contractual requirements are calibrated in compliance with MIL-STD-45662A or its equivalent.

J. A qualified independent special inspector (Special Inspector of Record, SIoR) engaged by the owner shall perform the functions defined in this section. The SIOR shall report to and take direction from the Inspector of Record (IoR) and the Structural Engineer of Record (SEoR). Additionally, the SIoR shall also complete all reporting requirements called for in the CBC. The SIoR shall perform his work in accordance with all applicable sections of the CBC including, but not limited to, Section 1664A.3 of the 2001 CBC, and the Manufacturer shall afford full cooperation and consideration to the SIoR. The Manufacturer during the damper manufacturing process shall afford full access to all sections of the manufacturing facilities involved in the production of the dampers to the SIoR.

1.6 SUBMITTALS

All submittals shall be made by the Manufacturer in a timely manner in accordance with the schedule and processing requirements stipulated elsewhere in the contract documents. Review and approval of submittals by the Architect or SEoR shall not relieve the Manufacturer in any way of the sole responsibility to fully conform to the requirements of these specifications and all other relevant and applicable regulations, codes and standards governing this project. Submittals shall include, but may not necessarily be limited to the following:

A. Manufacturer Qualification Data Package
The manufacturer shall submit documentation that demonstrates their ability to design, manufacture, assemble, and test their viscous damper product. The documentation shall include testing from previous similar projects. The documentation shall include descriptions of the following: a) highlights of the damper design, b) summary of the company and management structure, c) technical and manufacturing capabilities, d) test facility. See also 1.2C.

B. Manufacturing and Testing Schedules

C. Detailed Manufacturing and Testing Plans, except for necessarily proprietary material. The Testing Plans shall be in accordance with the testing requirements stipulated below and shall be submitted for the Owner's and SEoR's and DSA's review and approval in a timely manner to allow for anticipated modifications and eventual testing of the devises as per the project schedule. Submit annotated and drafted illustrations of all proposed test apparatus and procedures for tests required by this Section.

D. Shop Drawings: Shop Drawings shall include, but shall not be limited to, damper envelope drawings, installation drawings, setting diagrams, and bolting templates. Submit Shop Drawings for:

1. Each damper type indicating dimensions and weights. Submit prior to fabrication.

2. All steel mounting and connecting hardware.

E. Installation Operation & Maintenance Manual (I.O.M.)
The dampers shall be supplied with an Installation, Operation & Maintenance Manual. The I.O.M. shall include instruction on installation and mounting requirements, special tooling requirements, and maintenance, monitoring and inspection requirements. This document shall also include a damper drawing and component material list.

F. Certified Material Test Reports
Certified Material Test Reports (CMTR) including mechanical properties shall be supplied for all structural materials.

G. Inspection And Test Reports: Submit the following test reports, written and signed by testing agency/inspector approved by the engineer of record and DSA.

1. Prototype Damper Test Reports: Submit test data for each prototype damper within fourteen (14) calendar days after the completion of testing of the subject damper.

2. Production Damper Test Reports: Submit test data for each production damper within fourteen (14) calendar days after the completion of testing of the subject dampers for review and approval by DSA and the SEoR prior to shipment to the site.

3. Final Damper Test Report: Submit the Final Damper Report, as described in this Section, within twenty-eight (28) calendar days after the completion of all production damper testing.

1.7 DELIVERY, HANDLING AND STORAGE

A. Delivery: The damper shall be delivered to the job site in a protective wooden crate for shipping, handling and storage purposes.

B. Handling: The damper must be handled carefully to prevent damage, breakage, denting, scoring and/or scratching. However, the dampers shall be designed to withstand their intended environment and construction handling during installation.

C. Storage: The dampers shall be stored in a clean dry place. The dampers shall be protected from dirt, fumes, construction debris and physical damage. The dampers shall be stored in an environmentally controlled storage facility (such as a warehouse, garage or stock room). The dampers shall be capable of remaining in their "as-shipped" crates for prolonged storage.

PART 2 - PRODUCTS

2.1 PERFORMANCE REQUIREMENTS

A. Based upon the Maximum Considered Earthquake (MCE) analysis the damper shall conform to the following Design Force characteristic equation:

$F = CV^{\alpha}$
F = Damper MCE Design Force (Kip)
V = Damper MCE Design Velocity (in/sec)
C = Damping Coefficient, as defined by F/V^{α} (Kip-sec/in)
α = Damping Velocity Exponent

The damper output force shall vary only with velocity, and shall not change with damper stroke position or orientation angle.

B. Table 1 and Figure 1 define the Damper Performance required for this project. The dampers shall satisfy the performance and technical requirements as detailed by this specification.

TABLE 1
Damper Performance Requirements

MCE Design Force at MCE Design Velocity (Kips)	Total Stroke (in)	MCE Design Velocity (ips)	Damping Velocity Coefficient (C) and Exponent (α)	Quantity of Dampers
325 min. to 439 max.*	+/- 26"	60	Lower Bound Curve: C=68.51, α=0.38; Upper Bound Curve: C=92.69, α=0.38.	8
*see 2.2.C.				

2.2 FORCE-VELOCITY REQUIREMENTS

A. Damper MCE Rated Force: The Damper MCE Design Force, F_{MCE}, shall be equal in tension and compression with the rod at any position. At the ends of travel, the damper shall be capable of supporting this design force without damage. The unit shall be designed to withstand a minimum 1g lateral side load concurrent with the design axial force. Structural calculations shall include a review of the buckling stability of the unit under load.

B. Factors of Safety: Given the MCE Design Velocity, V_{MCE}, the minimum factors of safety for the damper shall be based on the resulting forces generated by $2.0V_{MCE}$ for material yield strength and $2.5V_{MCE}$ for material ultimate (tensile) strength. Only ASTM/ASME materials with published yield and tensile strength values shall be used for structural elements in the damper design.

C. Force and Velocity Limit

1. The normal operating force developed over the design velocity range shall be verified by acceptance testing. The developed forces shall always fall within the design values as defined by Table 1 based on the damper's characteristic equation $F = CV^{\alpha}$ over the established operating velocity range of $20\%V_{MCE}$ to $125\%V_{MCE}$. Peak damper output shall in no case exceed 439 kips. The variations in damper response shall account for all effects, including but not necessarily limited to, operating conditions, manufacturing tolerances, ambient and device/fluid temperature, age effects, etc.
2. The damper shall have a breakaway force of not less than 4 kips with a subsequent dynamic response of not less than 10 kips at 0 to 2 ips velocity and a stroke of +/- 1".

D. Fluid Pressure: The maximum rated operating pressure shall include the pressure effects of dynamic operation and fluid expansion due to increased damper temperature. The damper shall be designed to withstand and properly function at an internal pressure of 150% of the maximum operating pressure. As defined previously by the Factors of Safety, the unit shall be designed to maintain the following pressure limits:

1. Shell Yield Pressure = Internal Pressure generated by $2.0V_{MCE}$
2. Shell Burst Pressure = Internal Pressure generated by $2.5V_{MCE} \geq 15000$ psi

2.3 FUNCTIONAL DUTY CYCLES

The unit shall be designed to a minimum of the following duty cycle:

A. Wind Cycles: ±10 % of stroke at 0.5 Hz for 300,000 cycles per year.
B. Thermal Cycles: ±10 % of stroke at 365 cycles per year.
C. Seismic Cycles: 40 cycles at the design MCE Force conditions.

2.4 COMPONENT DESIGN REQUIREMENTS

A. Dimensions: The overall dimensions of the dampers and mounting brackets shall be held within the dimensions specified on the envelope drawings. The damper envelope shall be a maximum of 14 feet in length and 15 inches by 15 inches in crossection. In no case shall the damper exceed this envelope without prior approval from the Owner.

B. Stroke: The damper shall be capable of meeting all performance requirements of this specification when cycled about any point within the total stroke length.

C. Leakage: Under non-operating static conditions the seals shall not leak externally. When subject to proof pressure for three (3) minutes the dampers shall show no visible evidence of external leakage.

D. Dynamic Wear: For dynamic wear during cyclic events, the damper shall be designed to allow for a thin fluid film on the piston rod to act as seal and bearing lubrication. This dynamic weepage shall have no effect on the damper's performance over the life of the unit.

E. Adjustment: The damper design shall include a minimum of ±0.25 inch of mechanical adjustment or 0.50 inch of additional stroke length for field installation.

F. Articulation: The end attachments of the damper shall allow free articulation in all directions to permit unhindered movement of the building 26" in any horizontal direction and +/- 2" in the vertical direction, with no affect on damper performance. The damper shall be designed to operate under design load at the articulated limits.

G. Fluid Indicator: As an option, for post-earthquake verification and structural inspection, the damper can be equipped with a fluid indicator. The means of fluid indication must be visible to the naked eye from a distance of at least 36 inches.

H. Fluid Expansion Compensation: The dampers shall contain provisions to allow for thermal expansion and contraction of the fluid medium. The compensation method shall be designed to accommodate ambient temperature changes in the fluid from 30°F to 120°F. In addition, the design shall account for fluid temperature increases due to the energy absorption during a seismic event.

I. The operating fluid used in the damper shall be OSHA approved non-toxic, non-flammable silicone based fluid.

J. The piston rod shall be designed with a minimum surface Rockwell-C Hardness of Rc=38 and minimum surface finish of 16 RMS for wear durability of the bearing surface and seal life.

2.5 FABRICATION WELDS

A. Pressure boundary structural welds are not permitted.

B. All other welds shall be performed in accordance with a AWS D1.1.
   1. Weld joints shall be of the AWS D1.1 Pre-qualified type.
   2. Weld filler metal shall be of the low hydrogen type.

2.6 CORROSION PROTECTION

All materials that subject to deterioration or corrosion when exposed to the environment shall be protected by means acceptable for the application. These methods shall include, but not be limited to, the following: coating, plating and painting.

2.7 AGE AND FUNGUS SENSITIVE PARTS

A. All parts shall be manufactured from non-age sensitive materials.

B. Only fungus resistant materials shall be used in the construction of the dampers.

2.8 WORKMANSHIP

The unit, including all parts and accessories, shall be constructed and finished in a thoroughly workmanlike manner. Particular attention shall be given to neatness and thoroughness of soldering, wiring, making of parts and assemblies, welding, brazing, plating, finishes, riveting, machining and screw assemblies. All parts shall be free of burrs and sharp edges and any damage, defect or foreign material that might detract from the intended operation, function or appearance of the unit.

2.9 INTERCHANGEABILITY

All parts having the same manufacturer's part number shall be functionally and physically interchangeable.

2.10 ENVIRONMENTAL REQUIREMENTS

The damper shall be capable of operating in an ambient temperature range of +30 deg. F to +120 deg. F and shall be designed to withstand relative humidity up to 100 percent, including condensation due to temperature change. The damper shall be designed to withstand any probable combination of the following atmospheric elements: rain, snow, ice, smoke, ozone, sunshine, dust, and/or salt spray.

2.11 SERIAL NUMBER ASSIGNMENT

Sequential serial numbers shall be assigned to all units in accordance with architect/engineer of record's requirements. The individual number shall be assigned according to the vendors standard practice unless otherwise specified by the architect/engineer of record.

2.12 MAINTAINABILITY & SERVICEABILITY

The dampers shall be constructed to be essentially maintenance free. However, the Manufacturer shall prepare and submit for Owner's review, approval and permanent record a minimum required monitoring and essential maintenance program to be implemented over the functional lifetime of the dampers. This program shall specify in detail the required monitoring and other functions necessary to ensure trouble free operation of the dampers as specified herein. The dampers shall be designed and constructed so that installation, removal, or replacement, if necessary, shall be a simple process not requiring any special tools or methods. The unit shall be designed to permit visual inspection of the pressure boundary to verify functionality for post-earthquake structural review.

2.13 PRODUCT WARRANTY/GUARANTEE

The Manufacturer shall provide a written and irrevocable warranty to the Owner that the dampers supplied to the Project shall perform as specified herein and as submitted by the Manufacturer for a period of at least 35 years after installation. Any discovered deviation from these performance requirements or other defects in any damper within 35 years from the date of installation shall be cause for Manufacturer to replace the damper(s) at no cost to the Owner or any other party, including, but not limited to, any and all costs associated with testing, transportation, removal, re-installation and any disruption to the operation of the facility. Furthermore, the Manufacturer shall guaranty that the dampers shall be in substantial compliance with these specifications (within +/- 30% of stipulated properties and in general compliance with shape, fit and form) for at least another 15 years beyond the initial warranty period.

PART 3 - EXECUTION

3.1 DAMPER QUALIFICATION

A. The manufacturer shall submit a Qualifications Data Package that demonstrates their ability to comply with this specification. This Qualifications Data Package, at a minimum, shall document evidence of the following:

1. Ability to fabricate the specified viscous fluid dampers
2. Ability to manipulate the force-velocity characteristic equation
3. Maintenance of an established quality assurance program
4. Viscous damper test capabilities that will satisfy these specifications
5. Ability to meet the schedule requirements of this project
6. Successful completion including, design, fabrication, testing, delivery and installation of similar dampers on at least two similar applications in the past 10 years. Submit project references with name, address, contact name and contact information.

B. The Qualifications Data Package shall include actual viscous damper test data from previous projects. The test data shall include force, velocity and displacement data as a

function of time, force versus displacement hysteretic data, and force versus velocity characteristic data. The test data shall also include performance data as a function of temperature.

C. The Qualifications Data Package shall be submitted to and approved by the Owner, at the Owner's sole discretion, prior to the review and acceptance of the manufacturer's bid.

3.2 DAMPER ACCEPTANCE TESTING

Acceptance testing shall be performed to verify the performance and construction of the dampers. The production test program shall consist of the following four tests:

A. Shell Proof Pressure Test

1. Requirement: 100% of the dampers shall be hydrostatic proof pressure tested for three (3) minutes at 125% of the maximum internal pressure to verify the structural integrity of the high pressure boundary.

2. Method: The damper cylinder body shall be pressurized to a static pressure at or above 125% of the maximum operating pressure of the damper. The test pressure shall be maintained and monitored with a calibrated pressure gage for 180 seconds. Pressure indicator shall indicate no loss of pressure for the duration.

3. Acceptance: No signs of leakage shall be found during post test inspection.

B. Full Stroke Test

1. Requirement: 100% of the dampers shall be cycled through their full stroke. The units shall be cycled for twenty (20) complete cycles at a low velocity (0.05 to 1.0 ips) to verify the operation and travel of the unit.

2. Method: The damper shall be mounted in a horizontal dynamic test bench and cycled under a sinusoidal displacement wave over 90% of the damper's total stroke length. One cycle represents the damper movement from one extreme position to the opposite extreme position and then the return to the original starting position.

3. Acceptance: No signs of leakage shall be found during post test inspection. No signs of structural binding under operation. All parameters measured during this test shall not vary by more than 15% from both the average of all units for that measured parameter during the test cycle as well as the specified target value noted in the specifications.

C. Wind Storm Test

1. Requirement: 100% of the dampers shall be cycled through the wind storm stroke. The units shall be cycled for 2500 complete cycles at a frequency of 1Hz to verify the operation and travel of the unit during wind storms.

2. Method: The damper shall be mounted in a horizontal dynamic test bench and cycled under a sinusoidal displacement wave over the wind storm stroke length (2.5in). One cycle represents the damper movement from one extreme position to the opposite extreme position and then the return to the original starting position.

3. Acceptance: No signs of leakage shall be found during post test inspection. No signs of structural binding under operation.

D. Sinusoidal Performance Test

1. Requirement: All dampers of each design shall be Sinusoidal Performance tested at 60% of the rated load at 0.2Hz. The prototype/spare damper and two production phase dampers, as selected by the SIoR, shall be Sinusoidal Performance tested at 4 different cycling frequencies, 0.1, 0.3, 0.5 and 0.67Hz. The damper output shall cover the operating range of peak velocities based on the following constitutive laws:

Displacement	$= \pm D \cdot \sin(2\pi \cdot f \cdot t)$	= input signal
Velocity	$= \pm 2\pi \cdot f \cdot t \cdot D \cdot \cos(2\pi \cdot f \cdot t)$	$= \pm V \cdot \cos(2\pi \cdot f \cdot t)$
Force	$= \pm C \cdot V^{\alpha}$	= output response

Where D, C, V, and α are defined in Table I of Sec 2.2.B

The peak-to-peak sinusoidal displacement input signal shall equal no less than 20% of the total stroke of the damper with at least one of the cyclic tests performed at +/-90% of the damper's full stroke.

The resulting sinusoidal damping force, velocity and displacement as a function of time shall be recorded. The test results shall be plotted as wave patterns as a function of time and as a force-displacement hysteretic loops. Velocity vs. force output curves shall also be plotted for each cycle. The force-displacement data of each hysteretic loop shall be mathematically reduced to identify the damper's dissipative energy efficiency. If the damping characteristics were found to vary with temperature, then the tests shall be conducted at a minimum, ambient, and maximum temperature defined by the operating conditions. If the force-displacement properties are found to be affected by more than 15% by the changes in the testing frequency, additional testing shall be required at a frequency of 2.5 times the fundamental frequency.

2. Method: The damper shall be mounted in a horizontal dynamic test bench and sinusoidal tested. The closed-loop controlled input displacement signal shall follow a sine wave pattern with a data acquisition rate of at least 50 Hz. Each sinusoidal test shall be performed for a minimum of five complete cycles.

3. Testing Observation: Allow for site visits for the following representatives during the prototype testing program and the production period: Special Inspector of Record; Structural Engineer of Record's; Base Isolation Consultant (Engineer of Record); Representative of the Base Isolation Peer Review Panel; Owner's

Representative; Representative of RESD/PMB; and Representative of Architect of Record.

4. Acceptance: No signs of leakage shall be found during post test inspection. No signs of structural binding under operation. The peak-to-peak force-velocity response shall be within the bounds of the design curve (Table 1 – Sec 2.1.B). All parameters measured during this test shall not vary by more than 15% from both the average of all units for that measured parameter during the test cycle as well as the specified target value noted in the specifications.

5. Prototype Test Report: The prototype/spare damper test results shall be submitted in a complete test report to the SEoR and DSA for review and approval prior to commencement of the manufacture of the production units. Manufacturer shall allow for adequate time for the submittal review and approval as per the requirements of these specifications.

6. Production Unit Test Report: The production damper test results shall be submitted in a complete test report to the SEoR and DSA for review and approval prior to shipment of the production units. Manufacturer shall allow for adequate time for the submittal review and approval as per the requirements of these specifications.

END OF SECTION 134867

SECTION 01 32 16

PROGRESS SCHEDULES AND REPORTS

PART 1 - GENERAL

1.01 PROGRESS SCHEDULE REQUIREMENTS

A. Work in this Contract shall be scheduled and progress monitored using a scheduling system showing relationships or dependencies between activities, such as CPM, Precedence, etc. Scheduling system shall be broken into sub-activities which, as a minimum, shall include major suppliers, approvals, fabrication and delivery, and major subcontractors. Scheduling system shall indicate inter-relationships between trades, suppliers, and/or reviews.

2. Schedule of Contractor's plan of construction shall be based on Contract time duration set forth in the advertisement for bid.

3. Schedule shall also reflect start and completion date as provided upon execution of Contract.

B. Contractor shall be responsible for planning and scheduling the Work, and monitoring progress of Work with respect to the Schedule. Contractor shall be responsible for scheduling all work activities, including those of their subcontractors. Contractor shall establish and maintain, as part of their Project organization, personnel knowledgeable in use and application of schedules. Contractor shall identify, on their organization chart, the person responsible for producing and updating Schedule.

C. The State will use updated version of Schedule in evaluating progress of Work. Schedule, as updated every month, will be basis for determining impact of changes to Contract and delays.

D. Failure of Schedule to include an element of the Work required for performance of this Contract, or inaccuracy in Schedule, will not relieve Contractor from responsibility for accomplishing Work required for complete Contract on time as indicated in the Contract and will not constitute grounds for delay.

1.02 RELATED REQUIREMENTS

A. Section 01 33 00: Submittal Procedures.

1.03 SCHEDULE DESCRIPTION

A. Schedule shall be based on and incorporate Contract Milestone and Completion Dates specified in the Contract Documents. Schedule shall furnish or comply with the following requirements:

1. Bar chart or "Gantt type" Schedule.

2. No activity on schedule shall have duration longer than 7 calendar days, unless otherwise approved by the State. Activity duration shall be total number of actual days required to perform that activity.

3. Procurement of major equipment and other major components, through receipt and inspection at job site, identified as separate activity.

4. Dependencies (or relationships) between activities shall be indicated on the Schedule.

5. Processing/approval of submittals and shop drawings for major equipment. Activities dependent on submittal acceptance and/or material delivery shall not be scheduled to start earlier than expected acceptance or delivery dates.

6. Interface with work of other contractors (or entities).

7. Other independent project elements shall be individually identified in network.

B. Overall time of completion and time of completion for each milestone shown on the Schedule shall adhere to the specified Contract time, unless an earlier (advanced) time of completion is requested by Contractor and agreed to by the State. Agreement shall be formalized by Change Order.

C. Schedule shall be the basis for evaluating job progress, progress payments, and time extension requests. Contractor shall develop Schedule and monitor actual progress as compared to Schedule.

D. Software: Contractor shall use Microsoft Project 2000, Primavera Project Planner, Primavera Suretrak, or approved equal.

If Contractor chooses to use an equal to specified software, submit software data for approval and provide the State with licensed copy of latest revision of approved software registered to the State. Software shall be compatible with Microsoft Windows XP operating system.

1.04 SUBMITTALS

A. Schedule: Within 10 calendar days after the Start Date stated in the Notice to Proceed, submit compact disks (CDs) and 3 prints of detailed Schedule presenting orderly and realistic plan for completion of the Work in conformance with requirements of this Section.

1. Provide compact disks (CDs) containing Schedule files.

2. The State will review submitted Schedule for conformance with requirements. Within 7 calendar days after receipt, the State will accept Schedule or will return it with comments. If proposed Schedule is not accepted, Contractor shall revise Schedule to incorporate comments and resubmit Schedule for acceptance within 7 calendar days after receiving it. Accepted Schedule shall become the Official Progress Schedule.

3. Acceptance of Schedule by State, failure of Schedule to include an element of work, or inaccuracy in Schedule will not relieve Contractor from responsibility for accomplishing Work in accordance with the Contract.

B. Procurement Log: Submit 4 copies of a Procurement log, cross-referenced to Schedule, including the following information for each type of material or equipment to be provided:

1. Material or equipment description.

2. Technical specification reference.

3. Duration in calendar days required for preparation and review of submittals.

4. Duration in calendar days required for fabrication and delivery.

5. Cross reference to activities which will be affected by delivery date of material or equipment item.

6. Scheduled delivery dates.

C. Updates, Reports, and Revisions: Submit CDs and 3 copies of updates, reports, and revisions.

1.05 MONTHLY UPDATES

A. Progress update shall be made monthly; exact date to be mutually agreed to by Contractor and the State.

B. Within the first 3 days following agreed date, Contractor shall submit to the State an up-to-date status report for the Contract. Status report shall include:

1. Contractor's estimated percentage complete for each activity in progress.

2. Actual start/finish dates for activities as appropriate.

3. Revisions, if any, to assumed activity durations for activities due to effect of previous update on Schedule.

6. Resolution of conflict between actual Work progress and Schedule logic. When out of sequence activities develop in Schedule because of actual construction progress, Contractor shall submit revisions to Schedule logic to conform to current job status and directions.

7. Narrative report with updated progress analysis, which shall include, but not be limited to, description of problem areas, current and anticipated delaying factors and their impact, explanation of corrective action taken and proposed revisions for recovery plan.

C. The State will review update information submitted by Contractor and meet with Contractor's representative to arrive at mutually agreed upon progress status. If agreement cannot be reached on any issue, the State's determination will be used for processing update.

1.06 FLOAT TIME

A. Float or slack time is defined as amount of time between earliest start date and latest start date or between earliest finish date and latest finish date of activities on Schedule. Contractor acknowledges and agrees that actual delays affecting paths of activities containing float time will not have effect upon Contract completion times, providing that actual delay does not exceed float time, in accordance with latest updated version of Schedule.

1.07 DEFAULT

A. Failure of Contractor to substantially comply with requirements of this Section shall constitute reason that Contractor is failing to prosecute Work with such diligence as will ensure its completion within Contract times and shall be considered grounds for termination or other remedy by the State pursuant to terms of this Contract.

END OF SECTION

SECTION 01 33 00

SUBMITTAL PROCEDURES

PART 1 - GENERAL

1.01 DESCRIPTION

A. To ensure that specified products are furnished in accordance with Drawings and Specifications, transmittal procedures have been established for submittals for review by the State.

B. Make all following submittals in strict accord with provisions of this Section and with requirements of the Contract.

1. Progress Schedule and Reports.

2. Product Certification.

3. Shop Drawings.

4. Descriptive Data/Material Lists.

5. Certification of Recycled Content.

1.02 RELATED REQUIREMENTS

A. Section 01 32 16: Progress Schedules and Reports.

B. Section 01 60 00: Product Requirements.

C. Test Reports: Pertinent Specification Sections.

PART 2 - PRODUCTS

2.01 PROGRESS SCHEDULE

A. Prepare and submit Progress Schedule and Reports of operations as required by Section 01 32 16.

B. Relate Progress Schedule to entire Project. Indicate dates for submission of required submittals.

2.02 PRODUCT CERTIFICATIONS

A. Where specifically indicated by pertinent Specification Sections, submit proper certification by recognized producer or association. Certifications shall attest to product's compliance with requirements of Contract Documents.

2.03 SHOP DRAWINGS

A. Submittals shall include one original and 6 prints of each original, name and location of project, name of Contractor, work order and contract numbers and cross references to contract

documents. Number shop drawings consecutively. Make drawings legible and complete in every respect.

B. If Shop Drawings show variations from Contract requirements because of standard shop practice or other reason, make specific mention of such variations in letter of transmittal, as well as on drawings, in order that (if acceptable) suitable action may be taken for proper adjustment of Contract. Unless specific changes have been noted and accepted, no deviations from Contract Documents will be permitted.

C. Originals will be returned to Contractor for Contractor's reproduction and use. State will make prints for its own use.

2.04 PRODUCT DATA/MATERIAL LISTS

A. Manufacturer's Standard Schematic Drawings:

1. Modify drawings to delete information which is not applicable to Project.

2. Supplement standard information to provide additional information applicable to Project.

B. Manufacturer's catalog sheets, brochures, diagrams, schedules, performance charts, illustrations and other standard descriptive data:

1. Clearly mark each copy to identify pertinent materials, products or models.

2. Show dimensions and clearances required.

3. Show performance characteristics and capacities.

4. Include calculations when applicable.

C. Material Safety Data Sheets (MSDS): Include for materials which require manufacturer's warnings and application instructions listed on MSDS provided by the product manufacturer.

2.05 SAMPLES

A. Physical examples to illustrate materials, equipment or workmanship, and to establish standards by which completed work is judged.

B. Where size of samples is not specified, office samples should be of sufficient size and quantity to clearly illustrate:

1. Functional characteristics of product or material, with integrally related parts and attachment devices.

2. After review, samples may be used in construction of Project.

C. Field Samples and Mockups:

1. Erect at Project site at location acceptable to State, unless otherwise approved.

2. Construct each sample or mockup complete, including work of all trades required in finished work.

2.06 SUBSTITUTIONS

A. State's Acceptance required:

1. Contract is based on materials, equipment and methods described in Contract Documents.

2. State will consider proposals for alternative materials, equipment and methods only when such proposals are accompanied by full and complete technical data and all other information required by State to evaluate proposed substitution.

3. Do not use alternative materials, equipment or methods unless such substitution has been specifically accepted for this work by the State.

4. Refer to General Conditions of the Contract for Construction, Subparagraph 3.12.10, Substitutions and Approved Equals, and Section 01 60 00, Product Requirements.

B. Coordination: Acceptance of substitution shall not relieve Contractor from responsibility for compliance with all requirements of the Drawings and Specifications, and Contractor shall be responsible at Contractor's own expense for changes in other parts of Contractor's work or work of others, including, but not limited to redesign costs of the Project which may be caused by acceptance of substitution.

C. Submit separate request for each product and support each request with:

1. Product identification.
2. Manufacturer's literature.
3. Samples, as applicable.
4. Comparison of proposed product with specified product.
5. Name and address of similar projects on which product has been used, and date of installation.

D. Submit data relating to changes in construction schedule, if any.

E. Substitute products shall not be ordered without written acceptance of the State.

F. The State will determine acceptability of proposed substitutions (alternatives) and reserves the right to reject proposals due to insufficient information.

PART 3 - EXECUTION

3.01 SUBMISSION REQUIREMENTS

A. Schedule submissions at least three weeks before dates reviewed submittals will be needed and within the time periods specified in 3.01B. The State will review submittals within 21 calendar days unless the State notifies the Contractor in writing that a review of a specific submittal will take longer. Should the State review a submittal sooner, the Contractor shall not assume that a new timeline has been established.

B. Make submissions within 15 days after the Start Date of the Work.

C. Identification: Identify submittals with names and location of Project, name of Contractor and work order and Contract numbers.

1. Submittals shall be accompanied by letter of transmittal addressed to State, to parties as identified in State's letter of instruction to be issued to Contractor at start of Project.

2. Each submittal shall be consecutively numbered and shall contain list of items submitted, properly identified as to drawing numbers, Specifications Section or other identification.

3. Submittals not adequately identified will be returned to Contractor for correction and resubmittal.

D. State will review submittals for conformance with contract documents: Acceptance of submittals by State covers only such conformance. Effort will be made by State to discover errors, but responsibility for accuracy and correction and resubmittal shall be the Contractor's.

E. Acceptance of submittals will be general and shall not relieve Contractor from responsibility for proper fitting and construction of Work, nor from furnishing materials and work required by Contract which may not be indicated on submittals.

F. No portion of work requiring submittals shall be commenced until submittal has been accepted by State. All such portions of work shall be in accordance with accepted submittals.

H. Number of copies required by State: Provide copies as follows; or greater quantity where so specified in individual Specification Sections. Add number of copies required by Contractor for Contractor's distribution to the following numbers:

1. Progress Schedule: One original and 3 copies. Include compact disks (CDs) when CPM schedule is provided.

2. Certification: 3 copies

3. Shop Drawings: Reproducible originals - one original of each drawing, and 6 prints of each original.

4. Product Data/Material Lists: 6 copies

5. Samples: As specifically indicated in pertinent Specification Section.

6. Substitutions: 6 copies of required related data and information.

I. Submittals shall include:

1. Date and revision dates.

2. Project title and work order number.

3. Names of Contractor, subcontractor and supplier or manufacturer.

4. Identification of product or material.

5. Relation to adjacent structure or material.

6. Field dimensions, clearly identified as such.

7. Specification Section number.

8. Consecutive submittal number.

9. Blank space for State's stamp.

10. Contractor's stamp, initialed or signed, certifying to review of submittal, verification of field measurements and compliance with Contract Documents.

END OF SECTION

SECTION 01 45 29

TESTING LABORATORY SERVICES

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. The State will employ and pay for services of an independent testing laboratory (hereinafter referred to as "laboratory") to confirm the performance of specified testing as detailed in the technical specifications.

1. Contractor shall cooperate with laboratory to facilitate execution of its required services.

2. Employment of laboratory shall in no way relieve Contractor's obligations to perform work of the Contract.

1.02 REQUIRED TESTS AND INSPECTIONS

A. Tests and Inspections are stipulated within the technical specifications.

1.03 CONTRACTOR'S RESPONSIBILITIES

A. Cooperate with laboratory personnel, provide access to work and to manufacturer's operations.

B. Provide to laboratory adequate quantities of representational samples of materials proposed to be used and which require testing.

C. Furnish copies of products test reports as required.

E. Furnish incidental labor and facilities:

1. To provide access to work to be tested.

2. To obtain and handle samples at source of product to be tested.

3. To facilitate inspections and tests.

F. Notify State's Inspector 3 weeks in advance of operations to allow for laboratory assignment of personnel and scheduling of tests. When tests or inspections cannot be performed after such notice due to delays caused solely by the Contractor or subcontractor, reimburse the State for laboratory personnel incurred due to Contractor's negligence.

G. When additional testing services are needed for Contractor's convenience, pay for services to State's laboratory and pay for additional samples and tests required for Contractor's convenience.

H. The State or its representative shall have the right to reject materials and workmanship which are defective or to require their correction. Rejected workmanship shall be satisfactorily corrected and rejected materials shall be removed from the premises without charge to the State.

I. Should it be considered necessary or advisable by the State at any time before Acceptance of the Work to make examination of work already completed by removing or tearing out same, Contractor shall, on request, promptly furnish necessary facilities, labor and materials. If such work is found to be defective in any respect due to fault of Contractor or subcontractor, shall defray all expenses of such examinations and of satisfactory reconstruction. If, however, such work is found to meet requirements of the Contract, additional cost of labor and material necessarily involved in the examination and replacement will be allowed the Contractor.

J Contractor shall include the necessary timeframes for all required laboratory testing and inspections in Contractor's schedule required for submission and approval by the State in per Section 01 32 16 – Contractor's Progress Schedule and Reports and Section 01 33 00 – Submittal Procedures.

1.04 SELECTION AND PAYMENT

A. Owner will employ and pay for services of an independent testing laboratory approved by the Division of State Architect (DSA) to perform inspection and testing in accordance with California Code of Regulations and other Standards as referenced in the technical specifications.

B. For required travel by laboratory to test products manufactured by the Contractor, Contractor shall arrange and pay for laboratory's direct costs including round trip transportation, accommodations, and associated costs related to the inspection services. Contractor shall make allowance for seven person team members to attend the necessary inspections for prototype production testing and additional inspections for mass production testing. The seven team members will travel from various locations within the USA to the Contractor's manufacturing and testing facility. An allowance of $55,000 will be added to the Contractor bid amount as a budget allowance to cover the team members' required travel costs. Travel costs involved in retesting will be paid by the Owner and deducted from Contractor's bid amount and final payment (or any funds due and payable) by change order. Travel direct costs receipts, without mark-up, shall be submitted to the Owner for payment. Any remaining funds of the $55,000 allowance shall be credited to the Owner.

C. When tests and inspections are required on an overtime basis due to delays by or convenience of the Contractor or subcontractors, payment will be made by Contractor. At termination of work or completion of project, all costs for overtime testing and inspections will be deducted from Contractor's final payment (or any funds due and payable) by change order.

D. Before testing laboratory submits testing and inspection billings to Owner, they shall be segregated by straight time and overtime costs, and all overtime costs are to be substantiated with a detailed explanation for necessity of such work costs.

E. When materials tested fail to meet requirements herein specified, they shall be promptly corrected or removed and replaced and retested in a manner required by the testing laboratory. Costs involved in retesting will be paid by the Owner and deducted from Contractor's final payment (or any funds due and payable) by change order. Retesting team members shall be limited to only two team members (DSA Approved Special Inspector and the Design Engineer).

F. Employment of testing laboratory shall in no way relieve Contractor of obligation to perform work in accordance with requirements of Contract Documents.

END OF SECTION

SECTION 01 60 00

PRODUCT REQUIREMENTS

PART 1 - GENERAL

1.01 REQUIREMENTS INCLUDED

A. This Section describes basic requirements governing products including:

1. Workmanship.

2. Manufacturers' instructions.

3. Transportation and handling.

4. Storage and protection.

1.02 RELATED REQUIREMENTS

A. Section 01 32 16: Progress Schedule and Reports.

B. Section 01 33 00: Submittal Procedures.

1.03 PRODUCTS

A. Products include material, equipment, and systems.

B. Comply with specifications and referenced standards as minimum requirements.

C. Components required to be supplied in quantity within a Specification Section shall be the same, and shall be interchangeable.

D. Reference to materials or methods of construction by name and catalog number is done to establish standards of quality, design, utility, suitability, and cost, and shall not be construed as limiting competition.

E. Where the words "or equal" are used following trade names, patented products, or proprietary products or methods, they shall be deemed to read "or equal in quality, design, utility and suitability"; as solely determined by the State. Where such trade names, products, or methods are without the use of the words "or equal", they shall be deemed to be followed by the words "or equal in quality, design, utility and suitability" as solely determined by the State.

F. Materials and methods of equal standards will be accepted for use if first deemed equal, and approved by the State.

1.04 QUALITY ASSURANCE

A. Comply with industry standards except when more restrictive tolerances or requirements indicate more rigid standards or greater quality.

B. Perform work by persons qualified to produce specified quality.

C. Secure products in place with positive anchorage devices designed and sized to withstand stresses, vibration, and racking.

1.05 TRANSPORTATION AND HANDLING

A. Transport products by methods to avoid product damage, deliver in undamaged condition in manufacturer's unopened containers or packaging.

B. Provide equipment and personnel to handle products by methods to prevent soiling or damage.

C. Promptly inspect shipments to ensure that products comply with requirements, quantities are correct, and products are undamaged.

1.06 STORAGE AND PROTECTION

A. Store products in accordance with manufacturer's instructions, with seals and labels intact and legible. Store sensitive products in weathertight enclosures; maintain within temperature and humidity ranges required by manufacturer's instructions.

B. For exterior storage of fabricated products, place on sloped supports above ground. Cover products subject to deterioration with impervious sheet covering, provide ventilation to avoid condensation.

C. Arrange storage to provide access for inspection. Periodically inspect to assure products are undamaged and maintained under required conditions.

D. Provide coverings to protect products from damage from traffic and construction operations, remove when no longer needed.

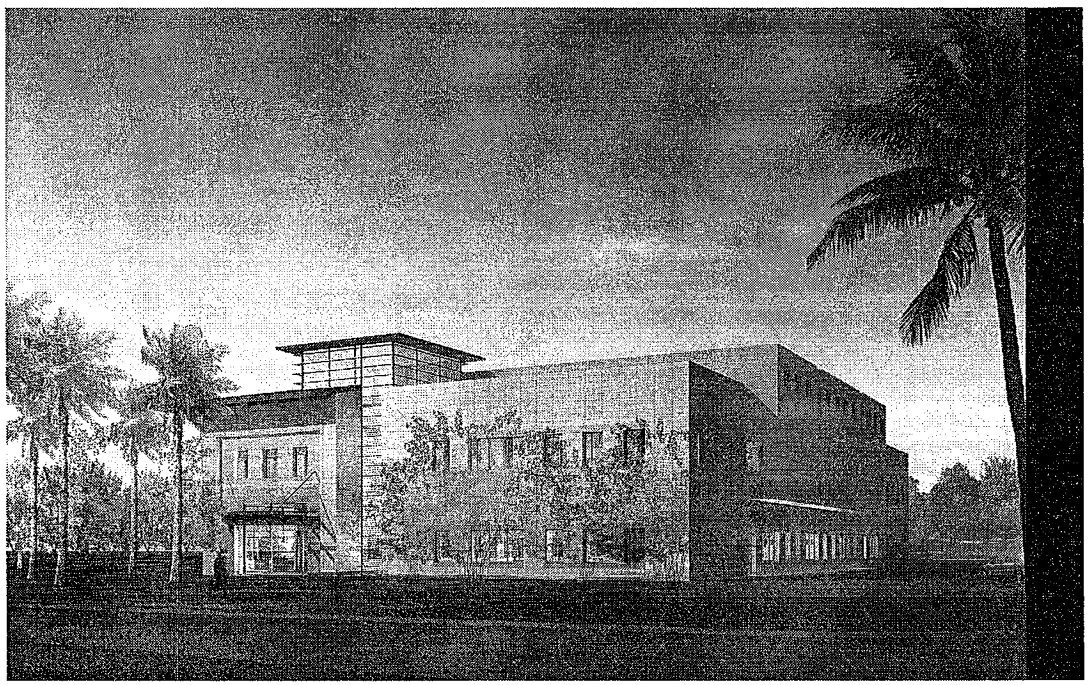
1.07 SCHEDULE

A. Contractor shall be responsible to schedule the manufacture and delivery of products to adhere to Contract Milestones and Completion Dates in accordance with Section 01 32 16: Progress Schedule and Reports.

END OF SECTION

VISCOUS FLUID DAMPERS
FOR THE
INLAND EMPIRE TRANSPORTATION MANAGEMENT CENTER

DEPARTMENT OF TRANSPORTATION AND CALIFORNIA HIGHWAY PATROL
13892 VICTORIA STREET, FONTANA CA 92336
SAN BERNARDINO COUNTY, CALIFORNIA



PROJECT

CHP

CLIENT

DESIGNER

DMJM H&N | AECOM

CONSULTANTS

STATUS

MAY 14, 2008

ISSUE

MARK	DATE	DESCRIPTION

PROJECT NO: 60004333.4000
DRAWN BY: E BUSTAMANTE
CHECK BY: T GRANT

KEY PLAN

SHEET TITLE

COVER SHEET

T-000

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PROJECT INFORMATION

SCOPE OF WORK:

THIS PACKAGE IS FOR THE DESIGN AND MANUFACTURING OF VISCOUS FLUID DAMPERS THAT WILL BE USED IN THE CONSTRUCTION OF THE INLAND EMPIRE TRANSPORTATION MANAGEMENT CENTER (IETMC) AND ACCESSORY STRUCTURES ON A SITE SHARED WITH CALTRANS SOUTHERN REGIONAL LAB (SRL). THE IETMC BUILDING IS A TWO STORY BASE ISOLATED STRUCTURE OF CONSTRUCTION TYPE II-N, OCCUPANCY GROUP B, OF APPROXIMATELY 43,000 SQ FT OF BUILDING AREA, FULLY SPRINKLERED. THE IETMC IS DESIGNED AS AN "ESSENTIAL SERVICES BUILDING" PER REQUIREMENTS OF CBC CHAPTER 16A, TABLE 16A-K. THIS FACILITY SHALL BE ACCESSIBLE TO PERSONS WITH DISABILITIES IN ACCORDANCE WITH THE REQUIREMENTS OF CBC 2001 CHAPTER 11B.

CLIENT

CLIENT

DEPARTMENT OF GENERAL SERVICES
707 THIRD STREET, 3-305
WEST SACRAMENTO,
CALIFORNIA 95605
TEL: (916) 376-1719

USERS

CALIFORNIA DEPARTMENT OF TRANSPORTATION
TOM AINSWORTH
DEPUTY DIRECTOR OPS.
464 FOURTH STREET
SAN BERNARDINO, CA 92401
TEL: (909) 383-4535

CALIFORNIA HIGHWAY PATROL
RUSSELL KINGSTON
847 E. BRIER DRIVE
SAN BERNARDINO, CA 92408
TEL: (909) 388-8038

GENERAL NOTES

1. ALL WORK SHALL CONFORM TO TITLE 24, CALIFORNIA CODE OF REGULATIONS (CCR)

2. CHANGES TO THE APPROVED DRAWINGS AND SPECIFICATIONS SHALL BE MADE BY AN ADDENDA OR A CHANGE ORDER APPROVED BY THE OFFICE OF THE STATE ARCHITECT, AS REQUIRE BY SECTION 4-338 PART 1, TITLE 24 CCR

3. A CERTIFIED "CLASS 1" INSPECTOR MUST BE EMPLOYED BY THE DISTRICT (OWNER), AS THE REQUIRED INSPECTOR OF RECORD (IOR), AND SHALL BE DSA APPROVED. THE INSPECTOR AND ASSISTANT INSPECTORS SHALL PROVIDE CONTINUOUS INSPECTION OF THE WORK. THE DUTIES OF THE INSPECTOR ARE DEFINED IN SECTION 4-342 PART 1, TITLE 24 CCR.

INDEX OF SHEETS

CODES

APPLICABLE CODES AND STANDARDS

CALIFORNIA BUILDING CODE (CBC) 2001 EDITION

PROJECT TEAM DIRECTORY

SEISMIC ENGINEER:
SAIF HUSSAIN
COFFMAN ENGINEERS
16133 VENTURA BLVD, STE. 1160
ENCINO, CA 91436
TEL: (818) 285-2650

GEOTECHNICAL ENGINEER:
NADESH NADESWARAN
DIAZ-YOURMAN & ASSOCIATES
1636 EAST 17TH ST.
SANTA ANA, CA 92705
TEL: (714) 245-2920

PROJECT PRINCIPAL
PETER LUELSDORF, AIA
DMJM H&N
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ORANGE, CA 92868
TEL: (714) 567-2400

PROJECT MANAGER:
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DMJM H&N
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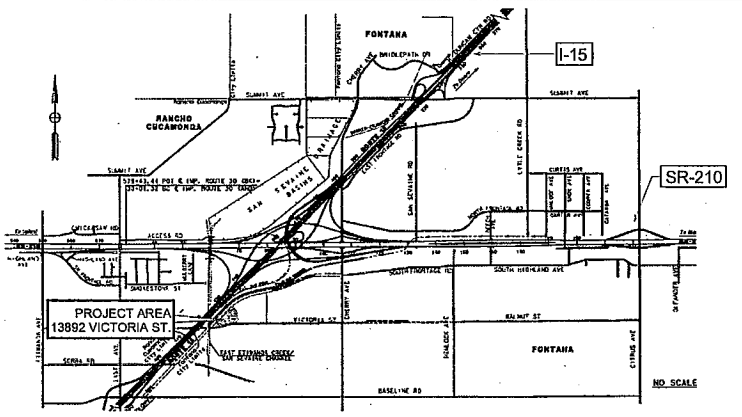
TEL: (714) 567-2400

STRUCTURAL ENGINEER:
DAVID KILPATRICK, PE
DMJM H&N
999 TOWN & COUNTRY RD
ORANGE, CA 92868
TEL: (714) 567-2400

LOCATION/VICINITY MAP



PROJECT

INLAND EMPIRE TRANSPORTATION MANAGEMENT CENTER
CHP

PROJECT ADDRESS:
13892 VICTORIA STREET
FONTANA, CA 92336

CLIENT

STATE OF CALIFORNIA
DEPARTMENT OF GENERAL SERVICES
REAL ESTATE SERVICES DIVISION
PROJECT MANAGEMENT BRANCH
430 N STREET, SUITE 5-100
SACRAMENTO, CA 95814
PROJECT DIRECTOR: REG EBEN
TELEPHONE: (916) 376-1719

DESIGNER

DMJM H&N | AECOM

999 TOWN & COUNTRY ROAD, ORANGE, CALIFORNIA 92868
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CONSULTANTS

STATUS

MAY 14, 2008

ISSUE

MARK	DATE	DESCRIPTION

PROJECT NO: 60004333.4000
DRAWN BY: E BUSTAMANTE
CHECK BY: T GRANT

KEY PLAN

SHEET TITLE

PROJECT INFORMATION AND INDEX OF DRAWINGS

T-001

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GENERAL NOTES

GENERAL

1. EACH STRUCTURE IS DESIGNED AS A STABLE UNIT AFTER ALL THE COMPONENTS ARE IN PLACE. THE CONTRACTOR SHALL PROVIDE TEMPORARY BRACING AS REQUIRED TO ENSURE VERTICAL AND LATERAL STABILITY OF THE STRUCTURE AND PORTIONS THEREOF DURING CONSTRUCTION.
2. STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH SPECIFICATIONS AND ALL OTHER DRAWINGS RELATING TO THE WORK.
3. CONTRACTOR SHALL VERIFY ALL DIMENSIONS, ELEVATIONS AND CONDITIONS AT THE SITE AND SHALL NOTIFY THE ARCHITECT OF DISCREPANCIES BETWEEN THE ACTUAL CONDITIONS AND INFORMATION SHOWN ON THE DRAWINGS. REMEDIAL ACTION SHALL BE TAKEN BEFORE PROCEEDING WITH THE WORK.
4. SPECIFIC NOTES AND DETAILS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. DO NOT SCALE DRAWINGS

DESIGN CRITERIA

(PER PART 2, TITLE 24, CBC 2001 PLUS SUPPLEMENTS, UNO)

1. ROOF LIVE LOAD = 20 PSF (REDUCIBLE PER CBC TABLE 16A-C), TYPICAL MECHANICAL EQUIP ROOM = 50 PSF IN OPEN AREAS AROUND EQUIPMENT
2. FIRST & SECOND FLOOR LIVE LOAD = 80 PSF (REDUCIBLE PER CBC SECTION 1606A) + 20 PSF PARTITION DEAD LOAD, OR 2000 POUND CONCENTRATED LOAD PLACED UPON ANY SPACE 20 SQUARE INCHES.
   1ST FLOOR ACCESS FLOOR SYSTEMS = 180 PSF +10 PSF PER1606A.2 EXCEPTION.
   2ND FLOOR ACCESS FLOOR = 50 PSF +10 PSF PER1606A.2 EXCEPTION OR 2000 POUND CONCENTRATED LOAD.
   EXIT FACILITIES = 100 PSF (REDUCIBLE PER CBC SECTION 1606A) STORAGE = 125 PSF.
3. WIND LOADS.
   WIND PEAK GUST VELOCITY = 90 MPH, EXPOSURE C, I=1.15.
4. SEISMIC PARAMETERS (PER CBC CHAPTER 16A)
   MINIMUM DESIGN SEISMIC BASE SHEAR $V = \frac{0.8ZN_V}{R} W$ & $V = 0.11C_aIW$
   NEAR SOURCE FACTOR N_a = 1.28; N_V = 1.73, $C_a = 0.40 N_a$, $C_v = 0.56 N_A$
   FOR d_i = 4.2 Km; SEISMIC SOURCE TYPE A.
   Z = 0.40 (ZONE 4)
   R = 5.6 OCBF.
   I = 1.0
   Ω = 2.2
5. SEISMIC ISOLATION SYSTEM DESIGN (PER CBC APPENDIX CHAPTER 16A DIV. VII
   SOIL TYPE = S_C (PER SOIL REPORT)
   NEAR SOURCE FACTOR N_a = 1.28; N_V = 1.73, $C_a = 0.40 N_a$, $C_v = 0.56 N_A$
   FOR d_i = 4.2 Km; SEISMIC SOURCE TYPE A.
   R_i = 1.6
6. SEISMIC DYNAMIC ANALYSIS FOR SITE SPECIFIC DESIGN GROUND MOTION PER: CBC SECTION 1654A - 1655A.
   FOR SITE SPECIFIC DESIGN GROUND MOTION INCLUDING DESIGN RESPONSE SPECTRA (DBE AND MCE) AND THREE PAIRS OF MATCHED TIME HISTORIES SEE "GEOTECHNICAL INVESTIGATION REPORT NO. 2006-056 (DATED 9-24-2007) BY DIAZ-YOURMAN AND ASSOCIATES, IRVINE, CA., ALSO SEE "PROBABALISTIC SEISMIC HAZARD ANALYSIS AND REPRESENTATIVE GROUND MOTION TIME HISTORIES" DATED 10-5-2007 BY HUSHMAND ASSOCIATES INC. 250 GODDARD, IRVINE, CA. 92618 (949) 777-1266.
7. ANALYSIS/DESIGN UTILIZES THE "ETABS" VERSION COMPUTER SOFTWARE.

STRUCTURAL STEEL

1. MATERIAL AND WORK SHALL CONFORM TO AISC "SPECIFICATION FOR STRUCTURAL STEEL BUILDINGS", LATEST EDITION.
2. MATERIAL FOR STRUCTURAL STEEL WIDE FLANGE SHAPES SHALL CONFORM TO ASTM A992 (F_y = 50 KSI) UNO. STRUCTURAL STEEL PLATES, ANGLES, CHANNELS AND WT SHALL CONFORM TO ASTM A36 U.N.O.
3. STRUCTURAL TUBING SHALL CONFORM TO ASTM A500, GRADE B, Fy=46KSI
4. STRUCTURAL PIPES SHALL CONFORM TO ASTM A53, GRADE B, Fy=35KSI
5. ALL STRUCTURAL STEEL CONNECTIONS SHALL BE MADE WITH HIGH STRENGTH TYPE BOLTS CONFORMING TO ASTM A325N UNO.
   BOLTS DESIGNATED AS SLIP-CRITICAL & BOLTS SUBJECT TO DIRECT TENSION LOADS SHALL BE PRETENSIONED PER AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING ASTM A325 OR A490 BOLTS."
6. ALL BOLTED CONNECTIONS SHALL HAVE A MINIMUM OF TWO (2) BOLTS, UNO.
7. MINIMUM EDGE DISTANCE (DISTANCE FROM CENTER OF BOLT TO NEAREST EDGE OF PLATE OR STRUCTURAL ELEMENT) SHALL BE 2 BOLT DIAMETERS OR 1 1/2", WHICHEVER IS GREATER, UNLESS NOTED OTHERWISE.
8. ANCHOR BOLTS SHALL BE A307 HEX HEAD BOLTS WITH FLAT WASHERS OR F1554 THREADED RODS WITH NUTS AND FLAT WASHERS UNO ON DWGS.
9. ALL WELDING SHALL CONFORM TO STANDARDS OF AISC, AWS D1.1 & D1.3 USING E70 LOW-HYDROGEN ELECTRODES AND SHALL BE PERFORMED BY WELDERS CERTIFIED PER AWS REQUIREMENTS.
10. CONTINUOUS VISUAL INSPECTION IS REQUIRED PER AWS CODE FOR ALL FIELD WELDING. ALL FULL PENETRATION GROOVE WELDS SHALL BE ULTRASONICALLY INSPECTED.
11. ALL STRUCTURAL STEEL AND MISCELLANEOUS STEEL EXPOSED TO WEATHER SHALL BE GALVANIZED.
12. GUSSET PLATES SHALL BE 3/8" THICK MINIMUM, UNLESS NOTED OTHERWISE.
13. ALL TESTING AND INSPECTION OF STRUCTURAL STEEL SHALL CONFORM WITH THE REQUIREMENTS OF PART 2, TITLE 24, C.C.R. SECTION 2231A.
14. CLEARLY MARK THE LOCATION OF ALL JACKING POINTS ON BEAMS DESIGNATED AS JACKING BEAMS.

SPECIAL INSPECTION

1. SPECIAL INSPECTION BY A REGISTERED BUILDING INSPECTOR APPROVED BY THE DIVISION OF STATE ARCHITECT (DSA) SHALL BE REQUIRED FOR THE FOLLOWING TYPES OF WORK. SEE PROJECT SPECIFICATONS FOR SPECIFIC REQUIREMENTS. ALL INSPECTIONS SHALL CONFORM WITH THE REQUIREMENTS OF PART 2, TITLE 24, C.C.R. SECTION 1701A.
2. DAMPER SYSTEM:
   A. SPECIAL INSPECTION PER CBC 2001 SECTION.
   B. SPECIAL INSPECTIONS DURING DAMPER TESTING PER INSTRUCTIONS FROM THE STRUCTURAL ENGINEER OF RECORD, OR AS STATED IN THE SPECIFICATIONS.

STRUCTURAL OBSERVATION

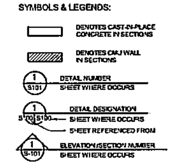
1. STRUCTURAL OBSERVATION AS INDICATED IN THE CALIFORNIA BUILDING CODE SECTION 1702A IS REQUIRED. CONTRACTOR SHALL NOTIFY THE STRUCTURAL ENGINEER OF RECORD (EOR) AT LEAST THREE WORKING DAYS IN ADVANCE TO FACILITATE THE SCHEDULING.
2. SEE PROJECT SPECIFICATIONS AND DRAWINGS FOR ADDITIONAL OBSERVATION REQUIREMENTS AND ALSO FOR OBSERVATION INSPECTION REQUIREMENTS BY OTHER SPECIALISTS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR NOTIFYING THE EOR 72 HOURS IN ADVANCE OF REQUIRED OBSERVATION(S) FOR SCHEDULING PURPOSES. FAILURE TO MEET OBSERVATION SCHEDULES MAY REQUIRE REMOVAL OF ANY FINISHES THAT HAVE BEEN SUBSEQUENTLY INSTALLED. APPROVAL BY DSA INSPECTOR DOES NOT PRECLUDE OBSERVATION BY THE ENGINEER OF RECORD (E.O.R.) AND APPROVAL BY THE E.O.R. DOES NOT PRECLUDE THE INSPECTION PROCESS BY THE DSA INSPECTOR AND ANY OTHER CODE REQUIREMENTS FOR INSPECTION. REMOVAL AND REPLACEMENT OF ANY FINISHES AND/OR FRAMING DAMAGED BY THE FINISH REMOVAL PROCESS OR AS REQUIRED FOR CORRECTIVE ACTION SHALL BE AT THE CONTRACTOR'S EXPENSE, NOT THE OWNER, ENGINEER NOR STRUCTURAL OBSERVER.

   4.1 DAMPER CONNECTIONS PRIOR TO DAMPER INSTALLATION.
   4.2 DAMPERS BEFORE ERECTION.

ABBREVIATIONS:

&	AND
AB	ANCHOR BOLT
AHU	AIR HANDLING UNIT
ARCH	ARCHITECTURAL
BM	BEAM
BOS	BOTTOM OF STEEL
BOF	BOTTOM OF FOOTING
BOT	BOTTOM
BRCG	BRACING
BS	BOTH SIDES
CANT	CANTILEVER
CIP	CAST IN PLACE
℄	CENTERLINE
CLR	CLEAR
CJ	CONTROL JOINT
CP	COMPLETE PENETRATION
CMU	CONCRETE MASONRY UNITS
COL	COLUMN
COORD	COORDINATE
CONC	CONCRETE
CONN	CONNECTION
CONST	CONSTRUCTION
CONT	CONTINUOUS
DBA	DEFORMED BAR ANCHOR
DET	DETAIL
DIA	DIAMETER
DWG	DRAWING
DWLS	DOWELS
(E)	EXISTING
EA	EACH
EJ	EXPANSION JOINT
EL	ELEVATION
ELEV	ELEVATION
EQ	EQUAL OR EQUIPMENT
EW	EACH WAY
EXP	EXPANSION
EXT	EXTERIOR, EXTERNAL
FDN	FOUNDATION
FF	FINISH FLOOR
FIN	FINISH
FLG(S)	FLANGE(S)
FLR	FLOOR
FRMG	FRAMING
FS	FAR SIDE
FTG	FOOTING
FOS	FACE OF STUD
GA	GAGE
HC	HANGER COLUMN
HDR	HEADER
HORIZ	HORIZONTAL
HS	HEADED STUD
HSB	HIGH STRENGTH BOLTS
IE	INVERT ELEVATION
INFO	INFORMATION
INTERMED	INTERMEDIATE
JT	JOINT
KB	KNEE BRACE
LLV	LONG LEG VERTICAL
LONGIT	LONGITUDINAL
LP	LOW POINT
LWC	LIGHT WEIGHT CONCRETE
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MIN	MINIMUM
MISC	MISCELLANEOUS
NF	NEAR FACE
NS	NEAR SIDE
NTS	NOT TO SCALE
NWC	NORMAL WEIGHT CONCRETE
OC	ON CENTER
OFI	OWNER FURNISHED AND INSTALLED
OPNG	OPENING
PJ	POUR JOINT
ℙ	PLATE
PL	PLATE
PLCS	PLACES
PROJ	PROJECTION
REQD	REQUIRED
REINF	REINFORCING
RM	ROOM
SC	STUB COLUMN
SCHED	SCHEDULE
SECT	SECTION
SLV	SHORT LEG VERTICAL
SIM	SIMILAR
SMS	SHEET METAL SCREWS
SPA	SPACES
SPECS	SPECIFICATIONS
SQ	SQUARE
STD	STANDARD
STIFF	STIFFENER
STL	STEEL
SYMM	SYMMETRY, SYMMETRICAL
TB	TRACK SWITCH BEARING POINT
THD	THREAD
T & B	TOP AND BOTTOM
TO	TOP OF
TOC	TOP OF CONCRETE
TOF	TOP OF FOOTING
TOS	TOP OF STEEL
TOW	TOP OF WALL
TYP	TYPICAL
UNO	UNLESS NOTED OTHERWISE
VERT	VERTICAL
WWF	WELDED WIRE FABRIC
WD	WOOD
WP	WORK POINT

SYMBOLS & LEGENDS:



PROJECT

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STATUS

MAY 14, 2008

ISSUE

MARK	DATE	DESCRIPTION

PROJECT NO: 60004333.4000
DRAWN BY: M. RAMIREZ
CHECK BY: J. LIVERMORE

KEY PLAN

SHEET TITLE

GENERAL NOTES, SYMBOLS AND ABBREVIATIONS

S-001

INDIVIDUAL ISOLATOR DESIGN PROPERTIES

TYPE OF ISOLATOR	DISPLACEMENTS (ins)					VERTICAL LOADS (kips)			EFFECTIVE STIFFNESS[1] (kips/in) @DD			EFFECTIVE STIFFNESS[1] (kips/in) @DM		
	DD	TD	DM	TM		LT	ST	AL	MIN	MEAN	MAX	MIN	MEAN	MAX
B1	13	14.1	22.9	25		560	950	290	3.23	3.8	4.37	3.23	3.8	4.37

ISOLATION SYSTEM DESIGN PROPERTIES

TYPE OF ISOLATOR	NUMBER	AGGREGATE EFFECTIVE STIFFNESS @ DD[3] (kips/in)			AGGREGATE EFFECTIVE STIFFNESS @ DM[3] (kips/in)		
		MIN.	MEAN	MAX.	MIN.	MEAN	MAX.
B1	31	100	118	135	100	118	135

NOTES:

DD = DESIGN DISPLACEMENT
TD = TOTAL DESIGN DISPLACEMENT
DM = MAXIMUM DESIGN DISPLACEMENT
TM = TOTAL MAXIMUM DESIGN DISPLACEMENT

LT = LONG TERM MAX. LOAD; (DL + RLL) MAX.
ST = SHORT TERM MAX. LOAD; (1.2xDL + RLL + EM) MAX.
AL = AVE. ISOLATOR TEST LOAD; (DL + 0.5 x RLL) AVE.
DL = DEAD LOAD, RLL = CODE REDUCED LIVE LOAD
EM = MCE EARTHQUAKE O/T LOAD

ALL TESTING AND OTHER REQUIREMENTS OF THE 2001 CALIFORNIA BUILDING CODE, APPENDIX CHAPTER 16A, DIVISION IV SHALL BE COMPLIED WITH FOR THIS PROJECT. ADDITIONALLY, EACH ISOLATOR SHALL REMAIN STABLE UNDER LOAD "ST" WHEN STATICALLY TESTED TO DISPLACEMENT "TM"

MINIMUM AXIAL COMPRESSIVE STIFFNESS SHALL BE 9,000 KIPS/IN FOR ALL ISOLATORS.

ALL ISOLATORS SHALL BE CAPABLE OF WITHSTANDING A DIRECT NET TENSION FORCE OF 50 KIPS WITHOUT FAILURE AND WITH A DEFLECTION NO GREATER THAN 0.25 INCH.

EACH ISOLATOR SHALL LATERALLY DEFLECT NO MORE THAN 2.2 INCH UNDER A MAXIMUM WIND DESIGN LATERAL LOAD OF 10.1 KIPS.

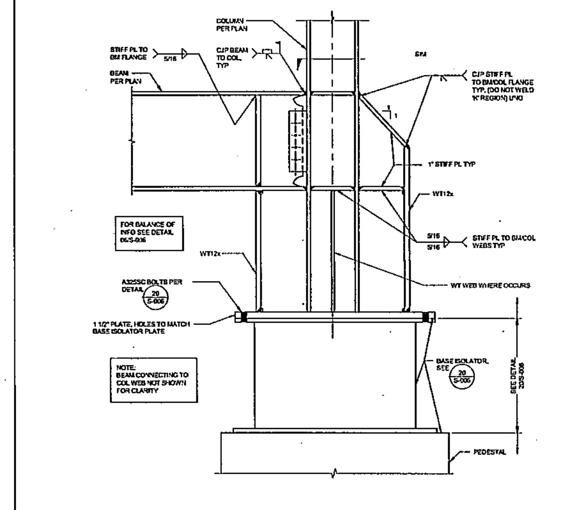
ALL OTHER REQUIREMENTS FOR SEISMIC ISOLATORS GIVEN IN THE PROJECT TECHNICAL SPECIFICATIONS SHALL BE FULLY COMPLIED WITH.

1 TESTED EFFECTIVE STIFFNESS OF EACH ISOLATOR SHALL BE WITHIN THE GIVEN TABULATED VALUES.
2 TESTED EFFECTIVE DAMPING OF EACH ISOLATOR SHALL NOT BE LESS THAN TABULATED VALUES.
3 AGGREGATE EFFECTIVE STIFFNESS FOR EACH TYPE OF ISOLATOR BASED ON THE PROJECT SPECIFIED TESTING AND THE RESULTING SYSTEM EFFECTIVE STIFFNESS SHALL FALL WITHIN TABULATED VALUES.

18 | ISOLATOR DESIGN PROPERTIES
S-006 — NOT TO SCALE

1. SEE THE SPECIFICATIONS FOR INFORMATION NOT NOTED ON THE DRAWINGS.
2. THE FINAL ISOLATOR DIMENSIONS AND DESIGN SHALL BE DETERMINED BY A CALIFORNIA REGISTERED STRUCTURAL ENGINEER EXPERIENCED IN SEISMIC ISOLATOR DESIGN. THE ENGINEER SHALL BE HIRED AND PAID FOR BY THE ISOLATOR MANUFACTURER.
3. EACH ISOLATOR SHALL BE PROPORTIONED TO MEET THE SPECIFIC ISOLATOR PERFORMANCE CRITERIA LISTED IN THESE DRAWINGS AND THE SPECIFICATIONS. THE SCOPE OF ISOLATOR DESIGN SHALL INCLUDE ALL ISOLATOR COMPONENTS AND MOUNTING PLATES AND OTHER ITEMS DESCRIBED IN THE SPECIFICATIONS. THE SCOPE OF DESIGN SHALL INCLUDE A CHECK OF MOUNTING BOLT CAPACITY, BUT NEED NOT INCLUDE THE DESIGN OF THE UPPER OR LOWER STRUCTURAL STEEL CONNECTING PLATES.
4. THE FINAL ISOLATOR DIMENSIONS SHALL CONFORM TO THE SIZE RANGE SHOWN ON THIS SHEET.
5. ALL ISOLATOR MOUNTING PLATES, CONNECTING PLATES, AND HOUSING PLATES SHALL BE MACHINED FLAT.
6. ALL ISOLATOR UPPER CONNECTING PLATES (COLUMN BASE PLATES) SHALL BE CHECKED FOR FLATNESS AFTER WELDING TO THE COLUMN BASES, AND BEFORE MOUNTING THE ISOLATORS TO THE CONNECTING PLATES. THE DEVIATION OF ANY POINT ON THE WELDED CONNECTING PLATE FROM A STRAIGHT EDGE LAID ACROSS THE PLATE IN ANY ORIENTATION SHALL NOT EXCEED 0.0625 INCHES.
7. ALL LOWER CONNECTING PLATES SHALL BE LEVELED AND GROUTED WITH THE ISOLATOR MOUNTED TO CONNECTING PLATE.
8. REFER TO SCHEDULE ON THIS SHEET FOR SPECIFIC PARAMETERS FOR ISOLATOR DESIGN PURPOSES.
9. ALL STRUCTURAL STEEL IN THE ISOLATOR CRAWL SPACE SHALL BE CONSIDERED EXPOSED TO THE ENVIRONMENT AND SHALL BE PAINTED WITH AN APPROVED ZINC BASED RUST PROOF PAINT.

23 | SEISMIC ISOLATION NOTES
S-006 — NOT TO SCALE

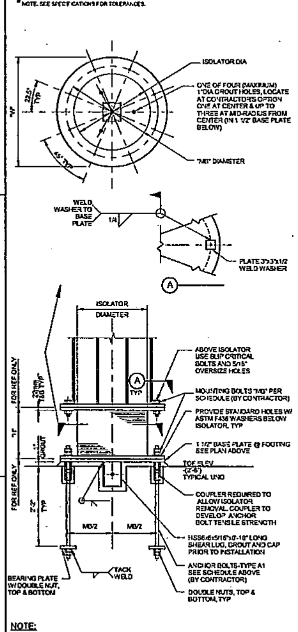


8 | TYP ISOLATOR BASE AT EDGE
S-006 — NOT TO SCALE

DIMENSIONAL REQUIREMENTS FOR ISOLATOR *

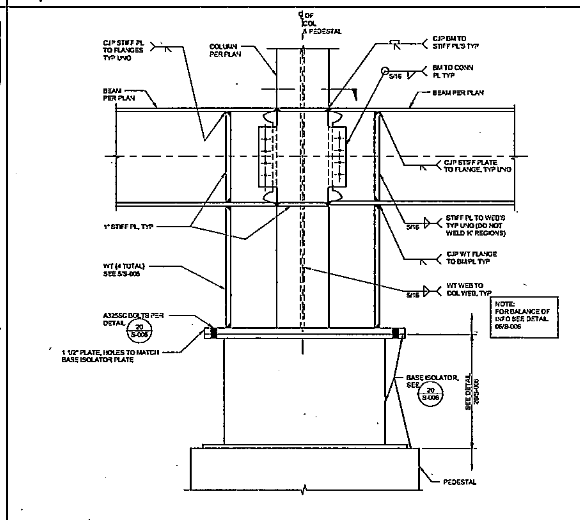
ISOLATOR TYPE	ISOLATOR DIAMETER	"H"	"W"	MOUNTING BOLTS BOLT DIA A325SC	MOUNTING BOLTS "MB" DIA	ANCHOR BOLTS TYPE A1 A449	ANCHOR BOLTS BEARING PLATE SIZE
B1	39.5"	26.5"	49.5"	1"	44.5"	1"	5"SQ"

* NOTE. SEE SPECIFICATIONS FOR TOLERANCES.

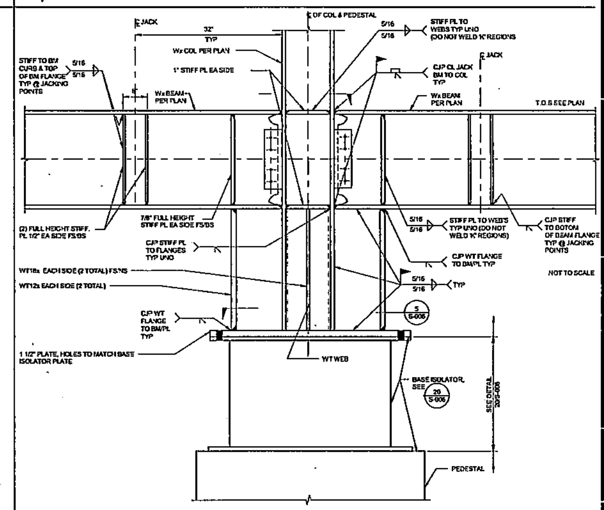


NOTE:
1. "H" IS THE OUT-TO-OUT DIMENSION OF THE BASE ISOLATORS INCLUDING MOUNTING / FLANGE PLATES.

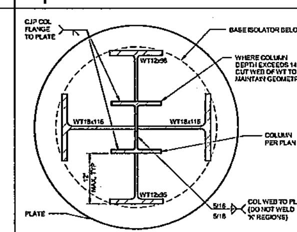
20 | BASE PLATE DETAIL BELOW ISOLATOR
S-006 — NOT TO SCALE



16 | TYP ISOLATOR BASE BEAM TO COL WEB
S-006 — NOT TO SCALE



6 | TYPICAL ISOLATOR BASE BEAM TO COLUMN FLANGE
S-006 — NOT TO SCALE



5 | TYP COLUMN SECTION ABOVE ISOLATOR (FOR REFERENCE ONLY)
S-006 — NOT TO SCALE

BASE ISOLATION SYSTEM NOTE

THIS DRAWING PROVIDES INFORMATION ON THE DESIGN AND INSTALLATION OF THE BASE ISOLATION SYSTEM. FOR THE SAKE OF CLARITY, THE ENTIRE SYSTEM IS SHOWN; HOWEVER, THE BASE ISOLATORS AND DAMPERS ARE BEING MANUFACTURED UNDER A SEPARATE CONTRACT FROM THE BUILDING CONSTRUCTION CONTRACT. THE BASE ISOLATORS AND DAMPERS WILL BE PROVIDED TO THE BUILDING CONTRACTOR AS STATE FURNISHED MATERIAL TO BE INSTALLED BY THE BUILDING CONTRACTOR.

PROJECT
CHP

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DGS

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STATUS
MAY 14, 2008

ISSUE

MARK	DATE	DESCRIPTION

PROJECT NO: 60004333.4000
DRAWN BY: M. RAMIREZ
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KEY PLAN

SHEET TITLE
TYPICAL DETAILS

S-006

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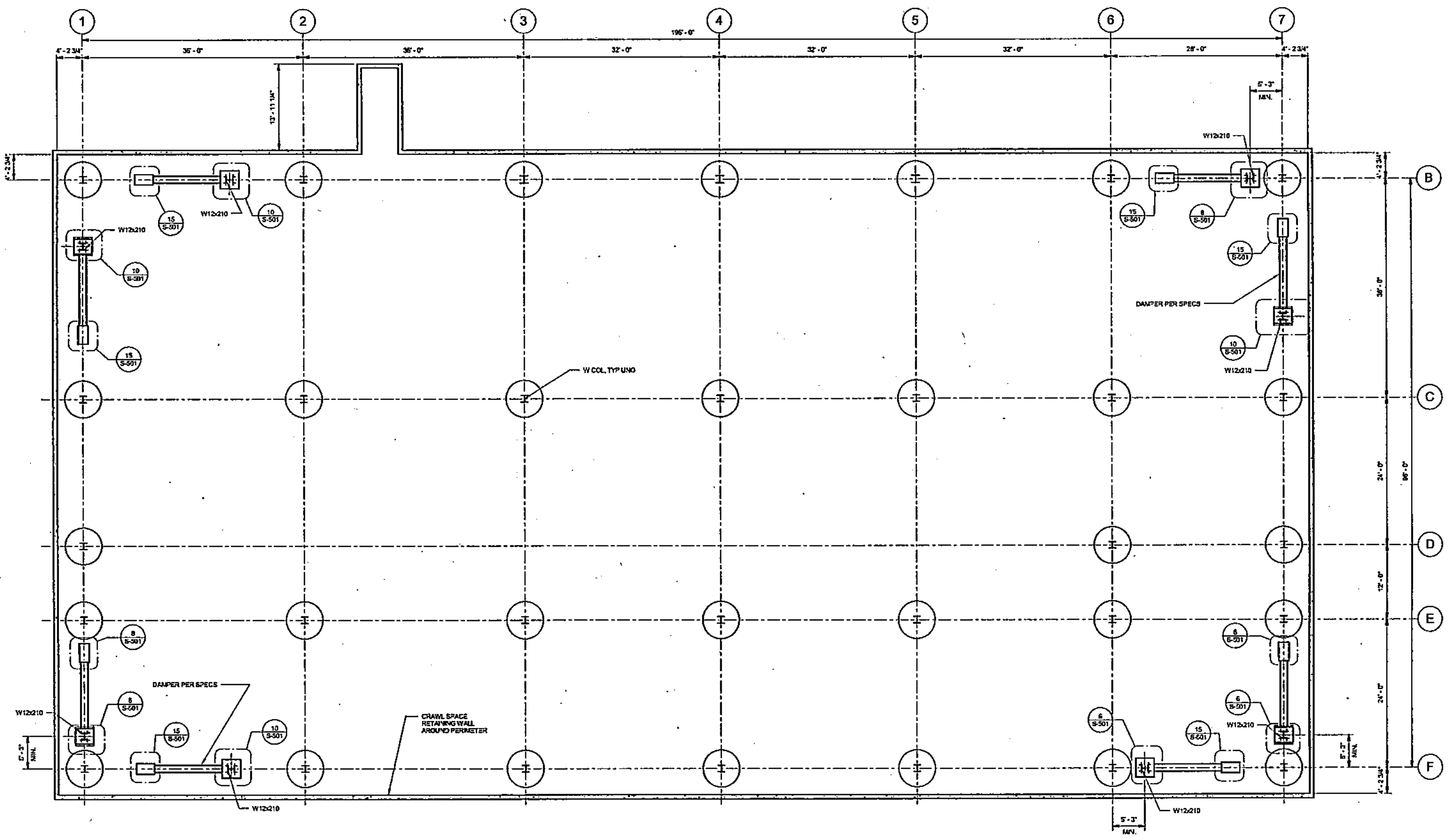

1 | SEISMIC ISOLATION SYSTEM
S-200A | 1/8" = 1'-0"

SCALE: 1/8" = 1'-0" 0' 4' 8' 16' 32'

NORTH

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ISSUE

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PROJECT NO: 60004333.4000
DRAWN BY: M. RAMIREZ
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KEY PLAN

SHEET TITLE

SEISMIC ISOLATION SYSTEM
FOR REFERENCE ONLY

S-200A

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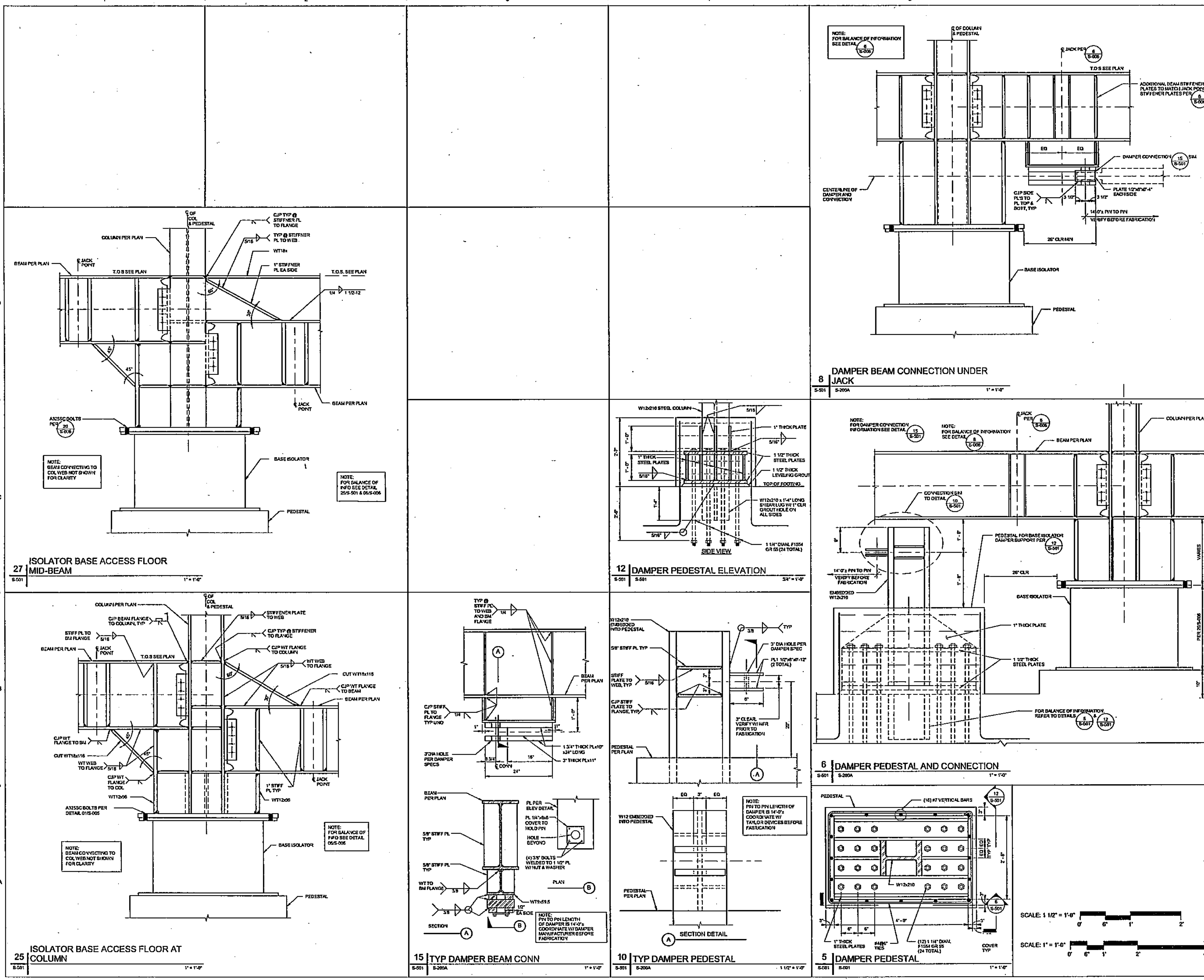

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PROJECT

CHP

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MAY 14, 2008

ISSUE

MARK	DATE	DESCRIPTION

PROJECT NO: 60004333.4000
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KEY PLAN

SHEET TITLE

SECTIONS AND DETAILS
FOR REFERENCE ONLY

S-501