



STATE OF UTAH - DEPARTMENT OF ADMINISTRATIVE SERVICES

Division of Facilities Construction and Management

DFCM

Solicitation for Architect / Engineer Services

Value Based Selection Method

January 15, 2008

HVAC RENOVATION - 5TH FLOOR GUNTHER TRADES BUILDING

**UTAH VALLEY STATE COLLEGE
OREM, UTAH**

DFCM Project No. 06067790

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Current copies of the following documents are hereby made part of this Solicitation for A/E Services by reference. These documents are available on the DFCM web site at <http://dfcm.utah.gov> or are available upon request from DFCM.

DFCM Design Manual dated March 15, 2006
DFCM General Conditions dated May 25, 2005

NOTICE TO ARCHITECTS / ENGINEERS

The State of Utah - Division of Facilities Construction and Management (DFCM) is soliciting the services of qualified firms/individuals to perform design services for the following project:

HVAC RENOVATION - GUNTHER TRADES BUILDING 5TH FLOOR
UTAH VALLEY STATE COLLEGE – OREM, UTAH
DFCM PROJECT NO. 06067790

Utah Valley State College and DFCM are in need of design services for the 5th Floor HVAC renovation of the Gunther Trades Building. Construction budget for this project is \$1,400,000.00.

The selection shall be under the Value Based Selection method. The Solicitation for A/E Services documents, including the submittal requirements and the selection criteria and schedule, will be available at 4:00 PM on Tuesday, January 15, 2008 from DFCM at the State Office Building - Room 4110, Salt Lake City, Utah 84114 and on the DFCM web site at <http://dfcm.utah.gov>. For questions regarding this solicitation, please contact S'ean Crawford, DFCM, at (801) 419-4936. No others are to be contacted regarding this solicitation.

A **MANDATORY** pre-submittal meeting will be held at 10:00 AM on Thursday, January 24, 2008 at the Gunther Trades Building, Utah Valley State College, Orem, Utah. Contractor paid parking is available in Parking Lot L. Meet at the diagonal stairs at the entry of the Student Center (see attached map). All design firms wishing to submit on this project must attend this meeting.

Submittal dates for the required references, management plans, statements of qualifications, and interviews will be based on the Project Schedule included in the Solicitation for A/E Services.

The Division of Facilities Construction & Management reserves the right to reject any or all submittals or to waive any formality or technicality in any submittal in the interest of the State.

DIVISION OF FACILITIES CONSTRUCTION AND MANAGEMENT
MARLA WORKMAN, CONTRACT COORDINATOR
4110 State Office Bldg., Salt Lake City, Utah 84114

PROJECT DESCRIPTION

Utah Valley State College and the Division of Facilities Construction and Management are soliciting for design services for the HVAC renovation of a portion of the 5th Floor of the Gunther Trades Building at the UVSC Orem Campus. Stanley Consultants was retained to complete a detailed analysis of the space concerned. The final report is attached.

The selected design team shall use the analysis provided in the report to develop a design that best meets the needs of UVSC at a construction budget of \$1,400,000.00. This is to be achieved through value engineering and reducing the scope from what was proposed in the analysis in order to meet the budget.

PROCUREMENT PROCESS

The State of Utah intends to enter into an agreement with a firm to provide professional services as described.

The selection of the firm will be made using a Value Based Selection (VBS) system. The Project Schedule lists the important events, dates, times and locations of meetings and submittals. The terms of the project schedule are hereby incorporated by reference and must be met by the selected firm.

1. Solicitation for A/E Documents

The Solicitation for A/E Services documents consist of all of the documents listed in the Table of Contents and all said documents are incorporated in this solicitation by reference. The solicitation will be available at DFCM per the attached schedule and on the DFCM web site at <http://dfcm.utah.gov>.

2. Contact Information

Except as authorized by the DFCM Representative or as otherwise stated in the solicitation or the pre-submittal meeting, communication during the selection process shall be directed to the specified DFCM Representative. In order to maintain the fair and equitable treatment of everyone, A/Es shall not unduly contact or offer gifts or gratuities to DFCM, any Board officer, employee or agent of the State of Utah, users or selection committee members in an effort to influence the selection process or in a manner that gives the appearance of influencing the selection process. This prohibition applies before the solicitation is issued, as the project is developed, and extends through the award of an agreement. Failure to comply with this requirement may result in a disqualification in the selection process. A/Es should be aware that selection committee members will be required to certify that they have not been contacted by any of the A/Es in an attempt to influence the selection process.

3. Requests for Information

All requests for information regarding this project shall be in writing and directed to:

S'ean Crawford (DFCM Representative)
Division of Facilities Construction and Management
4110 State Office Building
Salt Lake City, Utah 84114
E-mail: scrawford@utah.gov
Facsimile: 801-538-3267

4. Project Schedule.

The Project Schedule lists the important events, dates, times, and locations of meetings and submittals that must be met by the A/E.

5. Mandatory Pre-Submittal Meeting

A mandatory pre-submittal meeting will be held on the date and time and at the location listed on the Project Schedule.

A representative from each interested prime firm is required to attend. During the meeting, a presentation will be made to describe the overall scope of work and intended schedule. Interested firms may ask questions and request clarification about the project and the procurement process.

Subconsultants are invited to attend this meeting but it is not mandatory for them.

THE PRIME FIRMS ABSENCE FROM THE PRE-SUBMITTAL MEETING AND/OR FAILURE TO REGISTER PRECLUDES PARTICIPATION AS A SUBMITTING FIRM ON THIS PROJECT.

6. Submittal Due Dates and Times

All required submittals must be delivered to, and be received by, the Division of Facilities Construction and Management previous to the date and time indicated in the Project Schedule. Submittals received after the specified time will not be accepted. Please allow adequate time for delivery. If using a courier service, the submitting firm is responsible for ensuring that delivery will be made directly to the required location. It is your responsibility to allow for the time needed to park on Capitol Hill as recent construction activity has made the parking more difficult. Identification is required to enter the building.

7. Last Day to Submit Questions

All questions must be received at the office of DFCM no later than the time and dated listed in the Project Schedule. Questions must be submitted in writing to S'e'an Crawford at DFCM.

8. Addendum

All references to questions and requests for clarification will be in writing and issued as addenda to the Solicitation for A/E Services. The addenda will be posted on DFCM's web site.

Any addenda issued prior to the submittal deadline shall become part of the Solicitation for A/E Services and any information required shall be included in your submittal.

9. Past Performance and References

As an A/E completes each DFCM project, DFCM, the contractors and the using agency or institution will evaluate the A/E. It is the intent of DFCM that this process will be the major source for evaluating past performance.

A/Es shall submit past performance and reference information by the time indicated on the Project Schedule.

For all DFCM projects completed in the last five years identify the project by name, number and DFCM project manager. Each A/E wishing to compete for this project that has not completed at least three DFCM projects in the last five years, will be required to provide one copy of a list of references on additional similar projects for a total of three projects.

For non-DFCM projects provide the following information:

Point of Contact:	Person who will be able to answer any customer satisfaction questions.
Phone Number:	Phone number of the contact we will be surveying.
User Name:	Name of Company / Institution that purchased the construction work.
Project Name:	Name of the project.
Date Completed:	Date of when the work was completed.
Address:	Street, city and state where the work was performed.
Size:	Size of project in dollars.
Duration:	Duration of the project / construction in months.
Type:	Type of the project (i.e.: School, Offices, Warehouse, etc)

10. Management Plan

Firms will be required to develop and submit a plan demonstrating how they will manage their responsibilities, identifying risks, and how risks will be mitigated. An organization chart showing the roles and responsibilities of all pertinent decision-makers is a required part of the presentation.

Address project specific criteria, risks that have been identified by the Solicitation for A/E Services and additional risks that the team has identified. State how those risks will be mitigated.

As part of the Management Plan include your proposed project schedule. Indicate critical dates and other information in sufficient detail for the selection committee to determine if the time frames are reasonable.

The Management Plan should be concise yet contain sufficient information for evaluation by the selection committee.

The submitting firm shall provide seven copies of the Management Plan by the time indicated on the Project Schedule.

11. Statements of Qualifications

The submitting firm shall provide seven copies of the Statements of Qualifications by the time indicated on the Project Schedule.

The Statement of Qualifications is a short document that indicates the experience and qualifications of the firm, the project manager and other critical members of the team. It describes what talents their team brings to the project, how their knowledge of the subject will provide benefit to the process, how the team has been successful in the past and how that relates to this project. It should include information on similar projects that have been completed by the firm, project manager and other team members. Include the experience and special qualifications that are applicable to this project and/or are part of the project specific selection criteria.

12. Selection Committee

The Selection Committee may be composed of individuals from DFCM, the User Agency / Institution, and a representative from the design or construction disciplines.

13. Termination or Debarment Certifications

The firm must submit a certification that neither it nor its principals are presently debarred, suspended, proposed for debarment, declared ineligible, or voluntarily excluded from soliciting work by any governmental department or agency. The firm must also certify that neither the firm nor its principals have been terminated during the performance of a contract or withdrew from a contract to avoid termination. If the firm cannot certify these two statements the firm shall submit a written explanation of the circumstances for review by DFCM. Firms are to submit these certifications with their Statement of Qualifications.

14. Interviews

Interviews will be conducted with all firms who have met all of the requirements except as follows. If more than six firms are eligible for interviews, DFCM may convene the selection committee to develop a short list of firms to be invited to interviews. This evaluation will be made using the selection criteria noted below based on the information provided by the past performance/references, performance plan and statement of qualifications.

The purpose of the interview is to allow the firm to present its qualifications, past performance, management plan, schedule and general plan for accomplishing the project. It will also provide an opportunity for the selection committee to seek clarifications from the firm.

The proposed primary project management personnel, including the project manager, should be in attendance. The project manager is the firm's representative who has overall job authority, will be in attendance at all job meetings, and is authorized by the firm to negotiate and sign any and all change orders in the field, if necessary. Unless otherwise noted, the attendance of subconsultants is at the discretion of the firm.

The method of presentation is at the discretion of the firm. The interviews will be held on the date and at the place specified in the Project Schedule.

15. Selection Criteria for VBS Professional Services

The following criteria will be used in ranking each of the teams. The team that is ranked the highest will represent the best value for the state. The criteria are not listed in any priority order. The selection committee will consider all criteria in performing a comprehensive evaluation of the proposal. Weights have been assigned to each criteria in the form of points.

- A. **DFCM Past Performance Rating. 20 Points.** Each prime firm will be given a past performance rating. The rating will be based first on how well the firm did on past projects with DFCM. If a minimum of three DFCM past performance ratings are not available a rating will be established using any DFCM past performance ratings that are available, supplemented by references supplied by the firm at the time the Management Plans and SOQ are submitted.
- B. **Strength of Team. 20 Points** Based on the statements of qualifications, the interview, and management plan, the selection team shall evaluate the expertise and experience of the team and the project lead as it relates to this project in size, complexity, quality, duration, etc. Consideration will also be given to the strength brought to the team by critical consultants including how they were selected and the success the team has had in the past in similar projects.
- C. **Project Management Approach. 30 Points** Based on the information provided in the statements of qualifications, the management plan and information presented in the interview the selection team shall evaluate how each team has planned to approach the project. The selection team will also evaluate the degree to which risks to the success of the project have been identified and a reasonable solution has been presented.
- D. **Schedule. 30 Points** The A/E's schedule will be evaluated as to how well it meets the objectives of the project. Unless other objectives are stated the shorter the duration that is evaluated to be feasible while achieving an appropriate design is preferred. The A/E shall discuss during the interview the project schedule identifying major work items with start and stop dates that are realistic and critical subconsultants and if they have reviewed and agree to the schedule. The completion dates shown on the schedule will be used in the contract.

TOTAL POSSIBLE POINTS: 100 POINTS

16. Fee Negotiation

Following selection of a design firm by the Selection Committee and prior to the award of the design agreement, DFCM will negotiate the final agreement fee with the selected firm. Should the DFCM be unable to agree to a satisfactory contract with the top ranked firm at a price that DFCM

determines to be fair and reasonable to the State, discussions with that firm shall be formally terminated. Negotiations will then be undertaken with the second ranked firm.

This process will be repeated until an agreement is reached or DFCM determines that it is in the best interest of the State to initiate a new selection process.

17. Form of Agreement

At the conclusion of negotiations, the selected A/E will be required to enter into an agreement using the attached form of the Design Agreement between DFCM and Architect/Engineer.

18. Licensure

The A/E shall comply with and require its subconsultants to comply with the license laws of the State of Utah.

**PROJECT SCHEDULE**

PROJECT NAME: HVAC RENOVATION – GUNTHER TRADES 5TH FLOOR				
UTAH VALLEY STATE COLLEGE – OREM, UTAH				
DFCM PROJECT #: 06067790				DESIGN
Event	Day	Date	Time	Place
Solicitation for A/E Services Available	Tuesday	January 15, 2008	4:00 PM	DFCM 4110 State Office Bldg SLC, UT and the DFCM web site*
Mandatory Pre-submittal Meeting	Thursday	January 24, 2008	10:00 AM	Gunther Trades Building Utah Valley State College Orem, UT Meet at the diagonal stairs at the entry of the Student Center (see attached map)
Last Day to Submit Questions	Monday	January 28, 2008	2:00 PM	S'ean Crawford – DFCM E-mail: scrawford@utah.gov Fax (801) 538-3267
Addendum Deadline (exception for bid delays)	Wednesday	January 30, 2008	2:00 PM	DFCM web site *
Management Plans, References, Statements of Qualifications, and Termination / Debarment Certifications Due	Tuesday	February 5, 2008	12:00 NOON	DFCM 4110 State Office Bldg SLC, UT
Short Listing by Selection Committee, if applicable.	Friday	February 8, 2008	4:00 PM	DFCM web site *
Interviews	Tuesday	February 12, 2008	TBD	TBD
Announcement	Wednesday	February 13, 2008	4:00 PM	DFCM web site *

* DFCM's web site address is <http://dfcm.utah.gov>.

**DESIGN AGREEMENT
BETWEEN DFCM AND ARCHITECT / ENGINEER**

This AGREEMENT is made this ___th day of _____, 20__, between the Division of Facilities Construction and Management, hereinafter referred to as "DFCM", and the "Architect / Engineer", _____, a corporation of the State of Utah, whose address is _____ Utah _____, hereinafter called the "A/E", agree to all the provisions of this Agreement for the Project identified as:

**ARTICLE I.
DOCUMENTS INCORPORATED BY REFERENCE**

A. DFCM GENERAL CONDITIONS.

1. The DFCM General Conditions ("General Conditions") which is current as of the date of this Agreement and on file with the DFCM is incorporated by reference as if fully set forth in this Agreement.
2. The A/E and DFCM shall be bound by the definitions and terms described in the General Conditions.
3. Unless the context provides otherwise, all definitions and interpretations of provisions of this Agreement shall be as stated in the General Conditions. In case of conflict between the provisions of this Agreement and the General Conditions, the provisions of this Agreement shall control.

B. SOLICITATION / PROCUREMENT DOCUMENTS AND REQUIREMENTS.

The A/E shall comply with the following:

1. State Procurement requirements.
2. The DFCM solicitation documents and A/E submitted documents for this project are hereby incorporated by reference as part of this Agreement. Attachment "C" hereto indicates changes to the A/E's response, if applicable.
3. The procurement documents and Contract Documents.

C. DFCM DESIGN MANUAL.

1. The DFCM Design Manual (“Design Manual”) dated March 15, 2006 and on file with the DFCM is incorporated by reference as if fully set forth in this Agreement.

2. The A/E and DFCM shall be bound by the definitions and terms described in the Design Manual.

D. ATTACHMENTS TO THIS AGREEMENT

All attachments to this Agreement are incorporated by reference as if fully set forth in this Agreement. Unless the context requires otherwise, any reference in this Agreement to an “Attachment” means such an incorporated by reference attachment to this Agreement.

E. HIERARCHY OF DOCUMENTS.

In case of conflict, the following documents supersede each other in accordance with the following respective hierarchy:

1. Codes and applicable law;
2. The attachments hereto;
3. The solicitation documents issued by DFCM for the selection of the A/E;
4. Any response by A/E to the procurement documents attached to this Agreement;
5. The body of this Agreement;
6. The General Conditions; and
7. The Design Manual.

**ARTICLE II.
GENERAL REQUIREMENTS**

A. GENERAL OBJECTIVES. The objectives of the Work under this Agreement include, but are not limited to the following:

1. Comply with the requirements of the Predesign Program;
2. Provide designs that comply with applicable laws, codes, rules, regulations and quality requirements;

3. Comply with this Agreement including the General Conditions and Design Manual;
4. Meet the established Construction Budget in Attachment “A”;
5. Maintain the Project Schedule in Attachment “A”; and
6. To work with DFCM and the Contractor to accomplish all these objectives.

B. SCHEDULE. Time is of the essence. The A/E shall commence and prosecute the work diligently so as to be in compliance with the Project Schedule in Attachment “A.” However, the A/E shall not be responsible for failure to comply with the Project Schedule or any portion thereof to the extent such noncompliance is not due to the fault of the A/E or anyone for whom the A/E is liable.

C. STANDARD OF CARE; RESPONSIBILITY. The services of A/E and its Subconsultants, if any, shall be performed in accordance with and judged solely by the standard of care exercised by licensed members of their respective professions having substantial experience providing similar services on projects similar in type, magnitude and complexity to the Project that is the subject of this Agreement. The A/E shall be liable to the DFCM or the State of Utah for claims, liabilities, additional burdens, penalties, damages or third party claims (i.e. a Contractor claim against DFCM or the State of Utah), to the extent caused by errors or omissions that do not meet this standard of care.

D. PUBLIC INFORMATION RELEASE. A/E shall not make any public information release in connection with the Project without advance written permission of DFCM. A/E shall require of it’s Subconsultants the same agreement to maintain the confidentiality of information. Notwithstanding this provision, the A/E does not need DFCM’s consent to respond to any information release which is needed to defend the A/E’s interest, or to the extent such public information release is protected by constitutional free speech rights.

E. CONFLICT OF INTEREST. A/E and the A/E’s Subconsultants shall not have any member that has a conflict of interest that may reasonably affect the A/E or Subconsultants professional judgment in regard to the Project, unless such conflict is disclosed to the DFCM and approved by the DFCM in writing. It is the A/E’s duty to enforce this provision with the Subconsultants.

1. **Use of “Sales Agents.”** The A/E warrants that no person or selling agency has been employed or retained except as indicated in writing to DFCM.

F. LAWS, CODES AND REGULATIONS. A/E and its Subconsultants shall use their best efforts consistent with the Standard of Care stated herein to comply with laws, codes, rules, regulations, ordinances and quality requirements applicable to the Project as established by State statute, codes adopted by State law, administrative rule and/or deemed applicable to the Project pursuant the express terms of this Agreement including those documents incorporated by reference. A/E or DFCM may request, and will be granted, a meeting with the other to discuss any additional codes or requirements that are applicable to the Project. In the case of change(s) or

conflicts in the applicable code requirements, laws, rules or regulations, during the work of the Scope of A/E's Services, when and if the A/E becomes aware of such change(s) or conflicts, the A/E shall promptly notify the DFCM in writing. If the DFCM determines that work that has already been properly performed must now be changed, such change will be considered additional work under this Agreement and the A/E shall then prepare all documents to comply with the needed change(s).

G. ESTABLISH CONSTRUCTION BUDGET. The A/E shall prepare a construction budget (including cost estimate) for each phase of work under this Agreement in accordance with the Design Manual.

H. IF BIDS/PROPOSALS EXCEED CONSTRUCTION BUDGET. If no acceptable bid or proposal is received within the Construction Budget, the DFCM in its sole discretion may elect any one or more of the following options:

1. Give written approval of an increase in the Construction Budget; and/or
2. Rebid or renegotiate the construction contract within a reasonable time; and/or
3. Revise the Project scope and/or quality as necessary to meet the Construction Budget; and/or
4. Abandon the Project and terminate this Agreement.

If the DFCM elects an option or options which does not abandon the Project, the A/E shall perform the A/E's services to implement the selected option or options at no additional cost to the DFCM.

I. STAFFING. The A/E shall maintain the human, physical and other resources reasonably necessary to timely meet its obligations under this Agreement.

J. DFCM REVIEWS, LIMITATIONS. The right of the DFCM or any entity/user to perform plan checks, plan reviews, other reviews and/or comment upon the work of the A/E, as well as any approval by the DFCM, shall not be construed as relieving the A/E from its professional and legal responsibility for services required under this Agreement. No review by the DFCM or any entity/user, approval or acceptance, or payment for any of the services required under this Agreement shall be construed to operate as a waiver by the DFCM of any right under this Agreement or of any cause of action arising out of the performance or nonperformance of this Agreement, and the A/E shall be and remain liable to the DFCM in accordance with applicable law for all damages to the DFCM caused by the A/E's acts, errors and/or omissions.

K. USE OF PROTOTYPICAL DESIGNS OR DESIGNS PROVIDED BY DFCM. A/E shall use prototypical designs or other design drawings, specifications or calculations provided by DFCM in the request for proposal. A/E shall recheck such designs and any other design data, drawings, specifications and calculations provided by DFCM. A/E shall correct any error or omission as deemed necessary thereafter, and shall be responsible therefore to the same extent as if such materials had been provided by A/E under this Agreement. A/E shall be provided with all

change orders, proposed change orders, and clarifications, from previous projects that are applicable to this Project. A/E shall incorporate all pertinent material into the new plans and specifications. If A/E has provided design services to DFCM on previous projects and has designed buildings similar to the components of this Project, which are in A/E's charge, at the direction of DFCM, A/E shall modify and reuse existing design as much as possible. Where existing designs are being reused, drawings are required to conform to DFCM graphic/CAD standards unless prior written approval is given by DFCM.

L. SUBCONSULTANTS. The A/E shall be responsible and liable to the DFCM for the services of any Subconsultant of A/E. Any reference in this Agreement to Subconsultant shall refer to any subcontractor, consultant or subconsultant of the A/E at any tier. A/E shall, without additional expense to DFCM, be responsible for obtaining any business and professional licenses and for complying with any applicable Federal, State, and local laws, codes, and regulations, as necessary for the performance of the A/E's services.

M. HAZARDOUS MATERIALS. The A/E shall comply with the General Conditions and Design Manual provisions regarding hazardous materials.

N. DISCRIMINATION AND SEXUAL HARASSMENT PROHIBITED. Pursuant to the laws of the State of Utah, the A/E, or any person acting on behalf thereof, will not discriminate against any employee or applicant for employment because of race, creed, color, sex, religion, ancestry or national origin. To the extent applicable, said persons will comply with all provisions of Executive Order No. 11246 dated September 24, 1965 and rules, regulations, orders, instructions, designations and other directives promulgated pursuant thereto. The A/E, or anyone for whose act the A/E may be liable, shall not act in any manner as would violate the laws, regulations and policies of the United States or the State of Utah prohibiting sexual harassment.

ARTICLE III. PROJECT TEAM.

A. DFCM REPRESENTATIVE. The DFCM Representative is the person assigned by the Director of DFCM to manage the Project and is the sole person authorized to act on behalf of DFCM or the State of Utah.

B. A/E AND SUBCONSULTANTS.

1. **Need DFCM Permission to Change Organizational Chart.** The A/E and Subconsultants have been selected to perform the services of this Agreement because of the skills and expertise of designated key personnel. Attachment "B" to this Agreement provides the organization chart of the A/E and Subconsultants. The identified persons and entities in the organizational chart cannot be changed without advance written approval by DFCM.

2. **A/E's Representative.** The A/E's Designated Representative identified in the organization chart is and shall be authorized to act on the A/E's behalf and bind the A/E in regard to the Project.

**ARTICLE IV.
DFCM RESPONSIBILITIES AND RIGHT TO EVALUATE A/E**

A. DFCM RESPONSIBILITIES. Unless otherwise expressly agreed herein, DFCM shall at its sole cost and expense shall:

1. Place advertisements for bids or proposals;
2. Conduct bid or proposal openings and interviews;
3. Timely provide and update A/E with available “public” information in DFCM’s possession regarding the Project, including but not limited to, legal descriptions, topographic surveys, ALTA or other boundary surveys, utility surveys, record drawings, reports, project objectives, budgets, and other material requirements and limitations.
4. Notify A/E of any known fault, known defect, or known deficiency in the Project, including but not limited to acts, errors, omissions, or inconsistencies in A/E’s services and Deliverable Instruments of Service. Notwithstanding this provision, any failure to notify the A/E, shall not relieve the A/E of any responsibility or liability for such fault, defect or deficiency.
5. The DFCM Representative shall timely render decisions so as to avoid unreasonable delays in the orderly progress of the Project.

B. PERFORMANCE EVALUATION OF A/E. The DFCM may conduct a performance evaluation of the A/E’s services, including specific personnel of A/E or any Subconsultant at any time. Results of any evaluation will be made available to the A/E upon request.

**ARTICLE V.
SCOPE OF A/E’S BASIC SERVICES.**

A. IN GENERAL. The A/E's Basic Services consist of those described in this Agreement, the General Conditions, and Design Manual, and include normal structural, mechanical, electrical, and architectural as well as other consulting services reasonably necessary to fulfill the A/E's duties under this Agreement. Any additional scope of service requirements are provided in Attachment "A" and the Design Manual.

1. **Incidental Services.** A/E shall provide all services incidental to the A/E’s identified Basic Services as established by standard professional custom and practice.
2. **Direction from DFCM Representative Only.** A/E has neither the responsibility nor the authority to accept directives or determinations from any person other than the DFCM Representative. The A/E shall not take any direction from the end User’s of the Project, Contractor or any other third party’s representative.

3. **Review Requests for Information.** The A/E shall review properly prepared and timely Requests for Information by the Contractor.

4. **Issue ASI's and Supplemental Drawings and Specifications.** If approved by the DFCM Representative, the A/E shall issue an ASI, and prepare, reproduce, and distribute supplemental and/or corrected drawings and/or specifications in response to Requests for Information by the Contractor.

B. SCHEMATIC DESIGN PHASE.

1. **Review Program and Statement of Scope.** The A/E shall review the program or other "statement of scope" furnished by DFCM to ascertain the requirements of the Project and shall arrive at a mutual understanding of such requirements with the DFCM Representative. The term "program" as referred to in this Agreement shall be deemed to include any "statement of scope" provided by DFCM.

2. **Preliminary Evaluation.** The A/E shall provide a preliminary evaluation of DFCM's program, schedule and construction budget requirements.

3. Documents and Drawings.

a. Based on the mutually agreed upon program, or scope of work, schedule and construction budget requirements, the A/E shall prepare, for written approval by DFCM, Schematic Design Documents consisting of drawings and other documents illustrating the scale and relationship of Project components.

b. The Schematic Design Documents shall comply with this Agreement and the Design Manual.

c. The Schematic Design narrative shall include the A/E's proposed design and construction budget which shall be within the DFCM budget provided to the A/E.

4. **Alternative Approaches.** The A/E shall review with DFCM, alternative approaches to design and construction of the Project. Several options shall be submitted for DFCM's evaluation.

5. **Land Use Approval Assistance.** The A/E shall cooperate with DFCM in obtaining applicable permits, and land use approvals, so as to allow for construction of the Project. However, appearances as an expert as well as the preparation of necessary drawings, visual aids and any other design work solely prepared for an appearance with zoning boards or planning commissions or other governmental meetings or hearings, shall be considered as Additional Services, if not included in Attachment "A".

C. DESIGN DEVELOPMENT PHASE.

1. **General Description of Design Development Submittal.** A/E shall prepare, for written approval by the DFCM Representative, Design Development Documents consisting of drawings and other documents to fix and describe the size and character of the Project as to architectural, structural, mechanical and electrical systems, materials and such other elements as may be appropriate. The narrative shall include the A/E's proposed design and construction budget which shall be within the DFCM budget provided to the A/E. The Design Development submittals shall comply with the following:

- a. The DFCM approved Schematic Design Documents and any adjustments authorized by DFCM in the program, scope of work, schedule or construction budget; and
- b. The provisions of this Agreement and the Design Manual.

2. **Authorization to Proceed Required in Writing from DFCM.** The A/E may proceed on and be paid for Design Development work only after a written authorization to proceed to the Design Development Phase is provided by the DFCM Representative.

3. Should DFCM initiate or require a material change from the approved Design Development Documents and there is no fault or responsibility of the A/E related to DFCM's initiation or requirement of the change, A/E's effort implementing said change(s) shall be compensated as an Additional Service and the schedule for delivery of A/E's services shall be equitably adjusted if/as appropriate.

D. CONSTRUCTION (CONTRACT) DOCUMENTS PHASE.

1. **General Description of Construction Documents Submittal.** A/E shall prepare, for written approval by the DFCM Representative, Construction Documents consisting of Drawings and Specifications setting forth in detail the requirements for the construction of the Project. The narrative shall include the A/E's proposed design and construction budget which shall be within the DFCM budget provided to the A/E. The A/E shall advise the DFCM of any adjustments to previous preliminary estimates of Construction cost indicated by changes in requirements or general market conditions. The Construction Documents shall comply with the following:

- a. The DFCM approved Design Development Documents and any further adjustments in the scope or quality of the Project or in the construction budget authorized by DFCM;
- b. The Construction Documents shall comply with and identify all applicable codes, tests and inspections; and
- c. The provision of this Agreement and the Design Manual.

2. **Authorization to Proceed Required in Writing from DFCM.** The A/E may proceed on and be paid for Construction Documents work only after a written authorization to proceed to the Construction Documents Phase is provided by the DFCM Representative.

3. **Assistance with Procurement Documents.** The A/E shall assist DFCM in the preparation of the necessary procurement documents to obtain a Contractor and other entities needed to complete the Project.

4. **Assist with Filing for Governmental Approval.** When requested by DFCM, A/E shall assist DFCM in preparation and filing of documents required for the approval of governmental authorities having jurisdiction over the Project.

E. PROCUREMENT OR NEGOTIATION PHASE.

1. **In General.** The A/E, after written authorization is provided by the DFCM Representative, shall assist DFCM in obtaining bids or negotiated proposals and assist in awarding contracts for construction.

2. **Pre-Bid (including pre-proposal) Conference.** The A/E shall attend any pre-bid conference as requested by the DFCM. DFCM shall control all advertising, bid openings, publishing of bid results, awarding of the Contract.

3. **Available for Interpretations.** The A/E shall at all reasonable times be available personally, or have available, a responsible member of his or her staff to make such interpretations of the Construction Documents as are necessary to facilitate completion of the construction contract.

F. CONSTRUCTION PHASE - ADMINISTRATION OF THE CONSTRUCTION CONTRACT.

1. **Commencement and Termination.** The A/E's responsibility to provide Basic Services for the Construction Phase commences with DFCM's written authorization to proceed on to this Phase and terminates upon the completion of the guaranty period of the Contractor's work, unless extended by written agreement of the A/E and DFCM. Any final payment made prior to the end of the guaranty period does not terminate A/E's obligation to provide full performance of the A/E's services throughout the guaranty period for the fee already paid for basic services.

2. **A/E's General Assistance During Construction and One-Year Guaranty Period.** A/E shall advise and assist DFCM (1) during the Construction Phase, and (2) during period of the Contractor's guaranty obligations under the Contract Documents. During the One-Year Guaranty Period, the A/E shall make a qualified representative available to answer questions and to perform a 1-year guaranty walk through. A/E shall have authority to act on behalf of DFCM only to the extent provided in this Agreement unless otherwise modified in writing by DFCM and A/E. The A/E shall be liable for any representations made by the A/E or anyone for whose acts the A/E may be liable, not consistent with the provisions of the Contract Documents, unless DFCM has given written approval in advance.

3. **Site Visits.**

a. **In General.** Site visits shall be conducted in accordance with Attachment “A” and the Contract Documents.

b. **Compliance with Contract Documents, Reporting Defects and Deficiencies.** Site visits shall require the A/E to examine the Work of the Contractor in progress to assist the DFCM in identifying any lack of compliance with the Construction Documents, defects or deficiencies in the Work and to determine whether the Work is proceeding in a manner such that, when completed, will likely be in accordance with the Construction Documents. Except as may otherwise be provided in Attachment “A”, the A/E’s on-site construction-phase services are (i) not full-time, continuous, or exhaustive; (ii) do not include a duty to discover latent defects in the Work; and (iii) do not constitute a guarantee of the A/E’s Work or relieve the Contractor of its responsibilities. A/E is not responsible for the Contractor’s selected means, methods, or sequences of work. The A/E shall cooperate and assist the DFCM in enforcement of the Construction Documents. The A/E shall promptly report known or obvious defects to the DFCM. This provision does not relieve the Contractor of its responsibility to comply with the Construction documents.

c. **Written Report.** A/E shall promptly submit to DFCM a written report subsequent to each site visit.

d. **Limitations.** A/E shall not be required to make exhaustive or continuous on-site inspections or observations to check the quality or quantity of the Work unless specified elsewhere in this Agreement including the Attachment(s).

4. **Submittals.** Contractor submittals shall be addressed in accordance with the Contract Documents.

5. **Modifications.** A/E shall prepare Change Orders, or Construction Change Directives, with supporting documentation and data for DFCM’s approval and execution in accordance with the Contract Documents, and may issue ASI’s not involving an adjustment in the Contract Sum or an extension of the Contract Time which are not inconsistent with the intent of the Contract Documents. ASI’s must be approved by the DFCM Representative prior to being issued. When approved by DFCM, the A/E shall prepare Statements of Justification, detailed cost and time estimates of the proposed change in the work, Requests for Proposals, Construction Change Directives, and Change Orders. A/E shall prepare, reproduce, and distribute Drawings and Specifications to completely describe Work to be added, deleted, and/or modified. The preparation of all such documentation shall not be considered additional services unless the change in the Work is determined by DFCM to be a scope change and/or an unknown condition.

6. **Record Drawings (As-Builts).** The A/E shall monitor the Contractor’s efforts to regularly update the redline drawings during construction. Upon completion of the Construction Phase, A/E shall prepare Record Drawings based upon redline construction drawings and/or other information provided by Contractor. A/E has no duty to verify the accuracy or completeness of said information and, unless A/E knows that said information is on its face inaccurate and/or

incomplete, A/E is entitled to rely upon said information in preparing Record Drawings. If and to the extent A/E knows that said information is on its face inaccurate and/or incomplete, A/E shall promptly advise DFCM in reasonable detail of the inaccurate and/or incomplete information. Subject to said obligation to advise and its obligation to transcribe the Contractor's redline construction drawings and/or other information provided by Contractor in a manner consistent with the Standard of Care, A/E makes no representation regarding the accuracy or completeness of its Record Drawings.

7. **Review Process.** A/E shall comply with any review process required by DFCM. A/E shall make submissions to the reviewing entity in a timely manner so as not to delay the reviewing entity.

8. **Specific Delay Liability of A/E.** The A/E shall be liable to DFCM for damages incurred to DFCM or the State of Utah as a result of impact on the Contractor's critical path schedule to the extent due to A/E's error, act or omission.

9. **Notification of Impacts on Critical Path.** The A/E shall promptly notify DFCM in writing of facts, events or circumstances of which the A/E is or should be aware and which have or likely will adversely impact the critical path schedule.

ARTICLE VI DELIVERABLE INSTRUMENTS OF SERVICE

A. DEFINED. "Deliverable Instruments of Service" as used in this Agreement shall mean the drawings, specifications, addendum, attachments, calculations, manuals, reports, official project meeting minutes, project observation reports and/or other information, regardless of medium, identified in and required to be delivered or submitted to the DFCM under this Agreement.

B. OWNERSHIP. It is acknowledged and agreed that all documents developed pursuant to this Agreement are Instruments of Service. Deliverable Instruments of Service are the sole property of DFCM. DFCM shall have unlimited rights, for the benefit of DFCM, in all said deliverable instruments of service, including, but not limited to use, re-use, modification, and transferability for reference only related to the site.

C. PROMOTIONAL ISSUES. The A/E shall have the right to include photographic or artistic representations of the design of the Project among the A/E's promotional and professional materials, provided that the A/E appropriately gives recognition to the State of Utah regarding the Project. The A/E shall be given reasonable access to the completed Project to make such representations. However, the A/E's materials shall not include the DFCM confidential or proprietary information. The DFCM shall provide professional credit for the A/E in the DFCM's promotional materials that relate to the A/E's work for the Project. Except to the extent related to the A/E's defense of any statements made by others in regard to the A/E's performance, and notwithstanding any other provision of this Agreement, the A/E shall not make any public information release in connection with services performed under this Agreement without the

advance written approval of the Director of the Division of Facilities Construction and Management.

D. LICENSE. A/E hereby grants DFCM a nonexclusive license for governmental purposes to any copyrighted portion of Deliverable Instruments of Service. Such license shall include, but not be limited to, the right to use and reuse such copyrighted materials to construct the buildings, facilities, or other matters covered by such copyrighted materials for additional use and to license such copyrighted materials for reuse. DFCM's rights and licenses in and to said Deliverable Instruments of Service are conditioned upon A/E receiving all sums related to DFCM approved deliverables due under this Agreement.

E. INDEMNIFICATION RELATED TO CERTAIN DFCM'S ACTION WITH DELIVERABLES. DFCM's use on other projects, DFCM's re-use, or DFCM's modification of the Deliverable Instruments of Service shall be at DFCM's sole risk and without recourse against A/E, its Subconsultants at any tier, and their principals, agents and employees. DFCM shall hold harmless, indemnify and defend A/E, its Subconsultants at any tier and their respective principals, agents and employees from and against any and all actions, claims, loss, or damages of any nature whatsoever to the extent related to and resulting from any said use, re-use, or modification of all or any portion of the Deliverable Instruments of Service by or on behalf of DFCM, or under any license issued by, through, or on behalf of DFCM, irrespective of any actual or alleged fault on the part of the indemnitee(s). Under no circumstances shall A/E be indemnified for the use of the Deliverable Instruments of Service for the Project that is the subject of this Agreement. For purposes of this paragraph, DFCM includes the State of Utah or any department, division or agency of the State of Utah.

F. ACCESS TO DELIVERABLES. A/E, for a period of three (3) years after completion of the Project, agrees to furnish and to provide access to all the aforesaid Deliverable Instruments of Service upon the request of DFCM. DFCM shall pay all costs for labor, reproduction and/or shipping of requested documents. DFCM agrees to make no demand on A/E for responsibility for DFCM use of such material for any other DFCM work which is not the subject of an Agreement between DFCM and the A/E for such use.

G. STAMP. If the A/E is not the same A/E commissioned for the project within the Deliverable Instruments of Services, DFCM shall reasonably remove all indications of authorship, including the title blocks, names, initials, signatures, and professional stamps of A/E, its Subconsultants at any tier, and their agents and employees.

ARTICLE VII. COMPENSATION, PAYMENTS TO THE A/E, AND DAMAGES

A. FEES IN ATTACHMENT "A." Payment shall be in accordance with the schedule of lump sum payments for each phase listed under this Agreement as shown in the Schedule of A/E's and Subconsultant Fees (Attachment "A"). Progress payments with respect to such lump sum amounts shall be based upon percentage of such services completed.

B. PAYMENT IN FULL. The fee for any particular phase or activity described in Attachment “A” shall be the full payment owing by DFCM for such phase or activity.

C. WITHHOLDING OF PAYMENT; LIABILITY OF EXCESS OWING. Should the A/E fail to perform any of its obligations hereunder, be in default of this Agreement, or otherwise fail to complete the services of this Agreement within the time established by the Project Schedule (Attachment “A”), the A/E shall be liable to the DFCM for the actual damages incurred and such amount, may be deducted from any amount due or that may become due the A/E. To the extent that the damages exceed any amount that would otherwise be due the A/E, the A/E shall be liable for such excess to the DFCM. The DFCM may seek enforcement of such obligation by legal action, and if such is necessary, shall recover the related costs and attorney fees. Notwithstanding the above, the DFCM agrees that the A/E is not responsible for damages arising directly or indirectly from any delays for causes beyond the A/E’s control.

D. OTHER PREREQUISITES TO RECEIVE PAYMENT: In addition to any other requirements under this Agreement, the following is required before any payment shall be made and/or deemed owed by the DFCM:

1. **Invoices.** The A/E shall submit invoices for progress payments not more than once a month. Invoices shall include the DFCM project and contract number, and be signed by the A/E. Each invoice shall include a detailed description by line item showing the contract prices, percentage of the services completed for the period, payments received to date, payment requested for the period, the overall percentage of completion, any lien waivers or releases previously requested by DFCM.

2. **Adjustments of Progress Payments.** The DFCM may, at its discretion, adjust any progress payments so that it corresponds to the percentage of completion as estimated by the DFCM. Notice shall be given to the A/E prior to making any such adjustments.

E. ACCEPTANCE OF FINAL PAYMENT. The acceptance by the A/E of final payment without a written protest filed with DFCM within three (3) days of receipt of final payment, shall release the DFCM from all claims and all liability to the A/E for fees and costs of the performance of the services pursuant to this Agreement.

F. INTEREST ON LATE PAYMENTS. Except as otherwise provided by law, if any payment is late based upon the provisions of this Agreement, the A/E shall be paid interest in an amount equal to the published Wall Street Journal prime rate plus 2%. The published Wall Street Journal Prime Rate shall be determined using such rate that is published closest to the 1st of the month for each month of the late period. The amount of payment of interest shall be apportioned using such rate(s) for the late period.

**ARTICLE VIII.
REQUIREMENTS FOR ADDITIONAL SERVICES.**

A. ADDITIONAL SERVICES; IN GENERAL.

1. **Not Allowed when Correcting an Error, Omission or is Already Part of this Agreement.** Notwithstanding any provision of this Agreement, the A/E shall not be entitled to any additional compensation or the considering of any work as an additional service when such work is being performed in order to resolve an error or omission of the A/E or is otherwise required to meet the terms of this Agreement.

2. **Written Modification in Advance of Work Required.** The A/E shall perform additional services when authorized by a written modification to this Agreement in advance of the performance of the subject work. Failure of the A/E to obtain a written approval from the DFCM of the cost and authorization to proceed shall result in the A/E's forfeiture of the right to seek additional compensation for the contended additional service. A/E shall have no obligation, and shall not, begin or provide any additional services unless and until such written modification has been provided by the DFCM.

**ARTICLE IX.
INSURANCE AND INDEMNIFICATION**

A. INSURANCE. To protect against liability, loss and/or expense arising in connection with the performance of services described under this Agreement, the A/E shall obtain and maintain in force during the entire period of this Agreement without interruption, at its own expense, the following stated insurance from insurance companies authorized to do business in the State of Utah, in a form and content satisfactory to the DFCM, and rated "A-" or better with a financial size category of (a) Class X or larger where the applicable Construction Budget is \$1,000,000 or greater; or (b) Class VII or larger where the applicable Construction Budget is under \$1,000,000. All said ratings and financial size categories shall be as published by A.M. Best Company at the time this Agreement is executed. The A/E shall require all Subconsultants to have and maintain similarly required policies. All of the following listed insurance coverages shall be provided by the A/E:

1. **A/E's Professional Liability Insurance.** The A/E shall maintain a policy on a claims made basis, annual aggregate policy limit based on the following chart, unless modified in Attachment "A" to this Agreement.

Construction Budget	Minimum Liability Coverage
\$50,000,000 and above	\$2,000,000 per claim, \$4,000,000 aggregate
\$25,000,000 and above, but under \$50,000,000	\$2,000,000 per claim, \$2,000,000 aggregate

\$1,500,000 and above but under \$25,000,000	\$1,000,000 per claim, \$1,000,000 aggregate
Under \$1,500,000	\$ 500,000 per claim, \$ 500,000 aggregate

The DFCM reserves the right to require additional coverage from that stated in the chart herein above, at the DFCM's expense for the additional coverage portion only. DFCM also reserves the right to require project specific insurance, and if such right has been exercised it shall be indicated as an exhibit to this Agreement. Unless project specific insurance is required by the DFCM, the coverage may be written under a practice policy with limits applicable to all projects undertaken by the firm but must be maintained in force for the discovery of claims for a period of three (3) years after the date final payment is made to the A/E under this Agreement. All policies provided by the A/E must contain a "retroactive" or "prior-acts" date which precedes the earlier of, the date of the A/E's Agreement or the commencement of the A/E's services. The A/E's policy must also include contractual liability coverage applicable to the indemnity provision of this Agreement for those portions of the indemnity provisions that are insured under the A/E's policy and in accordance with this Agreement, including the attachments hereto.

2. **Commercial General Liability Insurance.** A/E shall provide, at its own expense, Commercial General Liability Insurance, on an "occurrence basis", including insurance for premises and operations, independent Subconsultants, projects/ completed operations, and contractual liability coverage including specifically designating the indemnity provisions of this Agreement as an insured contract on the Certificate of Insurance. Such Commercial General Liability Insurance must provide coverage for explosion, collapse and underground hazards. Insurance required by this paragraph shall provide for limits that are not less than the following:

\$2,000,000	General Aggregate
\$2,000,000	Products-Completed Operations Aggregate
\$1,000,000	Personal and Advertising Injury
\$1,000,000	Each Occurrence
\$ 50,000	Fire Damage (any one fire)
\$ 5,000	Medical Expense (any one person)

3. **Workers' Compensation Insurance and Employers' Liability Insurance.** Worker's Compensation Insurance shall cover full liability under the Worker's Compensation Laws of the jurisdiction in which the Project is located at the statutory limits required by said jurisdiction's laws. Employer's Liability Insurance shall provide the following limits of liability: \$100,000 for each accident; \$500,000 for Disease-Policy Limit; and \$100,000 for Disease-Each Employee.

4. **Automobile.** Automobile liability insurance for claims arising from the ownership, maintenance, or use of a motor vehicle. The insurance shall cover all owned, non-owned, and hired automobiles used in connection with the work, with the following minimum limits of liability: \$1,000,000 – Combined Single Limit Bodily Injury and Property Damage Per Occurrence.

5. **Valuable Papers and Records Coverage and Electronic Data Processing (Data and Media) Coverage.** The A/E and all Subconsultants of the A/E shall provide coverage for the physical loss of or destruction to their work product including drawings, specifications and electronic data and media.

6. **Aircraft Use.** A/E using its own aircraft, or employing aircraft in connection with the work performed under this Agreement shall maintain Aircraft Liability Insurance with a combined single limit of not less than \$1,000,000 per occurrence. Said certificate shall state that the policy required by this paragraph has been endorsed to name the State of Utah and DFCM as Additional Insureds.

7. **Certificates.** Before this Agreement is executed, the A/E shall submit certificates in form and substance satisfactory to the DFCM as evidence of the insurance requirements of this Article. Such certificates shall contain provisions that no cancellation, or non-renewal shall become effective except upon thirty (30) days prior written notice by US Mail to DFCM as evidenced by return receipt, certified mail sent to DFCM. The A/E shall notify the DFCM within thirty (30) days of any claim(s) against the A/E which singly or in the aggregate exceed 20% of the applicable required insured limits and the A/E shall, if requested by DFCM, use its best efforts to reinstate the policy within the original limits and at a reasonable cost. The State of Utah and DFCM shall be named as an insured party, as primary coverage and not contributing, on all the insurance policies required by this Article except the professional liability and workers' compensation policies. The DFCM reserves the right to request the A/E to provide a loss report from its insurance carrier.

8. **Maintain Throughout Agreement Term.** The A/E agrees to maintain all insurance required under this Agreement during the required term. If the A/E fails to furnish and maintain said required insurance, the DFCM may purchase such insurance on behalf of the A/E, and the A/E shall pay the cost thereof to the DFCM upon demand and shall furnish to the DFCM any information needed to obtain such insurance.

9. **Waivers of Subrogation.** All policies required, except Practice Professional Liability Insurance and Workers Compensation Insurance, shall be endorsed to include waivers of subrogation in favor of the State of Utah and DFCM.

10. **Excess Coverages.** Any type of insurance or any increase of limits of liability not described in this Agreement which the A/E requires for its own protection or on account of any statute, rule or regulation, shall be its own responsibility and at its own expense.

11. **Not Relieve A/E of Liability.** The carrying of any insurance required by this Agreement shall in no way be interpreted as relieving the A/E of any other responsibility or liability under this Agreement or any applicable law, statute, rule, regulation or order.

12. **A/E Compliance with Policies.** A/E shall not violate or knowingly permit to be violated any of the provisions of the policies on insurance required under this Agreement.

B. INDEMNIFICATION

1. **“Indemnitees”** as that term is used in this Article IX-B means the State of Utah, its institutions, agencies, departments, divisions, authorities, and instrumentalities, boards, commissions, elected or appointed officers, employees, agents, and authorized volunteers.

2. **“A/E”** as that term is used in this Article IX-B, means the A/E, its Subconsultants at any tier, or any of their agents, employees including those employed directly or indirectly, or other persons or entities for whose acts the A/E or its Subconsultants at any tier may be liable.

3. Indemnification Requirements.

a. **A/E’s Indemnification of Indemnities.** To the fullest extent permitted by law, A/E shall indemnify and hold harmless the Indemnities from and against every kind and character of claims, damages, losses and expenses, including but not limited to reasonable attorneys' fees, to the extent caused by any negligent or wrongful act, error or omission of the A/E.

b. **Defense by A/E.** A/E shall defend all actions brought upon such matters to be indemnified hereunder and pay all costs and expenses incidental thereto, but the State of Utah shall have the right, at its option and its own expense, to participate in the defense of any such action without relieving the A/E of any obligation hereunder. A/E shall be reimbursed by DFCM their reasonable costs and expenses incurred under this provision to the extent such costs and expenses relate to the fault of DFCM and not the A/E.

c. **Not Affect Other Indemnification Rights or Obligations.** Such obligation shall not be construed to negate, abridge, or otherwise reduce any other right or obligation of indemnity which would otherwise exist as to any party or person under this Agreement.

d. **Not Affected by Workmen’s Compensation or Certain Benefit Acts.** In claims against any person or entity indemnified under this paragraph by the A/E, the indemnification obligation under this paragraph shall not be limited by a limitation on the amount or type of damages, compensation or benefits payable by or for the A/E under workers' or workmen's compensation acts, disability benefits acts or other employee benefit acts.

e. **Affect of Written Directives by DFCM.** Notwithstanding any of the above, to the extent A/E is complying with a written directive from DFCM, that is not based on the A/E’s recommendation, the A/E shall not be held liable under the indemnification provisions of this Agreement if the A/E has promptly disagreed with the written directive by delivering such objection to DFCM in writing.

f. **Specific Waiver for Damages Covered by Builder’s Risk.** DFCM and A/E waive all rights against each other for damages, but only to the extent covered by the State of Utah's Builder's Risk Policy concerning damage to the Work during construction, except such rights as they may have to the proceeds of such insurance as set forth in the General Conditions.

DFCM and A/E each shall require similar waivers from their Subconsultants and agents at any tier.

ARTICLE X. LIMITATIONS OF ACTIONS

A. STATUTE OF LIMITATION AND STATUTE OF REPOSE. An action by or against the A/E, the A/E's Subconsultant, agent, independent Subconsultant, or anyone for whom the A/E may be liable, shall comply with and be bound by the applicable and lawful statute of limitation and statute of repose provisions. Notwithstanding this, any action by or against the A/E, the A/E's Subconsultant, agent, independent Subconsultant, or anyone for whom the A/E may be liable, that is based in contract or warranty shall be commenced within six (6) years of the date of substantial completion of the improvement or abandonment of construction except that such period of limitation shall be modified as follows:

1. **Fraudulent Concealment.** In the event that the A/E, the A/E's Subconsultant, agent, independent Subconsultant, or anyone for whom the A/E may be liable has fraudulently concealed the act, error, omission or breach of duty, or the injury, damage or other loss caused by the act, error, omission or breach of duty, the six year period shall not begin to run until such time as the DFCM discovers or, through the exercise of reasonable diligence, should have discovered its claim.

2. **Willful and Intentional.** In the event that the A/E, the A/E's Subconsultant, agent, independent Subconsultant, or anyone for whom the A/E may be liable commits a willful or intentional act, error, omission, or breach of duty, the six year period shall not begin to run until such time as the DFCM discovers or, through the exercise of reasonable diligence, should have discovered its claim.

3. **Unintentional and Nonfraudulent Latent Acts, Errors, Omissions or Breaches of Duty.** In the event of an unintentional and nonfraudulent latent act, error, omission or breach of duty, the DFCM shall have the time period allowed by Utah law and the Utah Code, unless a longer period is provided for in an attachment to this Agreement.

4. **"Different Period of Limitation" from Utah Code.** These provisions are understood and agreed to by the A/E as establishing a "different period of limitations" as that term is used in UCA 78-12-21.5(3)(a) or any other similar statute of the Utah Code. These provisions are not intended to shorten any time period allowed by Utah law and code for non-contract actions, including but not limited to, those based in tort.

ARTICLE XI. PRELIMINARY RESOLUTION EFFORTS, CLAIMS AND DISPUTES

A. GENERAL CONDITIONS REQUIREMENTS APPLY. The provisions of Articles 7.7 through and including 7.14 of the General Conditions shall allow to Preliminary Resolution

Efforts, Claims and Disputes under this Agreement. References in said Articles 7.7 through and including 7.14 to the term “Contractor” and “Subcontractor” shall refer to A/E and Subconsultant under this Agreement, respectively. Unless inconsistent with the provisions of this Agreement, definitions in the General Conditions shall apply to this Agreement.

B. TIME FOR FILING. Notwithstanding paragraph A above, the PRE must be filed in writing with the DFCM Representative within twenty-one (21) days of any of the following:

1. Issuance of a denial by DFCM of an A/E request for additional monies or other relief under this Agreement;
2. In the case of a Subconsultant, after the expiration of the time period for the A/E / Subconsultant PRE process under Paragraph 7.7.5 of the General Conditions; or
3. When the A/E knows or should have known about any other issue where the A/E seeks additional monies, time or other relief from the State of Utah or DFCM.

C. NOT LIMIT DFCM RIGHTS. As stated in Rule R23-26-1(6), this does not limit the right of DFCM to have any of its issues, disputes or claims considered. DFCM reserves all rights to pursue its issues, disputes or claims in law or equity including, but not limited to, any or all of the following: damages, delay damages and impacts, losses, liability, patent or latent defects, or failure to perform under this Agreement. If the Director appoints an expert or a panel to consider any such issue(s), dispute(s) or claims(s) of DFCM, the A/E shall cooperate with such expert or panel process.

ARTICLE XII. TERMINATION OR SUSPENSION

A. TERMINATION FOR CAUSE. The DFCM or A/E may terminate this Agreement for cause should the other party fail to substantially perform the material covenants herein contained at the time and in the manner herein provided, including the failure to design the project within the Construction Budget. In such event, the party seeking termination shall give the other party fourteen (14) calendar days written notice of intent to terminate for cause. If the other party cures said default, or is diligently pursuing a cure, within said fourteen (14) day period, there shall be no termination for cause.

1. **DFCM May Proceed; Liabilities.** In the event of such termination for cause by the DFCM, the DFCM may proceed with the work in any manner deemed proper by the DFCM. The cost to the DFCM or damage to the DFCM as a result of the failure to perform shall be deducted from any sum due the A/E under this Agreement, and the balance, if any, shall be paid to the A/E upon demand. If the cost or damage to the DFCM exceeds the sums due the A/E, such costs or damages shall be paid to the DFCM by the A/E.

2. **Paid Sums Owing Through Date of Termination.** In the event of such termination for cause by the A/E, the A/E shall be paid all sums owing A/E through the date of

termination. Under no circumstances, shall A/E be paid for any other sums related to the termination for cause, including but not limited to, lost profits or consequential damages.

B. TERMINATION FOR CONVENIENCE. The DFCM reserves the right to terminate this Agreement for convenience or any reason upon fourteen (14) calendar days written notice to A/E. The DFCM may also suspend the services of the A/E for a period not to exceed 180 days and pay the A/E all sums owing through the date of suspension. For any period beyond 180 days, the A/E may consider it a termination for convenience. Should said termination occur during or upon completion of the Schematic Design Phase, A/E shall be entitled to receive and shall be paid all fees stated herein through the Schematic Design Phase, together with reimbursable expenses incurred to date, less the amount of said fees and expenses paid by DFCM and received by A/E through said date. Should said termination occur during the Design Development Phase or any subsequent phase, A/E shall be entitled to receive and shall be paid the greater of: (i) all fees earned and reimbursable expenses incurred through the effective date of said termination, less said fees and expenses paid by DFCM and received by A/E through said date; (ii) the actual, reasonable cost to A/E and its Subconsultants (regardless of tier) of the authorized services provided, plus a profit thereon of 10%, plus reasonable reimbursable expenses incurred under this Agreement through the effective date of said termination, less said fees and expenses paid by DFCM and received by A/E through said date; or such other amount as agreed to by A/E and DFCM.

C. DEATH OR INCAPACITY. If the A/E transacts business as a sole proprietorship, the A/E's death or incapacity shall automatically terminate this Agreement as of the date of such event. Under these circumstances, neither the A/E nor the A/E's estate shall have any further right to perform hereunder and the DFCM shall pay the A/E or the estate shall be paid through the date of termination.

D. DELIVERABLES PROVIDED TO DFCM. Promptly after termination and payment of any sums owing the A/E, the A/E shall deliver all of the Deliverable Instruments of Services, including those in progress, to the DFCM as hereinbefore described.

E. RIGHT TO COMPLETE. Subject to the above termination provisions of this Agreement, DFCM shall have the right to complete the work or any portion thereof by itself or others, and to modify and/or use the A/E's work in part or in its entirety as hereinabove described.

ARTICLE XIII GENERAL LEGAL REQUIREMENTS

A. SEVERABLE AGREEMENT. This Agreement is severable. Authorization to perform one of the design phases or activities under this Agreement shall not be considered as creating any obligation of DFCM to authorize any further phase(s) or activity(ies).

B. INDEPENDENT CONTRACTOR. A/E is an independent contractor and not an employee of DFCM or the State of Utah. A/E shall have no authorization, express or implied, to bind the State of Utah or DFCM to any agreement, settlement, liability or understanding

whatsoever, nor to perform any acts as agent for the State of Utah or DFCM, except as specifically set forth in this Agreement.

C. THIRD PARTIES. Nothing contained in this Agreement shall create a contractual relationship or a cause of action in favor of a third party against the State of Utah and DFCM and/or A/E or its-Subconsultants at any tier.

D. AGREEMENT BINDING AND ASSIGNMENT LIMITATIONS. This Agreement shall be binding upon DFCM, A/E, and their respective partners, employees, agents, joint ventures, successors and assigns. Neither the performance of this Agreement, a right or claim, nor any part thereof including any monies to be paid, may be assigned by the A/E or DFCM without the prior written consent and approval of the other party. The DFCM may assign this Agreement to an institutional lender providing financing for the Project. In such event, the lender shall assume the DFCM's rights and obligations under this Agreement. The A/E shall execute all consents reasonably required to facilitate such assignment.

E. ENTIRE AGREEMENT AND AMENDMENT LIMITATION. This Agreement represents the entire and integrated agreement between the DFCM and the A/E and supersedes all prior negotiations, representations or agreements, either written or oral. This agreement may be amended only by written instrument signed by both DFCM and A/E.

F. NOTICES. Any notice required by this Agreement shall be served upon the recipient's designated representative by hand delivery at the last known business address, or by mail with "delivery confirmation" to the last known address. Notwithstanding any other provision of this Agreement, written notice shall also be deemed to have been duly served by verified use of a FAX system by using the known and operative calling number. Service by use of the FAX system is encouraged when timely notice will benefit the DFCM, A/E, or Subconsultant. Notice shall be considered complete and verified upon the sending and confirmation of delivery using the FAX system, if on the same day notice is also sent by registered or certified mail, return receipt requested, to the last business address known to the party giving notice, confirming the FAX delivery.

G. WAIVERS. No waiver by the DFCM or A/E of any default shall constitute a waiver of the same default at a later time or of a different default.

H. APPLICABLE LAW AND VENUE. This Agreement shall be construed in accordance with the laws of the State of Utah. Venue for any legal proceeding regarding this Agreement shall in the Salt Lake County, State of Utah.

I. AUTHORITY TO EXECUTE. The A/E and DFCM each represent that the execution of this Agreement and the performance thereunder is within their respective duly authorized powers.

IN WITNESS WHEREOF, the parties hereto have entered into this Agreement on the day and year first written above.

A/E:

Signature Date

Title: _____

State of _____)
)
County of _____)

Please type/print name clearly

On this _____ day of _____, 20____, personally appeared before me, _____, whose identity is personally known to me (or proved to me on the basis of satisfactory evidence) and who by me duly sworn (or affirmed), did say that he (she) is the _____ (title or office) of the firm and that said document was signed by him (her) in behalf of said firm.

Notary Public

(SEAL)

My Commission Expires _____

APPROVED AS TO AVAILABILITY OF FUNDS:

DFCM: DIVISION OF FACILITIES CONSTRUCTION & MANAGEMENT

David D. Williams, Jr. Date
DFCM Administrative Services Director

, Manager Date
Capital Development/Improvements

APPROVED AS TO FORM:
May 22, 2006
By: ALAN S. BACHMAN
Asst. Attorney General

APPROVED FOR EXPENDITURE:

Division of Finance Date

(Name of Project)
DFCM Project No. _____

Attachment "A"

1. **BASIC SERVICES:** Basic Services Fee: \$_____. Construction Budget: \$_____
(See attached A/E's proposal dated _____ for schedule of A/E's and A/E's subconsultant's fees and further breakdown). **The following services are provided in the basic fees:** architectural, mechanical, electrical, structural, civil, landscape and acoustic design as required for the project. Services shall also include Value Engineering Session participation; meeting minute production and distribution for design and construction period duration; cost estimating; fire/water flow analysis; plan reviews with the Building Official, the Fire Marshall and the Health Department; Construction Procurement Phase services; travel as outlined in Item A below; document reproduction as outlined in Item B below; and Construction Period services as outlined in Item C below.
- A. Travel reimbursement requirements: As outlined in A/E's attached proposal.
- B. Document reproduction requirements (needs for review sets, bidding, construction, etc.):
Note: Printing for use by design team in presentations and for coordination is included in basic services fee. As outlined in A/E's attached proposal.
- C. Construction Period site visits: As outlined in A/E's attached proposal.
- D. Record drawings: Amount of fee allocated to completion of Record drawings \$_____

The Basic Services Fee is divided into the following percentages for the different phases of Work: schematic design - 15%; design development - 20%; construction documents - 40%; bidding - 5%; and construction closeout/warranty period - 20%.

Exceptions to this list of basic services are: _____

2. **ADDITIONAL SERVICES / REQUIREMENTS:** The following additional services/requirements (i.e. hazardous material requirements, special inspection services, insurance requirements) will be provided as described and at the listed fee: _____ \$_____
3. **TOTAL FEE FOR AGREEMENT** (Total of Items 1 and 2) \$_____
4. **MILESTONES / SCHEDULE:** Required project milestones and A/E's project schedule.
(See attached schedule of A/E's work plan):
Design complete ready for bidding: _____
Construction complete and ready for occupancy permit: _____

Attachment "B"

The A/E's Organization Chart is hereby identified and attached.

Attachment "C"

Any additional explanation of the A/E's response to the DFCM's submittal documents are hereby identified and attached.

Gunther Trades Building

Partial Level 5, HVAC Study

Utah Valley State College
Orem, Utah

Final
February 2007



Stanley Consultants INC.

A Stanley Group Company
Engineering, Environmental and Construction Services - Worldwide

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Gunther Trades Building

Partial Level 5, HVAC Study

Utah Valley State College

Orem, Utah

Final

February 2007



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Gunther Trades Building Partial Level 5, HVAC Study

Executive Summary

This report contains the schematic design plans to provide a remodeled mechanical system for a portion of Level 5 Gunther Trades Building at Utah Valley State College. The existing mechanical system has proven to be inadequate for providing the proper amount of comfort heating, cooling, and ventilation to serve the current student and faculty occupancy loads in the classrooms, offices, shops, etc.

Previously there have been several renovations to this space. The HVAC system was installed sparingly and in increments. Much of the equipment installed was donated and was not sized to meet the demand conditions of the space. Few as-built drawings have been made for the space. The existing as-builts were from the original design of the building when it was intended to be a mechanical / welding facility. The current function of the building's HVAC system has departed drastically from the original design.

Based upon our findings, we propose to demolish most of the existing mechanical equipment and replace it with a newly zoned VAV air handling system for the majority of the area in question. Two other areas will be served by constant volume fan coil units. The restrooms and surrounding photo development laboratories require extensive exhaust air removal and outside air ventilation. A separate VAV type air handler with a combination make-up air system will be used for this area. The installation cost of the proposed area is approximately \$1,800,000 - \$2,100,000. The variation of this cost is dependent on the market and availability of contractors.

It is recommended to install a separate air-handling unit for the main printing room. This is due to the unique air conditioning requirements for the print room vs. the conditions needed in the remainder of the building level. The laboratory/photo development rooms should also be separate from the main air handler due to the large outside air and exhaust requirements. Further consideration of the fire sprinklers and other architectural elements of the building will need to be evaluated prior to this mechanical renovation.

Introduction:

Stanley Consultants was contracted by Utah Valley State College and the Utah Department of Facility Construction Management. The work of this contract was to perform a preliminary study, develop as-built drawings, generate load calculation on the building space, select equipment to meet conditions, and perform a cost estimate for a portion of Level 5 Gunther Trades Building at Utah Valley State College.

The existing mechanical system has proven to be inadequate to provide the proper amount of comfort heating, cooling, and ventilation for serving the current student and faculty occupancy loads in the classrooms, offices, shops, etc. The University's maintenance staff has been involved in several modifications of the building and has tried to maintain the existing system without much success.

The HVAC system was installed sparingly and in increments as the class and faculty demand changed and grew. Much of the equipment installed was used, donated and was not sized to meet the demand conditions of the space. Few as-built drawings have been made for the space. The existing as-builts were from the original design of the building when it was intended to be a mechanical / welding facility. The current function of the building's HVAC system has departed drastically from the original design.

Many of the classrooms have complained about fumes and smells from the printing and painting rooms in the area. The computer rooms are very hot and some of the offices are cooler than desired. The outside air ventilation requirements are not being met with the current configuration and the exhaust system does not serve all the rooms that require this safety measure. With this in consideration it became necessary that the University perform this study to resolve the problems at hand.

Findings:

Stanley Consultants visited the Gunther Trades building several times to perform the HVAC analysis. Occupancy was observed in the varying circumstances and time of building use. The Gunther Trades Building Level 5 is currently being used for general classrooms, office space, computer rooms, painting and photography studios, photo development, mass printing shop, locker rooms, and restrooms. During our system review we created a set of as built mechanical plans (See Appendix B). The general characteristics found in the as-builts are as follows:

1. There are 3 different existing mechanical systems serving the classrooms, shops, and offices.
 - i. Quasi- VAV system (only one VAV box has an electric reheat coil).
 - ii. Six fan coil units.
 - iii. Dual duct air handling system serving restrooms and one level above.
2. Existing VAV zones and rooms do not match up well. Existing main air handler serves high production print shop as well as classrooms and offices. This also creates a possible unsafe condition with regard to fire separation walls.
3. Air flow quantities are not balanced or consistent.
4. Several rooms are conditioned from main supply duct for VAV boxes however without a VAV control damper.
5. Existing mechanical piping is mislabeled or may have crossing connections.
6. All of the air handlers and Fan Coils have a return water booster pump.
7. Existing fittings, valves, and controls are in disrepair with inadequate insulation.
8. Much of the existing ductwork is constructed out of duct board. Duct board and metal ductwork is leaking at many points. Existing ductwork has a number of sub-standard fittings with excessive pressure loss and inadequate insulation. Existing ductwork probably is not sized properly. Existing flex ducts are excessively long.
9. Existing acoustic tiles are damaged and/or missing. Some ceiling tiles have wiring or insulation blocking access to them.
10. Existing exhaust system is inadequate. Several rooms contain chemicals and chemical processes, which are not being exhausted properly, and they are mixing air with other rooms nearby. Several rooms used for painting/photo development are ducted to the return air and not the exhaust. This arrangement allows the chemical fumes to be distributed throughout the entire space. Current conditions do not meet code requirements for photo development.
11. Existing fire dampers may not be operating properly and are not code compliant.
12. There are existing holes in corridor walls. The existing wall ratings are unclear at this time.

Recommendations:

We recommend demolition and replacement of most of the existing ductwork and equipment. Proposed system should consist of the following equipment:

1. Two (2) custom variable volume air handlers (AHUs) with VAV box zoning.
2. Two (2) or more fan coil units/zones (FCUs).
3. Distribution ductwork as per SMACNA standards.
4. Mechanical hot water reheat piping for air handlers, FCUs, and VAVs.
5. Chilled water piping for AHUs & FCUs.
6. Two (2) or more exhaust fans.
7. DDC control network.
8. Fire-smoke dampers at fire wall and area separation wall duct penetrations.
9. Fire wall identification and repair.
10. Electrical equipment to support the mechanical system.

Proposed scope of work: (Refer to schematic mechanical plans for equipment layout.) The large print shop shall have its own air handler. Most of the rest of the offices will be served by the other main air handler with a series of individual VAV zone boxes with hot water reheat coils. The common areas around the restrooms will be served by a fan coil unit similar to the existing fan coil unit. Another fan coil unit will serve the multi purpose shop room #521, which is somewhat isolated from the rest of the rooms in the scope.

A single fan coil with a combination make-up air unit will be used for the restrooms and photo laboratories independent of the larger air handler unit used for the rest of the space. This is due to the large amount of exhaust air required for the area.

Some isolated offices and/or zones may be able to reuse some of the existing ductwork. Specific areas include rooms 535, A, B, C, & D, 543, 544, and perhaps some of the supply ducts around the men's and women's restrooms. The new exhaust fans and exhaust ducts should be provided to serve the existing restrooms and chemical storage areas.

The existing cables, wires, and insulation should be removed or better organized above the ceilings to allow for easier access through the ceiling tiles. Existing ceiling tiles should be replaced. The dual duct equipment should remain in service that serves the level above, but should be selectively demolished where it serves this lower level at or near the restrooms. The plumbing fixtures should be evaluated and replaced if necessary at the owner's discretion. From an energy saving standpoint, the owners may also want to review and/or replace light fixtures and other electrical equipment.

Design Information:

Preliminary load calculations were the basis to develop this set of schematic plans. Load calculations shall be revised and refined as needed for the final set of construction documents. Loads will take into account the major heat producing equipment such as production machines, computers, office equipment, lights, and people loads etc.

The building loads should be met with the following equipment:

Table 1:

AIR HANDLING UNIT SCHEDULE							
SYMBOL	MAKE & MODEL	SUPPLY FAN (CFM)	SUPPLY FAN (HP)	RETURN AIR (CFM)	RET-RELIEF FAN (HP)	COOLING (TONS)	HEATING (BTUH)
AH-1	HAAKON CUSTOM	40,000	50	40,000	30	732,000	405,000
AH-2	HAAKON CUSTOM	20,000	20	20,000	20	360,000	151,000
FC-1	TRANE MCCB	3,500	5	-	-	102,000	126,000
FC-2	TRANE MCCB	3,000	5	-	-	61,200	59,000

Appendix A is the design heat load calculation for the Gunther Trades Building Level 5. Room conditions are supplied on a room by room basis. In addition, equipment selection sizes can be observed in more accurate detail.

Appendix B contains “As-Built Drawings” of the HVAC Equipment. Notes on the drawings pertain to the existing condition of the equipment, ductwork, and piping. Appendix B also contains the “Schematic Design Drawings” of the Gunther Trades Building Level 5 including air handlers, preliminary duct layout, and hydronic reheat piping loop.

Several aspects of the design that were not evaluated in this study, but will need to be evaluated with design documents are as follows:

- Ventilation air requirements will need to be reevaluated in the event that more space is used for laboratory and photo development in addition to existing.
- A code review or clarification of this level of the building is needed to determine which walls, if any, should be fire rated. The code review will help determine upgrades to the fire sprinkler system, fire smoke dampers, fire alarm system, and equipment with wall penetrations.
- Faculty feedback will need to be received as a result of this study to determine if future revisions to the space are anticipated. Evaluation should include:
 - Occupancy changes in classrooms laboratories and offices.
 - Change in room function. (laboratory, office space, art, computer, classroom, paint booths)
 - Change in equipment used in the space (computers, developing stations, and ext.)

Project Phasing and Cost Estimate:

The projected mechanical & electrical project is estimated in the range of \$1,800,000 - \$2,100,000. The equipment and labor costs were primarily extracted from the 2006 RS Means Estimating Guide. The amount of inflation since the 2006 guide was published may increase the projected budget amount to over \$2,100,000. The sizes, lengths, and locations of mechanical equipment have been estimated as closely as possible with the understanding that these plans will need to be further developed.

During our presentation of the draft study report, we estimated that the whole construction project should take approximately 6 to 8 months. The user groups would prefer not to have their schedule interrupted for such a long period of time. The subsequent discussion focused on whether or not the project could be broken down into smaller phases of work in order to reduce the impact and burden on the class schedules of the occupants.

A phasing plan was researched and developed. Due to the layout of the building and the limited areas available for new equipment, we concluded that it would be best to break down the project into two distinct phases. Phase 1 will include all of the classroom, lab, office, restroom, and photography areas. Phase 2 will include the commercial print shop area and the adjacent multi-use room # 521. We estimated that Phase 1 could be built in approximately 5 to 7 months. We estimated that Phase 2 could be built in approximately 3 to 4 months.

The planning and timing of these two phased projects will be extremely challenging to coordinate between the owners, designers, contractors, and the user groups. The construction documents should include a detailed step-by-step description of how the construction shall proceed. The phasing narrative shall include but not be limited to the following major tasks:

1. Evacuate Phase 1 area.
2. Demo mechanical equipment in Phase 1 area.
3. Modify existing air handling system to continue serving the print shop area while being cut off from serving the Phase 1 area.
4. Install Phase 1 new mechanical equipment and renovate Phase 1 area as needed.
5. Coordinate demolition and construction schedule of Phase 2 with the operating hours of the print shop. Continue print shop production schedule as much as possible during Phase 2. Develop a construction schedule and modify the print shop schedule as needed to allow both functions operating concurrently.
6. Demo existing mechanical equipment in Phase 2 area.
7. Install Phase 2 new mechanical equipment and renovate Phase 2 area as needed.

A more detailed listing of the attached construction estimate in three parts is as follows:

1. Page 7 is an estimate for the whole project. The whole project is estimated at approximately \$2,000,000. That amount includes a contingency of 30% and a ceiling system repair allowance of \$11 per square foot.
2. An estimated inflation rate of 25% was applied between 2006 and 2007. If the project is postponed until 2008, it is estimated that the inflation may increase approximately 7% more.
3. Page 8 is an estimate for the Phase 1 portion of the project.
4. Page 9 is an estimate for the Phase 2 portion of the project.
5. The total sum of Phase 1 estimate plus Phase 2 estimate is approximately equal to the overall project summarized on Page 1.
6. Page 10 is an estimate for the optional phase 3 project to enclose the south covered storage area.

Overall Construction Cost Estimate - Gunther Trades Building Level 5 Improvements									
ITEM	QTY	UNIT	UNIT		TOTAL		TOTAL	TOTAL	
			MTL/EQU	LABOR	MTL	LABOR			
GUNTHER BUILDING IMPROVEMENTS									
HVAC									
AH-1 40,000 cfm	1	ea	\$ 93,600	\$ 26,700	\$ 93,600	\$ 26,700	\$ 120,300		
AH-1 Structural Roof Modification	1	ea	\$ 15,000	\$ 10,000	\$ 15,000	\$ 10,000	\$ 25,000		
AH-2 20,000 cfm	1	ea	\$ 68,650	\$ 20,000	\$ 68,650	\$ 20,000	\$ 88,650		
AH-2 Structural Roof Modification	1	ea	\$ 15,000	\$ 10,000	\$ 15,000	\$ 10,000	\$ 25,000		
FC-1 5000 cfm	1	ea	\$ 8,350	\$ 6,000	\$ 8,350	\$ 6,000	\$ 14,350		
FC-2 3000 cfm	1	ea	\$ 5,050	\$ 4,620	\$ 5,050	\$ 4,620	\$ 9,670		
Exhaust Fan - Roof Mtd - 8500 cfm	1	ea	\$ 1,525	\$ 260	\$ 1,525	\$ 260	\$ 1,785		
Exhaust Fan - Roof Mtd - 1000 cfm	1	ea	\$ 600	\$ 200	\$ 600	\$ 200	\$ 800		
Supply Grilles	70	ea	\$ 95	\$ 48	\$ 21	\$ 3,360	\$ 3,381		
Return Grilles - 24"x24"	34	ea	\$ 68	\$ 23	\$ 2,295	\$ 765	\$ 3,060		
Hard Ductwork	16,000	lb	\$ 0	\$ 4	\$ 7,680	\$ 60,904	\$ 68,584		
Flex Duct - 14" dia	500	ft	\$ 6	\$ 8	\$ 2,800	\$ 4,180	\$ 6,980		
Manual Dampers	100	ea	\$ 40	\$ 26	\$ 4,000	\$ 2,600	\$ 6,600		
Dry Hoods	2	ea	\$ 7,000	\$ 3,000	\$ 14,000	\$ 6,000	\$ 20,000		
VAV zones	20	ea	\$ 2,000	\$ 1,000	\$ 40,000	\$ 20,000	\$ 60,000		
Control Dampers - 36x24	2	ea	\$ 500	\$ 100	\$ 1,000	\$ 200	\$ 1,200		
Fire/Smoke Dampers - 36x24	6	ea	\$ 534	\$ 72	\$ 3,204	\$ 429	\$ 3,633		
Air Balance	24,000	SF		\$ 2			\$ 48,000		
Ceiling Modifications: tiles, lights, seismic	24,000	SF	\$ 11				\$ 264,000		
Thermostat	24	ea	\$ 138	\$ 42	\$ 3,312	\$ 1,008	\$ 4,320		
HVAC Subtotal								\$ 775,313	
Mechanical Piping									
Chilled Water									
3/4" Copper	75	lf	\$4	\$5	\$ 269	\$ 347	\$ 616		
1" copper	50	lf	\$5	\$5	\$ 253	\$ 260	\$ 513		
1 1/2" Copper	80	lf	\$8	\$7	\$ 620	\$ 548	\$ 1,168		
2" copper	324	lf	\$12	\$9	\$ 3,856	\$ 2,770	\$ 6,626		
2 1/2" copper	150	lf	\$18	\$10	\$ 2,715	\$ 1,538	\$ 4,253		
3" copper	50	lf	\$25	\$11	\$ 1,250	\$ 570	\$ 1,820		
4" copper	80	lf	\$43	\$16	\$ 3,400	\$ 1,296	\$ 4,696		
Hot Water									
3/4" Copper	400	lf	\$4	\$5	\$ 1,436	\$ 1,848	\$ 3,284		
1" copper	60	lf	\$5	\$5	\$ 303	\$ 312	\$ 615		
1 1/2" Copper	50	lf	\$8	\$7	\$ 388	\$ 343	\$ 730		
2" copper	300	lf	\$12	\$9	\$ 3,570	\$ 2,565	\$ 6,135		
2 1/2" copper	260	lf	\$18	\$10	\$ 4,706	\$ 2,665	\$ 7,371		
3" copper	80	lf	\$25	\$11	\$ 2,000	\$ 912	\$ 2,912		
4" copper	100	lf	\$43	\$16	\$ 4,250	\$ 1,620	\$ 5,870		
Fittings	100% of Pipe Costs							\$ 46,608	
Mechanical Piping Subtotal								\$ 93,215	
Electrical									
Electrical						20%	\$ 173,706		
Electrical Subtotal								\$ 173,706	
Gunther Building Improvements Subtotal								\$ 1,042,234	
BOND						2%	\$ 20,845		
OVERHEAD & PROFIT						15%	\$ 156,335		
MOBILIZATION						5%	\$ 52,112		
DEMOLITION & CONTINGENCY						30%	\$ 312,670		
SUBTOTAL CONSTRUCTION COSTS								\$ 1,584,195	
ADJUSTMENT FOR INFLATION AS OF OCTOBER 2006 (Per Year)						25%	\$ 396,049		
TOTAL CONSTRUCTION COSTS FOR 2007								\$ 1,980,244	
ADJUSTMENT FOR INFLATION ESTIMATED FOR 2008						7%	\$ 138,617		
GUNTHER TRADE BUILDING IMPROVEMENTS GRAND TOTAL FOR 2008								\$ 2,118,861	

Phase 1 Construction Cost Estimate - Gunther Trades Building Level 5 Improvements								
ITEM	QTY	UNIT	UNIT	UNIT	TOTAL	TOTAL	TOTAL	
			MTL/EQU	LABOR	MTL	LABOR		
GUNTHER BUILDING IMPROVEMENTS								
HVAC								
AH-1 40,000 cfm	1	ea	\$ 93,600	\$ 26,700	\$ 93,600	\$ 26,700	\$ 120,300	
AH-1 Structural Roof Modification	1	ea	\$ 15,000	\$ 10,000	\$ 15,000	\$ 10,000	\$ 25,000	
AH-2 20,000 cfm	0	ea	\$ 68,650	\$ 20,000	\$ -	\$ -	\$ -	
AH-2 Structural Roof Modification	0	ea	\$ 15,000	\$ 10,000	\$ -	\$ -	\$ -	
FC-1 5000 cfm	1	ea	\$ 8,350	\$ 6,000	\$ 8,350	\$ 6,000	\$ 14,350	
FC-2 3000 cfm	0	ea	\$ 5,050	\$ 4,620	\$ -	\$ -	\$ -	
Exhaust Fan - Roof Mtd - 8500 cfm	1	ea	\$ 1,525	\$ 260	\$ 1,525	\$ 260	\$ 1,785	
Exhaust Fan - Roof Mtd - 1000 cfm	1	ea	\$ 600	\$ 200	\$ 600	\$ 200	\$ 800	
Supply Grilles	60	ea	\$ 95	\$ 48	\$ 21	\$ 2,880	\$ 2,901	
Return Grilles - 24"x24"	30	ea	\$ 68	\$ 23	\$ 2,025	\$ 675	\$ 2,700	
Hard Ductwork	12,000	lb	\$ 0	\$ 4	\$ 5,760	\$ 45,678	\$ 51,438	
Flex Duct - 14" dia	480	ft	\$ 6	\$ 8	\$ 2,688	\$ 4,013	\$ 6,701	
Manual Dampers	86	ea	\$ 40	\$ 26	\$ 3,440	\$ 2,236	\$ 5,676	
Dry Hoods	2	ea	\$ 7,000	\$ 3,000	\$ 14,000	\$ 6,000	\$ 20,000	
VAV zones	20	ea	\$ 2,000	\$ 1,000	\$ 40,000	\$ 20,000	\$ 60,000	
Control Dampers - 36x24	2	ea	\$ 500	\$ 100	\$ 1,000	\$ 200	\$ 1,200	
Fire/Smoke Dampers - 36x24	6	ea	\$ 534	\$ 72	\$ 3,204	\$ 429	\$ 3,633	
Air Balance	18,000	SF		\$ 2			\$ 36,000	
Ceiling Modifications: tiles, lights, seismic	18,000	SF	\$ 11				\$ 198,000	
Thermostat	22	ea	\$ 138	\$ 42	\$ 3,036	\$ 924	\$ 3,960	
HVAC Subtotal								\$554,444
Mechanical Piping								
Chilled Water								
3/4" Copper	75	lf	\$4	\$5	\$ 269	\$ 347	\$ 616	
1" copper	30	lf	\$5	\$5	\$ 152	\$ 156	\$ 308	
1 1/2" Copper	80	lf	\$8	\$7	\$ 620	\$ 548	\$ 1,168	
2" copper	324	lf	\$12	\$9	\$ 3,856	\$ 2,770	\$ 6,626	
2 1/2" copper	150	lf	\$18	\$10	\$ 2,715	\$ 1,538	\$ 4,253	
3" copper	50	lf	\$25	\$11	\$ 1,250	\$ 570	\$ 1,820	
4" copper	60	lf	\$43	\$16	\$ 2,550	\$ 972	\$ 3,522	
Hot Water								
3/4" Copper	400	lf	\$4	\$5	\$ 1,436	\$ 1,848	\$ 3,284	
1" copper	40	lf	\$5	\$5	\$ 202	\$ 208	\$ 410	
1 1/2" Copper	50	lf	\$8	\$7	\$ 388	\$ 343	\$ 730	
2" copper	300	lf	\$12	\$9	\$ 3,570	\$ 2,565	\$ 6,135	
2 1/2" copper	260	lf	\$18	\$10	\$ 4,706	\$ 2,665	\$ 7,371	
3" copper	60	lf	\$25	\$11	\$ 1,500	\$ 684	\$ 2,184	
4" copper	75	lf	\$43	\$16	\$ 3,188	\$ 1,215	\$ 4,403	
Fittings	100% of Pipe Costs						\$ 42,828	
Mechanical Piping Subtotal								\$ 85,656
Electrical								
Electrical						20%	\$ 128,020	
Electrical Subtotal								\$ 128,020
Gunther Building Improvements Subtotal								\$ 768,120
BOND							2%	\$ 15,362
OVERHEAD & PROFIT							15%	\$ 115,218
MOBILIZATION							5%	\$ 38,406
DEMOLITION & CONTINGENCY							30%	\$ 230,436
SUBTOTAL CONSTRUCTION COSTS								\$ 1,167,542
ADJUSTMENT FOR INFLATION AS OF OCTOBER 2006 (Per Year)							25%	\$ 291,886
TOTAL CONSTRUCTION COSTS FOR 2007								\$ 1,459,428
ADJUSTMENT FOR INFLATION ESTIMATED FOR 2008							7%	\$ 102,160
GUNTHER TRADE BUILDING IMPROVEMENTS GRAND TOTAL FOR 2008								\$ 1,561,588

Phase 2 Construction Cost Estimate - Gunther Trades Building Level 5 Improvements

ITEM	QTY	UNIT	UNIT	UNIT	TOTAL	TOTAL	TOTAL	
			MTL/EQU	LABOR	MTL	LABOR		
GUNTHER BUILDING IMPROVEMENTS								
HVAC								
AH-1 40,000 cfm	0	ea	\$ 93,600	\$ 26,700	\$ -	\$ -	\$ -	
AH-1 Structural Roof Modification	0	ea	\$ 15,000	\$ 10,000	\$ -	\$ -	\$ -	
AH-2 20,000 cfm	1	ea	\$ 68,650	\$ 20,000	\$ 68,650	\$ 20,000	\$ 88,650	
AH-2 Structural Roof Modification	1	ea	\$ 15,000	\$ 10,000	\$ 15,000	\$ 10,000	\$ 25,000	
FC-1 5000 cfm	0	ea	\$ 8,350	\$ 6,000	\$ -	\$ -	\$ -	
FC-2 3000 cfm	1	ea	\$ 5,050	\$ 4,620	\$ 5,050	\$ 4,620	\$ 9,670	
Exhaust Fan - Roof Mtd - 8500 cfm	0	ea	\$ 1,525	\$ 260	\$ -	\$ -	\$ -	
Exhaust Fan - Roof Mtd - 1000 cfm	0	ea	\$ 600	\$ 200	\$ -	\$ -	\$ -	
Supply Grilles	10	ea	\$ 95	\$ 48	\$ 21	\$ 480	\$ 501	
Return Grilles - 24"x24"	4	ea	\$ 68	\$ 23	\$ 270	\$ 90	\$ 360	
Hard Ductwork	4,000	lb	\$ 0	\$ 4	\$ 1,920	\$ 15,226	\$ 17,146	
Flex Duct - 14" dia	20	ft	\$ 6	\$ 8	\$ 112	\$ 167	\$ 279	
Manual Dampers	14	ea	\$ 40	\$ 26	\$ 560	\$ 364	\$ 924	
Dry Hoods	0	ea	\$ 7,000	\$ 3,000	\$ -	\$ -	\$ -	
VAV zones	0	ea	\$ 2,000	\$ 1,000	\$ -	\$ -	\$ -	
Control Dampers - 36x24	0	ea	\$ 500	\$ 100	\$ -	\$ -	\$ -	
Fire/Smoke Dampers - 36x24	0	ea	\$ 534	\$ 72	\$ -	\$ -	\$ -	
Air Balance	6,000	SF		\$ 2			\$ 12,000	
Ceiling Modifications: tiles, lights, seismic	6,000	SF	\$ 11				\$ 66,000	
Thermostat	2	ea	\$ 138	\$ 42	\$ 276	\$ 84	\$ 360	
HVAC Subtotal							\$ 220,890	
Mechanical Piping								
Chilled Water								
3/4" Copper	0	lf	\$4	\$5	\$ -	\$ -	\$ -	
1" copper	20	lf	\$5	\$5	\$ 101	\$ 104	\$ 205	
1 1/2" Copper	0	lf	\$8	\$7	\$ -	\$ -	\$ -	
2" copper	0	lf	\$12	\$9	\$ -	\$ -	\$ -	
2 1/2" copper	0	lf	\$18	\$10	\$ -	\$ -	\$ -	
3" copper	0	lf	\$25	\$11	\$ -	\$ -	\$ -	
4" copper	20	lf	\$43	\$16	\$ 850	\$ 324	\$ 1,174	
Hot Water								
3/4" Copper	0	lf	\$4	\$5	\$ -	\$ -	\$ -	
1" copper	20	lf	\$5	\$5	\$ 101	\$ 104	\$ 205	
1 1/2" Copper	0	lf	\$8	\$7	\$ -	\$ -	\$ -	
2" copper	0	lf	\$12	\$9	\$ -	\$ -	\$ -	
2 1/2" copper	0	lf	\$18	\$10	\$ -	\$ -	\$ -	
3" copper	20	lf	\$25	\$11	\$ 500	\$ 228	\$ 728	
4" copper	25	lf	\$43	\$16	\$ 1,063	\$ 405	\$ 1,468	
Fittings	100% of Pipe Costs						\$ 3,780	
Mechanical Piping Subtotal							\$ 7,559	
Electrical								
Electrical						20%	\$ 45,690	
Electrical Subtotal							\$ 45,690	
Gunther Building Improvements Subtotal							\$ 274,139	
BOND							2%	\$ 5,483
OVERHEAD & PROFIT							15%	\$ 41,121
MOBILIZATION							5%	\$ 13,707
DEMOLITION & CONTINGENCY							30%	\$ 82,242
SUBTOTAL CONSTRUCTION COSTS								\$ 416,691
ADJUSTMENT FOR INFLATION AS OF OCTOBER 2006 (Per Year)							25%	\$ 104,173
TOTAL CONSTRUCTION COSTS FOR 2007								\$ 520,864
ADJUSTMENT FOR INFLATION AS OF OCTOBER 2006 (Per Year)							7%	\$ 36,460
GUNTHER TRADE BUILDING IMPROVEMENTS GRAND TOTAL FOR 2008								\$ 557,325

Phase 3 Construction Cost Estimate - Gunther Trades Storage Area Improvements							
ITEM	QTY	UNIT	UNIT	UNIT	TOTAL	TOTAL	TOTAL
			MTL/EQU	LABOR	MTL	LABOR	
GUNTHER BUILDING IMPROVEMENTS							
Enclose the South Exterior Storage Area	2,700	SF	\$ 109				\$ 294,300
Gunther Storage Area Improvements Subtotal							\$ 294,300
BOND						2%	\$ 5,886
OVERHEAD & PROFIT						15%	\$ 44,145
MOBILIZATION						5%	\$ 14,715
DEMOLITION & CONTINGENCY						30%	\$ 88,290
SUBTOTAL CONSTRUCTION COSTS							\$ 447,336
ADJUSTMENT FOR INFLATION AS OF OCTOBER 2006 (Per Year)						25%	\$ 111,834
TOTAL CONSTRUCTION COSTS FOR 2007							\$ 559,170
ADJUSTMENT FOR INFLATION ESTIMATED FOR 2008						7%	\$ 39,142
GUNTHER TRADE BUILDING IMPROVEMENTS GRAND TOTAL FOR 2008							\$ 598,312

APPENDIX A

Building Heating & Cooling Loads Calculations

Location	Provo Utah
Building owner	Utah Valley State Collage
Program user	Paul Greenwood
Company	Stanley Consultants
Comments	

By	Stanley Consultants
Dataset name	C:\cads\TRACE700\Projects\Gunther Trades Building LV5.tr
Calculation time	11:08 AM on 11/14/2006
TRACE® 700 version	6.0

Location	Salt Lake City, Utah
Latitude	40.0 deg
Longitude	112.0 deg
Time Zone	7
Elevation	4,220 ft
Barometric pressure	25.5 in. Hg

Air density	0.0645 lb/cu ft
Air specific heat	0.2444 Btu/lb·°F
Density-specific heat product	0.9465 Btu/h·cfm·°F
Latent heat factor	4,166.5 Btu·min/h·cu ft
Enthalpy factor	3.8722 lb·min/hr·cu ft

Summer design dry bulb	95 °F
Summer design wet bulb	65 °F
Winter design dry bulb	8 °F
Summer clearness number	1.00
Winter clearness number	0.95
Summer ground reflectance	0.20
Winter ground reflectance	0.20

Design simulation period	January - December
Cooling load methodology	TETD-TA1
Heating load methodology	UATD



SYSTEM SUMMARY

DESIGN AIRFLOW QUANTITIES

By Stanley Consultants

System Description	System Type	MAIN SYSTEM					Auxiliary System	Room
		Outside Airflow cfm	Cooling Airflow cfm	Heating Airflow cfm	Return Airflow cfm	Exhaust Airflow cfm	Supply Airflow cfm	Exhaust Airflow cfm
Air Handler 1	Bypass VAV with Reheat (30% Min Flow Default)	7,687	30,879	5,031	31,679	8,487	0	635
Air Handler 2	Fan Coil	1,458	17,163	17,163	17,746	2,041	0	292
Air Handler 3	Bypass VAV with Reheat (30% Min Flow Default)	1,101	3,473	526	3,583	1,211	0	1,843
Air Handler 4	Fan Coil	465	2,761	2,761	2,807	512	0	0
Totals		10,711	54,276	25,480	55,815	12,251	0	2,770

Note: Airflows on this report are not additive because they are each taken at the time of their respective peaks. To view the balanced system design airflows, see the appropriate Checksums report (Airflows section).

SYSTEM SUMMARY

DESIGN COOLING CAPACITIES

By Stanley Consultants

System Coil Capacities

System Description	System Type	Main Coil ton	Aux Coil ton	Opt Vent Coil ton	Stage 1 Desiccant Conditioner ton	Stage 2 Desiccant Conditioner ton	Cooling System Total ton
Air Handler 1	Bypass VAV with Reheat (30% Min Flow Default)	61.0	0.0	0.0	0.0	0.0	61.0
Air Handler 2	Fan Coil	30.1	0.0	0.0	0.0	0.0	30.1
Air Handler 3	Bypass VAV with Reheat (30% Min Flow Default)	8.5	0.0	0.0	0.0	0.0	8.5
Air Handler 4	Fan Coil	5.1	0.0	0.0	0.0	0.0	5.1
Totals		104.7	0.0	0.0	0.0	0.0	104.7

SYSTEM SUMMARY

DESIGN HEATING CAPACITIES

By Stanley Consultants

System Coil Capacities

System Description	System Type	Main System Btu/h	Aux System Btu/h	Preheat Btu/h	Reheat Btu/h	Humid. Btu/h	Optional Vent Btu/h	Stg 1	Stg 2	Stg 1	Stg 2	Heating Totals Btu/h
								Desic Regen Btu/h	Desic Regen Btu/h	Frost Prevention Btu/h	Frost Prevention Btu/h	
Air Handler 1	Bypass VAV with Reheat (30% Min Flow De	-147,802	0	-253,368	-66,848	0	0	0	0	0	0	-401,170
Air Handler 2	Fan Coil	-150,773	0	0	0	0	0	0	0	0	0	-150,773
Air Handler 3	Bypass VAV with Reheat (30% Min Flow De	-88,744	0	-37,243	-8,432	0	0	0	0	0	0	-125,987
Air Handler 4	Fan Coil	-58,094	0	0	0	0	0	0	0	0	0	-58,094
Totals		-445,413	0	-290,610	-75,280	0	0	0	0	0	0	-736,023

ENGINEERING CHECKS

By Stanley Consultants

System	Zone	Room	Type	Floor Area ft ²	COOLING				HEATING			
					% OA	cfm/ft ²	cfm/ton	ft ² /ton	Btu/hr-ft ²	% OA	cfm/ft ²	Btu/hr-ft ²
		535 Offices	Zone	868	8.41	1.66	662.1	398.0	30.15	8.41	1.66	-10.53
		537 Computer Room	Zone	841	15.68	4.78	578.9	121.1	99.12	10.00	4.78	-32.59
		529 Printing Room	Zone	300	5.68	8.80	723.3	82.2	145.98	5.00	8.80	-12.92
		539 Computer Room	Zone	570	13.89	5.40	597.2	110.6	108.50	10.00	5.40	-32.24
		541 Class Room	Zone	676	47.63	1.57	374.8	238.1	50.41	20.00	1.57	-39.00
		543 Class Room	Zone	910	48.29	1.55	372.1	239.6	50.08	20.00	1.55	-38.95
		532 & 536 Class Room	Zone	812	40.70	1.84	405.9	220.3	54.48	20.00	1.84	-39.64
		530 Class Room	Zone	720	30.80	2.44	460.4	189.1	63.47	20.00	2.44	-41.05
		538 Class Room	Zone	702	29.19	2.57	470.6	183.2	65.50	20.00	2.57	-41.37
		540 Computer Room	Zone	400	11.70	6.41	621.3	96.9	123.80	10.00	6.41	-31.68
		542, A & B Class Room	Zone	1,089	43.24	1.73	393.5	226.9	52.89	20.00	1.73	-39.38
		544 Photo Studio	Zone	806	26.99	2.78	487.0	175.2	68.48	20.00	2.78	-41.87
		Hall 544	Zone	186	59.75	0.84	353.6	422.5	28.40	20.00	0.84	-25.49
		Hall 501	Zone	1,584	35.15	1.42	475.5	334.3	35.90	30.00	1.42	-31.06
		533 & A Office	Zone	868	48.53	1.55	377.5	244.2	49.13	20.00	1.55	-38.93
		531 Office	Zone	150	9.99	1.40	625.6	446.7	26.86	9.99	1.40	-14.02
		539A Office	Zone	144	6.99	2.00	680.3	339.9	35.30	6.99	2.00	-5.88
		538C Office	Zone	90	3.89	3.60	725.4	201.7	59.50	3.89	3.60	-21.13
		538A Dark Room	Zone	200	23.73	3.16	507.9	160.7	74.86	20.00	3.16	-42.77
		530C Office	Zone	225	11.70	1.20	622.5	520.8	23.04	11.70	1.20	-9.42
Air Handler 1		System - Bypass VAV with Reheat (30% Min Flow Default)		12,141	24.89	2.54	505.9	198.9	60.33	16.29	2.54	-33.04
		519 Print Room	Zone	2,916	8.49	5.89	571.0	97.0	123.70	8.49	5.89	-51.71
Air Handler 2		System - Fan Coil		2,916	8.49	5.89	571.0	97.0	123.70	8.49	5.89	-51.71
		527, A & 526, B Rest Room	Zone	1,122	64.66	0.83	289.7	350.3	34.26	20.00	0.83	-44.33
		530D Dark Room	Zone	450	28.89	1.04	408.4	393.3	30.51	20.00	1.04	-34.11
		530A Dark Room	Zone	252	65.01	1.54	298.4	194.0	61.85	20.00	1.54	-136.45
		530B Dark Room	Zone	380	6.75	4.45	582.2	130.9	91.65	6.75	4.45	-70.88
Air Handler 3		System - Bypass VAV with Reheat (30% Min Flow Default)		2,204	31.70	1.58	406.3	257.8	46.54	15.13	1.58	-57.16
		521 Shop Class Room	Zone	930	16.84	2.97	544.9	183.6	65.37	16.84	2.97	-62.47
Air Handler 4		System - Fan Coil		930	16.84	2.97	544.9	183.6	65.37	16.84	2.97	-62.47

Room Checksums

By Stanley Consultants

519 Print Room

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES		
Peaked at Time:		Mo/Hr: 7 / 14		Mo/Hr: 7 / 14		Mo/Hr: Heating Design						Cooling		Heating
Outside Air:		OADB/WB/HR: 94 / 65 / 62		OADB: 94		OADB: 8						SADB	55.0	64.9
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)				Plenum	75.0	60.0
Envelope Loads				Envelope Loads				Envelope Loads						
Skylite Solar	0	0	0	0	0	0	0	0	0	0	0	Return	75.1	60.0
Skylite Cond	0	0	0	0	0	0	0	0	0	0	0	Ret/OA	76.7	55.6
Roof Cond	79,970	0	79,970	22	79,970	25	-42,020	28	0	0	0	Fn MtrTD	0.0	0.0
Glass Solar	3,079	0	3,079	1	3,079	1	0	0	0	0	0	Fn BldTD	0.0	0.0
Glass Cond	2,156	0	2,156	1	2,156	1	-6,117	4	0	0	0	Fn Frict	0.0	0.0
Wall Cond	126	0	126	0	126	0	-756	1	0	0	0			
Partition	0	0	0	0	0	0	0	0	0	0	0			
Exposed Floor	0	0	0	0	0	0	-1,414	1	0	0	0			
Infiltration	11,580	0	11,580	3	10,538	3	-28,704	19	0	0	0			
Sub Total ==>	96,911	0	96,911	27	95,869	30	-79,011	52	0	0	0			
Internal Loads				Internal Loads				Internal Loads						
Lights	7,962	1,990	9,952	3	7,962	2	0	0	0	0	0	Vent	1,458	1,458
People	8,019	0	8,019	2	4,010	1	0	0	0	0	0	Infil	583	583
Misc	217,067	0	217,067	60	217,067	67	0	0	0	0	0	Supply	17,163	17,163
Sub Total ==>	233,048	1,990	235,038	65	229,038	70	0	0	0	0	0	MinStop/Rh	0	0
Ceiling Load				Ceiling Load				Ceiling Load						
Ventilation Load	0	0	28,949	8	0	0	0	0	0	0	0	Return	17,455	17,455
Dehumid. Ov Sizing	0	0	0	0	0	0	0	0	0	0	0	Exhaust	1,750	1,750
Ov/Undr Sizing	0	0	0	0	0	0	0	0	0	0	0	Rm Exh	292	292
Exhaust Heat	-200	-200	0	0	0	0	0	0	0	0	0	Auxil	0	0
Sup. Fan Heat	0	0	0	0	0	0	0	0	0	0	0			
Ret. Fan Heat	0	0	0	0	0	0	0	0	0	0	0			
Duct Heat Pkup	0	0	0	0	0	0	0	0	0	0	0			
Reheat at Design	0	0	0	0	0	0	0	0	0	0	0			
Grand Total ==>	329,958	1,791	360,698	100.00	324,907	100.00	-79,011	-150,772	100.00					

AIRFLOWS

	Cooling	Heating
Vent	1,458	1,458
Infil	583	583
Supply	17,163	17,163
MinStop/Rh	0	0
Return	17,455	17,455
Exhaust	1,750	1,750
Rm Exh	292	292
Auxil	0	0

ENGINEERING CKS

	Cooling	Heating
% OA	8.5	8.5
cfm/ft²	5.89	5.89
cfm/ton	571.00	
ft²/ton	97.01	
Btu/hr-ft²	123.70	-51.71
No. People	15	

COOLING COIL SELECTION

	Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F °F gr/lb	Leave DB/WB/HR °F °F gr/lb
Main Clg	30.1	360.7	353.0	17,163 76.7 59.0 59.5	55.0 50.9 58.7
Aux Clg	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0
Opt Vent	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0
Total	30.1	360.7			

AREAS

	Gross Total	Glass ft² (%)
Floor	2,916	
Part	0	
ExFlr	40	
Roof	625	0 0
Wall	480	240 50

HEATING COIL SELECTION

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-150.8	17,163	55.6	64.9
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-150.8			

Room Checksums

By Stanley Consultants

521 Shop Class Room

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES		
Peaked at Time:		Mo/Hr: 7 / 15		Mo/Hr: 7 / 12		Mo/Hr: Heating Design								
Outside Air:		OADB/WB/HR: 95 / 65 / 61		OADB: 88		OADB: 8								
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Btu/h	Coil Peak Tot Btu/h	Percent Of Total (%)				SADB	Cooling	Heating
Envelope Loads				Envelope Loads				Envelope Loads						
Skylite Solar	0	0	0	0	0	Skylite Solar	0	0	0	Skylite Solar	0	0	0	0
Skylite Cond	0	0	0	0	0	Skylite Cond	0	0	0	Skylite Cond	0	0	0	0
Roof Cond	0	6,339	6,339	10	0	Roof Cond	0	-3,994	7	Roof Cond	0	-3,994	7	0
Glass Solar	685	0	685	1	756	2	Glass Solar	0	0	Glass Solar	0	0	0	0
Glass Cond	650	0	650	1	352	1	Glass Cond	-1,832	-1,832	Glass Cond	-1,832	-1,832	3	0
Wall Cond	4,372	863	5,235	9	5,890	15	Wall Cond	-7,656	-9,243	Wall Cond	-7,656	-9,243	16	0
Partition	0	0	0	0	0	0	Partition	0	0	Partition	0	0	0	0
Exposed Floor	533	0	533	1	533	1	Exposed Floor	-14,892	-14,892	Exposed Floor	-14,892	-14,892	26	0
Infiltration	1,004	0	1,004	2	788	2	Infiltration	-2,641	-2,641	Infiltration	-2,641	-2,641	5	0
Sub Total ==>	7,242	7,202	14,445	24	8,318	21	Sub Total ==>	-27,020	-32,601	Sub Total ==>	-27,020	-32,601	56	0
Internal Loads				Internal Loads				Internal Loads						
Lights	2,539	635	3,174	5	2,539	6	Lights	0	0	Lights	0	0	0	0
People	13,950	0	13,950	23	7,750	20	People	0	0	People	0	0	0	0
Misc	20,478	0	20,478	34	20,478	52	Misc	0	0	Misc	0	0	0	0
Sub Total ==>	36,967	635	37,602	62	30,767	78	Sub Total ==>	0	0	Sub Total ==>	0	0	0	0
Ceiling Load	782	-782	0	0	587	1	Ceiling Load	-557	0	Ceiling Load	-557	0	0	0
Ventilation Load	0	0	10,036	17	0	0	Ventilation Load	0	-26,408	Ventilation Load	0	-26,408	45	0
Dehumid. Ov Sizing	0	0	0	0	0	0	Ov/Undr Sizing	0	0	Ov/Undr Sizing	0	0	0	0
Exhaust Heat	0	-1,285	-1,285	-2	0	0	Exhaust Heat	0	915	Exhaust Heat	0	915	-2	0
Sup. Fan Heat	0	0	0	0	0	0	OA Preheat Diff.	0	0	OA Preheat Diff.	0	0	0	0
Ret. Fan Heat	0	0	0	0	0	0	RA Preheat Diff.	0	0	RA Preheat Diff.	0	0	0	0
Duct Heat Pkup	0	0	0	0	0	0	Additional Reheat	0	0	Additional Reheat	0	0	0	0
Reheat at Design	0	0	0	0	0	0	System Plenum Heat	0	0	System Plenum Heat	0	0	0	0
Grand Total ==>	44,992	5,769	60,797	100.00	39,671	100.00	Grand Total ==>	-27,578	-58,094	Grand Total ==>	-27,578	-58,094	100.00	0

AIRFLOWS		
	Cooling	Heating
Vent	465	465
Infil	47	47
Supply	2,761	2,761
MinStop/Rh	0	0
Return	2,807	2,807
Exhaust	512	512
Rm Exh	0	0
Auxil	0	0

ENGINEERING CKS		
	Cooling	Heating
% OA	16.8	16.8
cfm/ft²	2.97	2.97
cfm/ton	544.87	
ft²/ton	183.56	
Btu/hr-ft²	65.37	-62.47
No. People	31	

COOLING COIL SELECTION									
	Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F °F gr/lb	Leave DB/WB/HR °F °F gr/lb				
Main Clg	5.1	60.8	55.7	2,761 76.4 59.8 63.8	54.8 51.4 61.1				
Aux Clg	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0				
Opt Vent	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0				
Total	5.1	60.8							

AREAS			
	Gross Total	Glass ft²	(%)
Floor	930		
Part	0		
ExFlr	1,080		
Roof	930	0	0
Wall	1,096	60	5

HEATING COIL SELECTION				
	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-58.1	2,761	56.3	78.6
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-58.1			

Room Checksums

By Star Consultants

529 Printing Room

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES		
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 15					Mo/Hr: Heating Design							
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 95					OADB: 8							
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)				SADB	Cooling	Heating			
Envelope Loads					Envelope Loads					Envelope Loads							
Skylite Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Skylite Cond	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Roof Cond	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Glass Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Glass Cond	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Wall Cond	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Partition	858		858	2	858	2	-23,970	-23,970	618								
Exposed Floor	222		222	1	222	1	-6,205	-6,205	160								
Infiltration	864		864	2	947	2	-2,272	-2,272	59								
Sub Total ==>	1,944	0	1,944	4	2,026	5	-32,447	-32,447	837				Fn MtrTD	0.0	0.0		
Internal Loads					Internal Loads					Internal Loads							
Lights	819	205	1,024	2	819	2	0	0	0								
People	825		825	2	413	1	0	0	0								
Misc	36,789	0	36,789	84	36,789	92	0	0	0								
Sub Total ==>	38,433	205	38,638	88	38,020	95	0	0	0				Fn BldTD	0.0	0.0		
Ceiling Load					Ceiling Load					Ceiling Load							
Ventilation Load	0	-25	0	0	25	0	-983	0	0								
Dehumid. Ov Sizing		0	3,241	7	0	0	0	-8,519	220								
Ov/Undr Sizing	0		0	0	0	0	31,307	31,307	-807								
Exhaust Heat		-27	-27	0			0	1,077	-28								
Sup. Fan Heat		0	0	0			0	0	0								
Ret. Fan Heat		0	0	0			0	0	0								
Duct Heat Pkup		0	0	0			-2,175	56									
Reheat at Design		0	0	0			6,880	-177									
Grand Total ==>	40,401	153	43,795	100.00	40,071	100.00	-2,124	-3,877	100.00				Fn Frict	0.0	0.0		

AIRFLOWS		
	Cooling	Heating
Vent	150	150
Infil	40	40
Supply	2,640	2,640
MinStop/Rh	132	132
Return	2,600	2,600
Exhaust	110	110
Rm Exh	80	80
Auxil	0	0

ENGINEERING CKS		
	Cooling	Heating
% OA	5.7	5.0
cfm/ft²	8.80	8.80
cfm/ton	723.28	
ft²/ton	82.20	
Btu/hr-ft²	145.98	-12.92
No. People	2	

COOLING COIL SELECTION									
	Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F °F gr/lb	Leave DB/WB/HR °F °F gr/lb				
Main Clg	3.7	43.8	43.8	2,640 71.7 58.3 64.2	54.0 51.8 64.2				
Aux Clg	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0				
Opt Vent	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0				
Total	3.7	43.8							

AREAS		
	Gross Total	Glass ft² (%)
Floor	300	
Part	540	
ExFir	450	
Roof	0	0 0
Wall	0	0 0

HEATING COIL SELECTION				
	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-3.9	132	54.0	85.0
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-3.9			

Room Checksums

By Stanley Consultants

530 Class Room

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES			
Peaked at Time:		Mo/Hr: 7 / 15			Mo/Hr: 7 / 15		Mo/Hr: Heating Design											
Outside Air:		OADB/WB/HR: 95 / 65 / 61			OADB: 95		OADB: 8											
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)				SADB	Cooling	Heating				
Envelope Loads					Envelope Loads													
Skylite Solar	0	0	0	0	0	0	0	0	Skylite Solar	0	0	0	0	0	0	Plenum	70.3	57.7
Skylite Cond	0	0	0	0	0	0	0	0	Skylite Cond	0	0	0	0	0	0	Return	70.3	57.7
Roof Cond	0	0	0	0	0	0	0	0	Roof Cond	0	0	0	0	0	0	Ret/OA	77.9	42.4
Glass Solar	0	0	0	0	0	0	0	0	Glass Solar	0	0	0	0	0	0	Fn MtrTD	0.0	0.0
Glass Cond	0	0	0	0	0	0	0	0	Glass Cond	0	0	0	0	0	0	Fn BldTD	0.0	0.0
Wall Cond	0	0	0	0	0	0	0	0	Wall Cond	0	0	0	0	0	0	Fn Frict	0.0	0.0
Partition	0	0	0	0	0	0	0	0	Partition	0	0	0	0	0	0			
Exposed Floor	770		770	2	770	3	-21,510	-21,510	73	Exposed Floor	-21,510	-21,510	73					
Infiltration	778		778	2	852	3	-2,044	-2,044	80	Infiltration	-2,044	-2,044	80					
Sub Total ==>	1,547	0	1,547	3	1,621	6	-23,555	-23,555		Sub Total ==>	-23,555	-23,555						
Internal Loads					Internal Loads													
Lights	1,966	491	2,457	5	1,966	7	0	0	0	Lights	0	0	0	0	0	Vent	540	540
People	16,200		16,200	35	9,000	34	0	0	0	People	0	0	0	0	0	Infil	36	36
Misc	13,969	0	13,969	31	13,969	52	0	0	0	Misc	0	0	0	0	0	Supply	1,753	1,753
Sub Total ==>	32,135	491	32,627	71	24,935	94	0	0	0	Sub Total ==>	0	0	0	0	0	MinStop/Rh	351	351
Ceiling Load					Ceiling Load													
Ventilation Load	59	-59	0	0	59	0	-2,360	0	0	Ceiling Load	-2,360	0	0	Return	1,789	1,789		
Dehumid. Ov Sizing	0	0	11,666	26	0	0	0	-30,667	104	Ventilation Load	0	-30,667	104	Exhaust	576	576		
Ov/Undr Sizing	0	0	0	0	0	0	20,272	20,272	-69	Ov/Undr Sizing	20,272	20,272	-69	Rm Exh	0	0		
Exhaust Heat		-141	-141	0			5,640	5,640	-19	Exhaust Heat	5,640	5,640	-19	Auxil	0	0		
Sup. Fan Heat		0	0	0			0	0	0	OA Preheat Diff.	0	0	0					
Ret. Fan Heat		0	0	0			0	0	0	RA Preheat Diff.	0	0	0					
Duct Heat Pkup		0	0	0			0	0	0	Additional Reheat	0	0	0					
Reheat at Design		0	0	0			-1,245	-1,245	4	System Plenum Heat	-1,245	-1,245	4					
Grand Total ==>	33,741	292	45,700	100.00	26,616	100.00	-5,642	-29,554	100.00	Grand Total ==>	-5,642	-29,554	100.00					

COOLING COIL SELECTION										AREAS			HEATING COIL SELECTION						
Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F °F gr/lb	Leave DB/WB/HR °F °F gr/lb	Gross Total		Glass ft² (%)		Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F							
Main Clg	3.8	45.7	39.7	1,753	77.9	60.2	63.3	54.0	50.2	57.5	Floor Part	720			Main Htg	-10.3	351	54.0	85.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFir	1,560			Aux Htg	0.0	0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	0	0	0	Preheat	-19.3	1,753	42.4	54.0
Total	3.8	45.7									Wall	0	0	0	Humidif	0.0	0	0.0	0.0
														Opt Vent	0.0	0	0.0	0.0	
														Total	-29.6				

Room Checksums

By Stanley Consultants

530B Dark Room

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES		
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 15					Mo/Hr: Heating Design							
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 95					OADB: 8							
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)				SADB	Cooling	Heating			
Envelope Loads																	
Skylite Solar	0	0	0	0	0	0	0	0	0	0	0	0	51.1	219.4			
Skylite Cond	0	0	0	0	0	0	0	0	0	0	0	0	70.4	54.4			
Roof Cond	0	0	0	0	0	0	0	0	0	0	0	0	70.4	54.4			
Glass Solar	0	0	0	0	0	0	0	0	0	0	0	0	72.0	51.3			
Glass Cond	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0			
Wall Cond	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0			
Partition	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0			
Exposed Floor	770		770	2	770	3	-21,510	-21,510	80								
Infiltration	407		407	1	450	1	-1,079	-1,079	4								
Sub Total ==>	1,177	0	1,177	3	1,219	4	-22,589	-22,589	84								
Internal Loads																	
Lights	1,038	259	1,297	4	1,038	3	0	0	0								
People	3,800		3,800	11	1,900	6	0	0	0								
Misc	26,109	0	26,109	75	26,109	86	0	0	0								
Sub Total ==>	30,947	259	31,206	90	29,047	96	0	0	0								
Ceiling Load	45	-45	0	0	45	0	-1,632	0	0								
Ventilation Load	0	0	2,444	7	0	0	0	-6,474	24								
Dehumid. Ov Sizing			0	0	0	0	0	0	0								
Ov/Undr Sizing	0		0	0	0	0	0	0	0								
Exhaust Heat		0	0	0	0	0	0	0	0								
Sup. Fan Heat		0	0	0	0	0	0	0	0								
Ret. Fan Heat		0	0	0	0	0	0	0	0								
Duct Heat Pkup		0	0	0	0	0	-417	2	2								
Reheat at Design			0	0	0	0	2,548	-9	-9								
Grand Total ==>	32,169	214	34,828	100.00	30,312	100.00	-24,222	-26,933	100.00								

AIRFLOWS		
	Cooling	Heating
Vent	114	114
Infil	19	19
Supply	1,690	1,690
MinStop/Rh	169	169
Return	1,576	1,576
Exhaust	0	0
Rm Exh	133	133
Auxil	0	0

ENGINEERING CKS		
	Cooling	Heating
% OA	6.7	6.7
cfm/ft²	4.45	4.45
cfm/ton	582.23	
ft²/ton	130.93	
Btu/hr-ft²	91.65	-70.88
No. People	8	

COOLING COIL SELECTION										
	Total Capacity ton	Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F °F gr/lb			Leave DB/WB/HR °F °F gr/lb		
Main Clg	2.9	34.8	33.2	1,690	72.0	58.4	64.4	51.1	50.4	63.1
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	2.9	34.8								

AREAS			
	Gross Total	Glass ft²	(%)
Floor	380		
Part	0		
ExFlr	1,560		
Roof	0	0	0
Wall	0	0	0

HEATING COIL SELECTION				
	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-26.9	169	51.1	219.4
Aux Htg	0.0	0	0.0	0.0
Preheat	0.0	0	0.0	0.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-26.9			

Room Checksums

By Stanley Consultants

530C Office

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES								
Peaked at Time:		Mo/Hr: 7 / 15			Mo/Hr: 7 / 15		Mo/Hr: Heating Design			Mo/Hr: Heating Design			Cooling			Heating							
Outside Air:		OADB/WB/HR: 95 / 65 / 61			OADB: 95		OADB: 8			OADB: 8			SADB	54.0	85.0	Plenum	70.3	57.7					
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)	Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)	Fn MtrTD	0.0	0.0	Fn BldTD	0.0	0.0						
Envelope Loads					Envelope Loads					Envelope Loads					AIRFLOWS								
Skylite Solar	0	0	0	0	0	Skylite Solar	0	0	Skylite Solar	0	0	Skylite Cond	0	0	Skylite Cond	0	0	Cooling			Heating		
Skylite Cond	0	0	0	0	0	Skylite Cond	0	0	Skylite Cond	0	0	Roof Cond	0	0	Roof Cond	0	0	Vent	31	31	Infil	11	11
Roof Cond	0	0	0	0	0	Roof Cond	0	0	Roof Cond	0	0	Glass Solar	0	0	Glass Solar	0	0	Supply	269	269	MinStop/Rh	54	54
Glass Solar	0	0	0	0	0	Glass Solar	0	0	Glass Solar	0	0	Glass Cond	0	0	Glass Cond	0	0	Return	257	257	Exhaust	19	19
Glass Cond	0	0	0	0	0	Glass Cond	0	0	Glass Cond	0	0	Wall Cond	0	0	Wall Cond	0	0	Rm Exh	24	24	Auxil	0	0
Wall Cond	0	0	0	0	0	Wall Cond	0	0	Wall Cond	0	0	Partition	0	0	Partition	0	0	ENGINEERING CKS					
Partition	0	0	0	0	0	Partition	0	0	Partition	0	0	Exposed Floor	-21,510	-21,510	Exposed Floor	-21,510	-21,510	% OA	11.7	11.7	cfm/ft²	1.20	1.20
Exposed Floor	770	770	15	770	19	Exposed Floor	-21,510	-21,510	Exposed Floor	-21,510	-21,510	Infiltration	-639	-639	Infiltration	-639	-639	cfm/ton	622.48		ft²/ton	520.81	
Infiltration	243	243	5	266	7	Infiltration	-639	-639	Infiltration	-639	-639	Sub Total ==>	-22,149	-22,149	Sub Total ==>	-22,149	-22,149	Btu/hr-ft²	23.04	-9.42	No. People	2	
Sub Total ==>	1,013	0	1,013	20	1,036	25	Sub Total ==>	-22,149	1,045	1,045	1,045	Grand Total ==>			4,374	131	5,184	100.00	4,082	100.00	-865	-2,119	100.00
Internal Loads					Internal Loads					Internal Loads													
Lights	614	154	768	15	614	15	Lights	0	0	0	Lights	0	0	Lights	0	0							
People	708	0	708	14	393	10	People	0	0	0	People	0	0	People	0	0							
Misc	2,021	0	2,021	39	2,021	49	Misc	0	0	0	Misc	0	0	Misc	0	0							
Sub Total ==>	3,343	154	3,496	67	3,028	74	Sub Total ==>	0	0	0	Sub Total ==>	0	0	Sub Total ==>	0	0							
Ceiling Load					Ceiling Load					Ceiling Load													
Ceiling Load	18	-18	0	0	18	0	Ceiling Load	-738	0	0	Ceiling Load	-738	0	Ceiling Load	-738	0							
Ventilation Load	0	0	680	13	0	0	Ventilation Load	0	-1,787	84	Ventilation Load	0	-1,787	Ventilation Load	0	-1,787							
Dehumid. Ov Sizing	0	0	0	0	0	0	Dehumid. Ov Sizing	22,021	22,021	-1,039	Dehumid. Ov Sizing	22,021	22,021	Dehumid. Ov Sizing	22,021	22,021							
Ov/Undr Sizing	0	-5	-5	0	0	0	Ov/Undr Sizing	187	-9	-9	Ov/Undr Sizing	187	-9	Ov/Undr Sizing	187	-9							
Exhaust Heat	0	0	0	0	0	0	Exhaust Heat	0	0	0	Exhaust Heat	0	0	Exhaust Heat	0	0							
Sup. Fan Heat	0	0	0	0	0	0	Sup. Fan Heat	0	0	0	Sup. Fan Heat	0	0	Sup. Fan Heat	0	0							
Ret. Fan Heat	0	0	0	0	0	0	Ret. Fan Heat	0	0	0	Ret. Fan Heat	0	0	Ret. Fan Heat	0	0							
Duct Heat Pkup	0	0	0	0	0	0	Duct Heat Pkup	0	0	0	Duct Heat Pkup	0	0	Duct Heat Pkup	0	0							
Reheat at Design	0	0	0	0	0	0	Reheat at Design	-391	18	18	Reheat at Design	-391	18	Reheat at Design	-391	18							
Grand Total ==>					Grand Total ==>					Grand Total ==>													

Room Checksums

By Stanley Consultants

530D Dark Room

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES		
Peaked at Time:		Mo/Hr: 7 / 15			Mo/Hr: 7 / 15		Mo/Hr: Heating Design										
Outside Air:		OADB/WB/HR: 95 / 65 / 61			OADB: 95		OADB: 8										
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)				SADB	Cooling	Heating			
Envelope Loads					Envelope Loads												
Skylite Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Skylite Cond	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Roof Cond	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Glass Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Glass Cond	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Wall Cond	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Partition	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Exposed Floor	222		222	2	222	3	-6,205	-6,205	40	0	0	0	0	0	0		
Infiltration	482		482	4	532	6	-1,278	-1,278	8	0	0	0	0	0	0		
Sub Total ==>	704	0	704	5	754	9	-7,483	-7,483	49	0	0	0	0	0	0		
Internal Loads					Internal Loads												
Lights	1,229	307	1,536	11	1,229	15	0	0	0	0	0	0	0	0	0		
People	4,500		4,500	33	2,250	27	0	0	0	0	0	0	0	0	0		
Misc	4,096	0	4,096	30	4,096	49	0	0	0	0	0	0	0	0	0		
Sub Total ==>	9,824	307	10,131	74	7,574	90	0	0	0	0	0	0	0	0	0		
Ceiling Load	54	-54	0	0	54	1	-1,933	0	0	0	0	0	0	0	0		
Ventilation Load	0	0	2,895	21	0	0	0	-7,667	50	0	0	0	0	0	0		
Dehumid. Ov Sizing			0	0			0	0	0	0	0	0	0	0	0		
Ov/Undr Sizing	0		0	0	0	0	0	0	0	0	0	0	0	0	0		
Exhaust Heat		0	0	0			0	533	-3	0	0	0	0	0	0		
Sup. Fan Heat			0	0			0	0	0	0	0	0	0	0	0		
Ret. Fan Heat		0	0	0			0	0	0	0	0	0	0	0	0		
Duct Heat Pkup		0	0	0			0	0	0	0	0	0	0	0	0		
Reheat at Design			0	0			0	-733	5	0	0	0	0	0	0		
Grand Total ==>	10,583	253	13,731	100.00	8,383	100.00	-9,416	-15,350	100.00								

AIRFLOWS		
	Cooling	Heating
Vent	135	135
Infil	23	23
Supply	467	467
MinStop/Rh	93	93
Return	332	374
Exhaust	0	42
Rm Exh	158	116
Auxil	0	0

ENGINEERING CKS		
	Cooling	Heating
% OA	28.9	20.0
cfm/ft²	1.04	1.04
cfm/ton	408.41	
ft²/ton	393.28	
Btu/hr-ft²	30.51	-34.11
No. People	9	

COOLING COIL SELECTION									
	Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F °F gr/lb	Leave DB/WB/HR °F °F gr/lb				
Main Clg	1.1	13.7	11.8	467 77.5 60.1 63.6	51.1 48.7 56.2				
Aux Clg	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0				
Opt Vent	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0				
Total	1.1	13.7							

AREAS			
	Gross Total	Glass ft²	(%)
Floor Part	450		
ExFir	450		
Roof	0	0	0
Wall	0	0	0

HEATING COIL SELECTION				
	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-10.9	93	51.1	174.4
Aux Htg	0.0	0	0.0	0.0
Preheat	-4.4	467	41.0	51.1
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-15.4			

Room Checksums

By Stanley Consultants

531 Office

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES			
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 15					Mo/Hr: Heating Design								
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 95					OADB: 8								
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)				SADB	Cooling	Heating				
Envelope Loads					Envelope Loads					Envelope Loads								
Skylite Solar	0	0	0	0	0	Skylite Solar	0	0	0	0	Skylite Solar	0	0	0	0	SADB	54.0	85.0
Skylite Cond	0	0	0	0	0	Skylite Cond	0	0	0	0	Skylite Cond	0	0	0	0	Plenum	70.3	57.7
Roof Cond	0	0	0	0	0	Roof Cond	0	0	0	0	Roof Cond	0	0	0	0	Return	70.3	57.7
Glass Solar	0	0	0	0	0	Glass Solar	0	0	0	0	Glass Solar	0	0	0	0	Ret/OA	72.7	52.7
Glass Cond	0	0	0	0	0	Glass Cond	0	0	0	0	Glass Cond	0	0	0	0	Fn MtrTD	0.0	0.0
Wall Cond	0	0	0	0	0	Wall Cond	0	0	0	0	Wall Cond	0	0	0	0	Fn BldTD	0.0	0.0
Partition	858	0	858	21	858	Partition	-23,970	-23,970	1,140	27	Partition	-23,970	-23,970	1,140	27	Fn Frict	0.0	0.0
Exposed Floor	222	0	222	6	222	Exposed Floor	-6,205	-6,205	295	7	Exposed Floor	-6,205	-6,205	295	7			
Infiltration	130	0	130	3	142	Infiltration	-341	-341	16	4	Infiltration	-341	-341	16	4			
Sub Total ==>	1,209	0	1,209	30	1,222	Sub Total ==>	-30,516	-30,516	1,451	38	Sub Total ==>	-30,516	-30,516	1,451	38			
Internal Loads					Internal Loads					Internal Loads								
Lights	819	205	1,024	25	819	Lights	0	0	0	26	Lights	0	0	0	0			
People	472	0	472	12	262	People	0	0	0	8	People	0	0	0	0			
Misc	874	0	874	22	874	Misc	0	0	0	27	Misc	0	0	0	0			
Sub Total ==>	2,165	205	2,370	59	1,955	Sub Total ==>	0	0	0	61	Sub Total ==>	0	0	0	0			
Ceiling Load	12	-12	0	0	12	Ceiling Load	-492	0	0	0	Ceiling Load	-492	0	0	0			
Ventilation Load	0	0	453	11	0	Ventilation Load	0	-1,191	57	0	Ventilation Load	0	-1,191	57	0			
Dehumid. Ov Sizing	0	0	0	0	0	Ov/Undr Sizing	29,994	29,994	-1,426	0	Ov/Undr Sizing	29,994	29,994	-1,426	0			
Ov/Undr Sizing	0	0	0	0	0	Exhaust Heat	0	110	-5	0	Exhaust Heat	0	110	-5	0			
Exhaust Heat	0	-3	-3	0	0	OA Preheat Diff.	0	0	0	0	OA Preheat Diff.	0	0	0	0			
Sup. Fan Heat	0	0	0	0	0	RA Preheat Diff.	0	0	0	0	RA Preheat Diff.	0	0	0	0			
Ret. Fan Heat	0	0	0	0	0	Additional Reheat	0	0	0	0	Additional Reheat	0	0	0	0			
Duct Heat Pkup	0	0	0	0	0	System Plenum Heat	0	-500	24	0	System Plenum Heat	0	-500	24	0			
Reheat at Design	0	0	0	0	0													
Grand Total ==>	3,386	190	4,029	100.00	3,189	Grand Total ==>	-1,014	-2,103	100.00	100.00								

COOLING COIL SELECTION											AREAS			HEATING COIL SELECTION						
Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F °F gr/lb	Leave DB/WB/HR °F °F gr/lb	Gross Total			Glass ft² (%)	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F								
Main Clg	0.3	4.0	3.9	210	72.7	58.6	64.0	54.0	51.2	61.6	Floor Part	150				Main Htg	-1.9	63	54.0	85.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Roof	540				Aux Htg	0.0	0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFir	450				Preheat	-0.3	210	52.7	54.0
Total	0.3	4.0									Wall	0	0	0		Humidif	0.0	0	0.0	0.0
															Opt Vent	0.0	0	0.0	0.0	
															Total	-2.1				

Room Checksums

By Stanley Consultants

532 & 536 Class Room

COOLING COIL PEAK					CLG SPACE PEAK		HEATING COIL PEAK			TEMPERATURES			
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 15		Mo/Hr: Heating Design			Cooling Heating			
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 95		OADB: 8			SADB	54.0	85.0	
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)	Return	Ret/OA	Fn MtrTD	Fn BldTD	Fn Frict
Envelope Loads					Envelope Loads		Envelope Loads						
Skylite Solar	0	0	0	0	0	Skylite Solar	0	0	0	0	0.0	0.0	0.0
Skylite Cond	0	0	0	0	0	Skylite Cond	0	0	0	0	0.0	0.0	0.0
Roof Cond	0	0	0	0	0	Roof Cond	0	0	0	0	0.0	0.0	0.0
Glass Solar	0	0	0	0	0	Glass Solar	0	0	0	0	0.0	0.0	0.0
Glass Cond	0	0	0	0	0	Glass Cond	0	0	0	0	0.0	0.0	0.0
Wall Cond	0	0	0	0	0	Wall Cond	0	0	0	0	0.0	0.0	0.0
Partition	0	0	0	0	0	Partition	0	0	0	0	0.0	0.0	0.0
Exposed Floor	401		401	1	401	Exposed Floor	-11,196	-11,196	35	70.3	70.3	57.7	57.7
Infiltration	877		877	2	961	Infiltration	-2,306	-2,306	7	80.3	80.3	37.4	37.4
Sub Total ==>	1,278	0	1,278	3	1,361	Sub Total ==>	-13,502	-13,502	42				
Internal Loads					Internal Loads		Internal Loads						
Lights	2,217	554	2,771	6	2,217	Lights	0	0	0	1,496	1,496		
People	18,270		18,270	41	10,150	People	0	0	0	299	299		
Misc	8,918	0	8,918	20	8,918	Misc	0	0	0	1,537	1,537		
Sub Total ==>	29,405	554	29,960	68	21,285	Sub Total ==>	0	0	0	650	650		
Ceiling Load	66	-66	0	0	66	Ceiling Load	-2,662	0	0	0	0		
Ventilation Load	0	0	13,157	30	0	Ventilation Load	0	-34,586	107	0	0		
Dehumid. Ov Sizing			0	0		Ov/Undr Sizing	11,349	11,349	-35	0	0		
Ov/Undr Sizing	0		0	0	0	Exhaust Heat		6,361	-20	405.89	405.89		
Exhaust Heat		-158	-158	0		OA Preheat Diff.		0	0	220.27	220.27		
Sup. Fan Heat			0	0		RA Preheat Diff.		0	0	54.48	54.48		
Ret. Fan Heat			0	0		Additional Reheat		0	0	-39.64	-39.64		
Duct Heat Pkup			0	0		System Plenum Heat		-1,807	6				
Reheat at Design			0	0									
Grand Total ==>	30,749	330	44,236	100.00	22,713	Grand Total ==>	-4,815	-32,185	100.00				

COOLING COIL SELECTION										AREAS			HEATING COIL SELECTION				
Total Capacity ton	Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/°F	WB/°F	HR gr/lb	Leave DB/°F	WB/°F	HR gr/lb	Gross Total	Glass ft² (%)	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F		
Main Clg	3.7	44.2	37.5	80.3	60.9	63.0	54.0	49.6	55.2	Floor	812	-8.8	299	54.0	85.0		
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Part	0	0.0	0	0.0	0.0		
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	812	-23.4	1,496	37.4	54.0		
Total	3.7	44.2								Roof	0	0.0	0	0.0	0.0		
										Wall	0	0.0	0	0.0	0.0		
										Total		-32.2					

Room Checksums

By Stanley Consultants

533 & A Office

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES		
Peaked at Time:		Mo/Hr: 7 / 15			Mo/Hr: 7 / 17		Mo/Hr: Heating Design										
Outside Air:		OADB/WB/HR: 95 / 65 / 61			OADB: 92		OADB: 8										
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)				SADB	Cooling	Heating			
Envelope Loads					Envelope Loads												
Skylite Solar	0	0	0	0	0	Skylite Solar	0	0	0								
Skylite Cond	0	0	0	0	0	Skylite Cond	0	0	0								
Roof Cond	0	0	0	0	0	Roof Cond	0	0	0								
Glass Solar	0	0	0	0	0	Glass Solar	0	0	0								
Glass Cond	0	0	0	0	0	Glass Cond	0	0	0								
Wall Cond	0	0	0	0	0	Wall Cond	0	0	0								
Partition	1,639		1,639	4	1,639	Partition	-45,810	-45,810	136								
Exposed Floor	3,682		3,682	9	4,536	Exposed Floor	-11,969	-11,969	35								
Infiltration	938		938	2	900	Infiltration	-2,465	-2,465	7								
Sub Total ==>	6,258	0	6,258	15	7,074	Sub Total ==>	-60,244	-60,244	178								
Internal Loads					Internal Loads												
Lights	2,370	593	2,962	7	2,370	Lights	0	0	0								
People	19,530		19,530	46	10,850	People	0	0	0								
Misc	0	0	0	0	0	Misc	0	0	0								
Sub Total ==>	21,900	593	22,492	53	13,220	Sub Total ==>	0	0	0								
Ceiling Load	71	-71	0	0	71	Ceiling Load	-2,845	0	0								
Ventilation Load	0	0	14,064	33	0	Ventilation Load	0	-36,971	109								
Dehumid. Ov Sizing			0	0	0	Ov/Undr Sizing	58,772	58,772	-174								
Ov/Undr Sizing	0		0	0	0	Exhaust Heat		6,800	-20								
Exhaust Heat		-169	-169	0		OA Preheat Diff.		0	0								
Sup. Fan Heat			0	0		RA Preheat Diff.		0	0								
Ret. Fan Heat			0	0		Additional Reheat		0	0								
Duct Heat Pkup			0	0		System Plenum Heat		-2,147	6								
Reheat at Design			0	0		Grand Total ==>	-4,317	-33,790	100.00								
Grand Total ==>	28,229	352	42,646	100.00	20,365												

COOLING COIL SELECTION											AREAS			HEATING COIL SELECTION				
Total Capacity ton	Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F °F gr/lb	Leave DB/WB/HR °F °F gr/lb	Gross Total		Glass ft² (%)		Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F					
Main Clg	3.6	42.7	35.4	1,342	82.3 61.5 62.7	54.0 49.4 54.3	Floor	868			Main Htg	-7.9	268	54.0 85.0				
Aux Clg	0.0	0.0	0.0	0	0.0 0.0 0.0	0.0 0.0	Part	1,032			Aux Htg	0.0	0	0.0 0.0				
Opt Vent	0.0	0.0	0.0	0	0.0 0.0 0.0	0.0 0.0 0.0	ExFlr	868			Preheat	-25.9	1,342	33.6 54.0				
							Roof	0	0	0	Humidif	0.0	0	0.0 0.0				
Total	3.6	42.7					Wall	0	0	0	Opt Vent	0.0	0	0.0 0.0				
											Total	-33.8						

AIRFLOWS			ENGINEERING CKS		
	Cooling	Heating		Cooling	Heating
Vent	651	651	% OA	48.5	20.0
Infil	43	43	cfm/ft²	1.55	1.55
Supply	1,342	1,342	cfm/ton	377.50	
MinStop/Rh	268	268	ft²/ton	244.25	
Return	1,385	1,385	Btu/hr-ft²	49.13	-38.93
Exhaust	694	694	No. People	43	
Rm Exh	0	0			
Auxil	0	0			

Room Checksums

By Stanley Consultants

535 Offices

COOLING COIL PEAK					CLG SPACE PEAK			HEATING COIL PEAK			TEMPERATURES		
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 15			Mo/Hr: Heating Design					
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 95			OADB: 8					
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)	SADB	Cooling	Heating		
Envelope Loads					Envelope Loads			Envelope Loads					
Skylite Solar	0	0	0	0	0	0	0	0					
Skylite Cond	0	0	0	0	0	0	0	0					
Roof Cond	0	0	0	0	0	0	0	0					
Glass Solar	0	0	0	0	0	0	0	0					
Glass Cond	0	0	0	0	0	0	0	0					
Wall Cond	0	0	0	0	0	0	0	0					
Partition	445		445	2	445	2	-12,429	-12,429	136				
Exposed Floor	428		428	2	428	2	-11,969	-11,969	131				
Infiltration	938		938	4	1,027	5	-2,465	-2,465	27				
Sub Total ==>	1,810	0	1,810	7	1,900	9	-26,862	-26,862	294				
Internal Loads					Internal Loads			Internal Loads					
Lights	2,370	593	2,962	11	2,370	11	0	0	0				
People	2,731		2,731	10	1,517	7	0	0	0				
Misc	16,062	0	16,062	61	16,062	73	0	0	0				
Sub Total ==>	21,163	593	21,756	83	19,949	91	0	0	0				
Ceiling Load					Ceiling Load			Ceiling Load					
Ventilation Load	71	-71	0	0	71	0	-2,845	0	0				
Dehumid. Ov Sizing	0	0	2,623	10	0	0	0	-6,894	75				
Ov/Undr Sizing	0	0	0	0	0	0	25,061	25,061	-274				
Exhaust Heat	0	-18	-18	0	0	0	722	-8					
Sup. Fan Heat	0	0	0	0	0	0	0	0					
Ret. Fan Heat	0	0	0	0	0	0	0	0					
Duct Heat Pkup	0	0	0	0	0	0	0	0					
Reheat at Design	0	0	0	0	0	0	0	0					
Grand Total ==>	23,044	504	26,171	100.00	21,920	100.00	-4,647	-9,143	100.00				

AIRFLOWS												
	Cooling	Heating										
Vent	121	121										
Infil	43	43										
Supply	1,444	1,444										
MinStop/Rh	289	289										
Return	1,396	1,396										
Exhaust	74	74										
Rm Exh	91	91										
Auxil	0	0										

ENGINEERING CKS												
	Cooling	Heating										
% OA	8.4	8.4										
cfm/ft²	1.66	1.66										
cfm/ton	662.10											
ft²/ton	398.00											
Btu/hr-ft²	30.15	-10.53										
No. People	6											

COOLING COIL SELECTION										AREAS			HEATING COIL SELECTION			
Total Capacity ton	Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	°F	gr/lb	Leave DB/WB/HR °F	°F	gr/lb	Gross Total	Glass ft² (%)	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F	
Main Clg	2.2	26.2	25.3	1,444	72.3	58.5	64.1	54.0	51.5	62.8						
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0						
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0						
Total	2.2	26.2														

	Gross Total	Glass ft² (%)	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Floor	868					
Part	280					
ExFlr	868					
Roof	0	0				
Wall	0	0				
Total						

	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-8.5	289	54.0	85.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-0.7	1,444	53.5	54.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-9.1			

Room Checksums

By Stanley Consultants

537 Computer Room

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES		
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 15					Mo/Hr: Heating Design							
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 95					OADB: 8							
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)				SADB	Cooling	Heating			
Envelope Loads					Envelope Loads					Envelope Loads							
Skylite Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Skylite Cond	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Roof Cond	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Glass Solar	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Glass Cond	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Wall Cond	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Partition	1,029	0	1,029	1	1,029	2	-28,765	-28,765	105	0	0	0	0	0	0		
Exposed Floor	415	0	415	0	415	1	-11,596	-11,596	42	0	0	0	0	0	0		
Infiltration	727	0	727	1	796	1	-1,910	-1,910	7	0	0	0	0	0	0		
Sub Total ==>	2,171	0	2,171	3	2,240	4	-42,271	-42,271	154	0	0	0	0	0	0		
Internal Loads					Internal Loads					Internal Loads							
Lights	2,296	574	2,870	3	2,296	4	0	0	0	0	0	0	0	0	0		
People	18,923	0	18,923	23	10,513	17	0	0	0	0	0	0	0	0	0		
Misc	45,932	0	45,932	55	45,932	75	0	0	0	0	0	0	0	0	0		
Sub Total ==>	67,151	574	67,725	81	58,741	96	0	0	0	0	0	0	0	0	0		
Ceiling Load					Ceiling Load					Ceiling Load							
Ventilation Load	69	-69	0	0	69	0	-2,757	0	0	0	0	0	0	0	0		
Dehumid. Ov Sizing	0	0	13,627	16	0	0	0	-35,821	131	0	0	0	0	0	0		
Ov/Undr Sizing	0	0	0	0	0	0	38,557	38,557	-141	0	0	0	0	0	0		
Exhaust Heat	0	-162	-162	0	0	0	6,506	-24	0	0	0	0	0	0	0		
Sup. Fan Heat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Ret. Fan Heat	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Duct Heat Pkup	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0		
Reheat at Design	0	0	0	0	0	0	5,625	-21	0	0	0	0	0	0	0		
Grand Total ==>	69,390	343	83,360	100.00	61,050	100.00	-6,471	-27,405	100.00	0	0	0	0	0	0		

COOLING COIL SELECTION											AREAS			HEATING COIL SELECTION				
Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Leave DB/WB/HR °F	gr/lb	Gross Total	Glass ft² (%)	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F							
Main Clg	7.0	83.4	76.3	4,022	74.1	59.0	63.8	54.0	51.1	61.1		Main Htg	-11.8	402	54.0	85.0		
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0		Aux Htg	0.0	0	0.0	0.0		
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0		Preheat	-15.6	4,022	49.9	54.0		
Total	7.0	83.4										Humidif	0.0	0	0.0	0.0		
												Opt Vent	0.0	0	0.0	0.0		
												Total	-27.4					

Room Checksums

By Stanley Consultants

538 Class Room

COOLING COIL PEAK					CLG SPACE PEAK		HEATING COIL PEAK			TEMPERATURES		
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 15		Mo/Hr: Heating Design					
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 95		OADB: 8					
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)	SADB	Cooling	Heating	
Envelope Loads							Envelope Loads					
Skylite Solar	0	0	0	0	0	Skylite Solar	0	0	0	54.0	85.0	
Skylite Cond	0	0	0	0	0	Skylite Cond	0	0	0	70.3	57.7	
Roof Cond	0	0	0	0	0	Roof Cond	0	0	0	70.3	57.7	
Glass Solar	0	0	0	0	0	Glass Solar	0	0	0	77.5	43.2	
Glass Cond	0	0	0	0	0	Glass Cond	0	0	0	0.0	0.0	
Wall Cond	0	0	0	0	0	Wall Cond	0	0	0	0.0	0.0	
Partition	0	0	0	0	0	Partition	0	0	0	0.0	0.0	
Exposed Floor	503		503	1	503	Exposed Floor	-14,051	-14,051	48			
Infiltration	758		758	2	831	Infiltration	-1,993	-1,993	7			
Sub Total ==>	1,261	0	1,261	3	1,333	Sub Total ==>	-16,044	-16,044	55			
Internal Loads							Internal Loads					
Lights	1,917	479	2,396	5	1,917	Lights	0	0	0			
People	15,795		15,795	34	8,775	People	0	0	0			
Misc	15,294	0	15,294	33	15,294	Misc	0	0	0			
Sub Total ==>	33,005	479	33,485	73	25,985	Sub Total ==>	0	0	0			
Ceiling Load	57	-57	0	0	57	Ceiling Load	-2,301	0	0			
Ventilation Load	0	0	11,375	25	0	Ventilation Load	0	-29,901	103			
Dehumid. Ov Sizing			0	0	0	Ov/Undr Sizing	12,541	12,541	-43			
Ov/Undr Sizing	0		0	0	0	Exhaust Heat		5,499	-19			
Exhaust Heat		-137	-137	0		OA Preheat Diff.		0	0			
Sup. Fan Heat			0	0		RA Preheat Diff.		0	0			
Ret. Fan Heat			0	0		Additional Reheat		0	0			
Duct Heat Pkup			0	0		System Plenum Heat		-1,135	4			
Reheat at Design			0	0		Grand Total ==>	-5,804	-29,038	100.00			
Grand Total ==>	34,324	285	45,983	100.00	27,376	100.00						

AIRFLOWS		
	Cooling	Heating
Vent	527	527
Infil	35	35
Supply	1,803	1,803
MinStop/Rh	361	361
Return	1,839	1,839
Exhaust	562	562
Rm Exh	0	0
Auxil	0	0

ENGINEERING CKS		
	Cooling	Heating
% OA	29.2	20.0
cfm/ft²	2.57	2.57
cfm/ton	470.63	
ft²/ton	183.20	
Btu/hr-ft²	65.50	-41.37
No. People	35	

COOLING COIL SELECTION									
	Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F °F gr/lb	Leave DB/WB/HR °F °F gr/lb				
Main Clg	3.8	46.0	40.1	1,803 77.5 60.0 63.4	54.0 50.3 57.9				
Aux Clg	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0				
Opt Vent	0.0	0.0	0.0	0 0.0 0.0 0.0	0.0 0.0 0.0				
Total	3.8	46.0							

AREAS		
	Gross Total	Glass ft² (%)
Floor	702	
Part	0	
ExFlr	1,019	
Roof	0	0 0
Wall	0	0 0

HEATING COIL SELECTION				
	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-10.6	361	54.0	85.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-18.4	1,803	43.2	54.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-29.0			

Room Checksums

By Stanley Consultants

538A Dark Room

COOLING COIL PEAK					CLG SPACE PEAK			HEATING COIL PEAK			TEMPERATURES		
Peaked at Time:		Mo/Hr: 7 / 15			Mo/Hr: 7 / 15		Mo/Hr: Heating Design						
Outside Air:		OADB/WB/HR: 95 / 65 / 61			OADB: 95		OADB: 8						
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)	SADB	Cooling	Heating		
Envelope Loads					Envelope Loads								
Skylite Solar	0	0	0	0	0	0	0	0	0	54.0	85.0		
Skylite Cond	0	0	0	0	0	0	0	0	0	70.3	57.7		
Roof Cond	0	0	0	0	0	0	0	0	0	70.3	57.7		
Glass Solar	0	0	0	0	0	0	0	0	0	76.1	45.9		
Glass Cond	0	0	0	0	0	0	0	0	0	0.0	0.0		
Wall Cond	0	0	0	0	0	0	0	0	0	0.0	0.0		
Partition	0	0	0	0	0	0	0	0	0	0.0	0.0		
Exposed Floor	503		503	3	503	5	-14,051	-14,051	164				
Infiltration	216		216	1	237	2	-568	-568	7				
Sub Total ==>	719	0	719	5	739	8	-14,618	-14,618	171				
Internal Loads					Internal Loads								
Lights	546	137	683	5	546	6	0	0	0				
People	4,500		4,500	30	2,500	26	0	0	0				
Misc	5,792	0	5,792	39	5,792	60	0	0	0				
Sub Total ==>	10,838	137	10,974	73	8,838	92	0	0	0				
Ceiling Load	16	-16	0	0	16	0	-656	0	0				
Ventilation Load	0	0	3,241	22	0	0	0	-8,519	100				
Dehumid. Ov Sizing			0	0	0	0	13,240	13,240	-155				
Ov/Undr Sizing	0		0	0	0	0	Exhaust Heat	231	-3				
Exhaust Heat		-2	-2	0			OA Preheat Diff.	0	0				
Sup. Fan Heat			0	0			RA Preheat Diff.	0	0				
Ret. Fan Heat			0	0			Additional Reheat	0	0				
Duct Heat Pkup			0	0			System Plenum Heat	1,110	-13				
Reheat at Design			0	0									
Grand Total ==>	11,573	118	14,931	100.00	9,594	100.00	-2,034	-8,555	100.00				

AIRFLOWS											
	Cooling	Heating									
Vent	150	150									
Infil	10	10									
Supply	632	632									
MinStop/Rh	126	126									
Return	492	506									
Exhaust	10	24									
Rm Exh	150	136									
Auxil	0	0									

ENGINEERING CKS											
	Cooling	Heating									
% OA	23.7	20.0									
cfm/ft²	3.16	3.16									
cfm/ton	507.91										
ft²/ton	160.74										
Btu/hr-ft²	74.66	-42.77									
No. People	10										

COOLING COIL SELECTION										AREAS			HEATING COIL SELECTION				
Total Capacity ton	Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/°F	WB/°F	HR gr/lb	Leave DB/°F	WB/°F	HR gr/lb	Gross Total	Glass ft² (%)	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F		
Main Clg	1.2	14.9	13.3	632	76.1	59.6	63.5	54.0	50.6	59.1	Floor	200					
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Part	0					
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	1,019					
Total	1.2	14.9									Roof	0	0	0			
											Wall	0	0	0			

HEATING COIL SELECTION				
Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F	
Main Htg	-3.7	126	54.0	85.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-4.8	632	45.9	54.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-8.6			

Room Checksums

By Stanley Consultants

539 Computer Room

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES		
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 15					Mo/Hr: Heating Design							
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 95					OADB: 8							
Envelope Loads	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Envelope Loads	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)	SADB	Cooling	Heating				
Skylite Solar	0	0	0	0	0	0	Skylite Solar	0	0	0	54.0	54.0	85.0				
Skylite Cond	0	0	0	0	0	0	Skylite Cond	0	0	0	Plenum	70.3	57.7				
Roof Cond	0	0	0	0	0	0	Roof Cond	0	0	0	Return	70.3	57.7				
Glass Solar	0	0	0	0	0	0	Glass Solar	0	0	0	Ret/OA	73.7	50.8				
Glass Cond	0	0	0	0	0	0	Glass Cond	0	0	0	Fn MtrTD	0.0	0.0				
Wall Cond	0	0	0	0	0	0	Wall Cond	0	0	0	Fn BldTD	0.0	0.0				
Partition	534		534	1	534	1	Partition	-14,915	-14,915	81	Fn Frict	0.0	0.0				
Exposed Floor	373		373	1	373	1	Exposed Floor	-10,424	-10,424	57							
Infiltration	493		493	1	540	1	Infiltration	-1,295	-1,295	7							
Sub Total ==>	1,399	0	1,399	2	1,446	3	Sub Total ==>	-26,634	-26,634	145							
Internal Loads							Internal Loads										
Lights	1,556	389	1,945	3	1,556	3	Lights	0	0	0							
People	12,825		12,825	21	7,125	15	People	0	0	0							
Misc	36,550	0	36,550	59	36,550	78	Misc	0	0	0							
Sub Total ==>	50,931	389	51,320	83	45,231	97	Sub Total ==>	0	0	0							
Ceiling Load	47	-47	0	0	47	0	Ceiling Load	-1,869	0	0							
Ventilation Load	0	0	9,236	15	0	0	Ventilation Load	0	-24,278	132							
Dehumid. Ov Sizing			0	0			Ov/Undr Sizing	23,550	23,550	-128							
Ov/Undr Sizing	0		0	0	0	0	Exhaust Heat		4,410	-24							
Exhaust Heat		-110	-110	0			OA Preheat Diff.		0	0							
Sup. Fan Heat			0	0			RA Preheat Diff.		0	0							
Ret. Fan Heat			0	0			Additional Reheat		0	0							
Duct Heat Pkup			0	0			System Plenum Heat		4,575	-25							
Reheat at Design			0	0													
Grand Total ==>	52,377	233	61,845	100.00	46,724	100.00	Grand Total ==>	-4,953	-18,378	100.00							

AIRFLOWS		
	Cooling	Heating
Vent	428	428
Infil	23	23
Supply	3,078	3,078
MinStop/Rh	308	308
Return	3,101	3,101
Exhaust	450	450
Rm Exh	0	0
Auxil	0	0

ENGINEERING CKS		
	Cooling	Heating
% OA	13.9	10.0
cfm/ft²	5.40	5.40
cfm/ton	597.22	
ft²/ton	110.60	
Btu/hr-ft²	108.50	-32.24
No. People	29	

COOLING COIL SELECTION										
	Total Capacity ton	Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F °F gr/lb	Leave DB/WB/HR °F °F gr/lb				
Main Clg	5.2	61.9	57.1	3,078	73.7 58.9 63.9	54.0 51.2 61.5				
Aux Clg	0.0	0.0	0.0	0	0.0 0.0 0.0	0.0 0.0 0.0				
Opt Vent	0.0	0.0	0.0	0	0.0 0.0 0.0	0.0 0.0 0.0				
Total	5.2	61.9								

AREAS		
	Gross Total	Glass ft² (%)
Floor	570	
Part	336	
ExFlr	756	
Roof	0	0 0
Wall	0	0 0

HEATING COIL SELECTION				
	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-9.0	308	54.0	85.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-9.3	3,078	50.8	54.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-18.4			

Room Checksums

By Stanley Consultants

539A Office

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES		
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 15					Mo/Hr: Heating Design							
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 95					OADB: 8							
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)				SADB	Cooling	Heating			
Envelope Loads					Envelope Loads					Envelope Loads							
Skylite Solar	0	0	0	0	0	0	0	0	0	0	0	0	54.0	85.0			
Skylite Cond	0	0	0	0	0	0	0	0	0	0	0	0	70.3	57.7			
Roof Cond	0	0	0	0	0	0	0	0	0	0	0	0	70.3	57.7			
Glass Solar	0	0	0	0	0	0	0	0	0	0	0	0	72.0	54.2			
Glass Cond	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0			
Wall Cond	0	0	0	0	0	0	0	0	0	0	0	0	0.0	0.0			
Partition	534		534	10	534	12	-14,915	-14,915	1,761				0.0	0.0			
Exposed Floor	373		373	7	373	9	-10,424	-10,424	1,231				0.0	0.0			
Infiltration	124		124	2	136	3	-327	-327	39								
Sub Total ==>	1,031	0	1,031	20	1,043	24	-25,666	-25,666	3,031								
Internal Loads					Internal Loads					Internal Loads							
Lights	393	98	491	10	393	9	0	0	0								
People	453		453	9	252	6	0	0	0								
Misc	2,676	0	2,676	53	2,676	61	0	0	0								
Sub Total ==>	3,522	98	3,620	71	3,321	76	0	0	0								
Ceiling Load					Ceiling Load					Ceiling Load							
Ventilation Load	0	-12	0	0	12	0	-472	0	0								
Dehumid. Ov Sizing		0	435	9	0	0	0	-1,144	135								
Ov/Undr Sizing	0		0	0	0	0	25,675	25,675	-3,032								
Exhaust Heat		-3	-3	0				106	-12								
Sup. Fan Heat			0	0				0	0								
Ret. Fan Heat		0	0	0				0	0								
Duct Heat Pkup		0	0	0				-61	7								
Reheat at Design			0	0				244	-29								
Grand Total ==>	4,565	84	5,084	100.00	4,375	100.00	-464	-847	100.00								

COOLING COIL SELECTION					AREAS			HEATING COIL SELECTION							
Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Leave DB/WB/HR °F	Gross Total	Glass ft² (%)	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F					
Main Clg	0.4	5.1	4.9	288	72.0	58.4	64.1	54.0	51.6	63.1	Main Htg	-0.9	29	54.0	85.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Aux Htg	0.0	0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Preheat	0.0	0	0.0	0.0
Total	0.4	5.1									Humidif	0.0	0	0.0	0.0
											Opt Vent	0.0	0	0.0	0.0
											Total	-0.9			

Room Checksums

By Stanley Consultants

540 Computer Room

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES		
Peaked at Time:		Mo/Hr: 7 / 15			Mo/Hr: 7 / 15		Mo/Hr: Heating Design										
Outside Air:		OADB/WB/HR: 95 / 65 / 61			OADB: 95		OADB: 8										
Envelope Loads	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Envelope Loads	Space Sensible Btu/h	Percent Of Total (%)	Envelope Loads	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)	SADB	Cooling	Heating			
Skylite Solar	0	0	0	0	Skylite Solar	0	0	Skylite Solar	0	0	0	Plenum	70.3	57.7			
Skylite Cond	0	0	0	0	Skylite Cond	0	0	Skylite Cond	0	0	0	Return	70.3	57.7			
Roof Cond	0	0	0	0	Roof Cond	0	0	Roof Cond	0	0	0	Ret/OA	73.2	51.8			
Glass Solar	0	0	0	0	Glass Solar	0	0	Glass Solar	0	0	0	Fn MtrTD	0.0	0.0			
Glass Cond	0	0	0	0	Glass Cond	0	0	Glass Cond	0	0	0	Fn BldTD	0.0	0.0			
Wall Cond	0	0	0	0	Wall Cond	0	0	Wall Cond	0	0	0	Fn Frict	0.0	0.0			
Partition	0	0	0	0	Partition	0	0	Partition	0	0	0						
Exposed Floor Infiltration	197		197	0	Exposed Floor Infiltration	197	1	Exposed Floor Infiltration	-5,515	-5,515	44						
Sub Total ==>	629	0	629	1	Sub Total ==>	671	2	Sub Total ==>	-6,651	-6,651	52						
Internal Loads					Internal Loads			Internal Loads									
Lights	1,092	273	1,365	3	Lights	1,092	3	Lights	0	0	0						
People	9,000		9,000	18	People	5,000	13	People	0	0	0						
Misc	32,123	0	32,123	65	Misc	32,123	83	Misc	0	0	0						
Sub Total ==>	42,215	273	42,488	86	Sub Total ==>	38,215	98	Sub Total ==>	0	0	0						
Ceiling Load					Ceiling Load			Ceiling Load									
Ventilation Load	33	-33	0	0	Ventilation Load	33	0	Ventilation Load	-1,311	0	0						
Dehumid. Ov Sizing	0	0	6,481	13	Dehumid. Ov Sizing	0	0	Dehumid. Ov Sizing	0	-17,037	134						
Ov/Undr Sizing	0	0	0	0	Ov/Undr Sizing	0	0	Ov/Undr Sizing	3,837	3,837	-30						
Exhaust Heat		-78	-78	0	Exhaust Heat			Exhaust Heat		3,134	-25						
Sup. Fan Heat		0	0	0	OA Preheat Diff.			OA Preheat Diff.		0	0						
Ret. Fan Heat		0	0	0	RA Preheat Diff.			RA Preheat Diff.		0	0						
Duct Heat Pkup		0	0	0	Additional Reheat			Additional Reheat		0	0						
Reheat at Design		0	0	0	System Plenum Heat			System Plenum Heat		4,046	-32						
Grand Total ==>	42,877	162	49,521	100.00	Grand Total ==>	38,919	100.00	Grand Total ==>	-4,125	-12,672	100.00						

AIRFLOWS					ENGINEERING CKS				
Vent		300		300	% OA		11.7		10.0
Infil		20		20	cfm/ft²		6.41		6.41
Supply		2,564		2,564	cfm/ton		621.26		
MinStop/Rh		256		256	ft³/ton		96.93		
Return		2,584		2,584	Btu/hr-ft²		123.80		-31.68
Exhaust		320		320	No. People		20		
Rm Exh		0		0					
Auxil		0		0					

COOLING COIL SELECTION										AREAS			HEATING COIL SELECTION				
Total Capacity ton	Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F °F gr/lb	Leave DB/WB/HR °F °F gr/lb	Gross Total	Glass ft² (%)	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F						
Main Clg	4.1	49.5	46.2	2,564	73.2 58.7 64.0	Floor	400	Main Htg	-7.5	256	54.0	85.0					
Aux Clg	0.0	0.0	0.0	0	0.0 0.0 0.0	Part	0	Aux Htg	0.0	0	0.0	0.0					
Opt Vent	0.0	0.0	0.0	0	0.0 0.0 0.0	ExFlr	400	Preheat	-5.1	2,564	51.8	54.0					
						Roof	0	Humidif	0.0	0	0.0	0.0					
						Wall	0	Opt Vent	0.0	0	0.0	0.0					
Total	4.1	49.5						Total	-12.7								

Room Checksums

By Stanley Consultants

542, A & B Class Room

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES			
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 15					Mo/Hr: Heating Design								
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 95					OADB: 8								
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)		Space Sensible Btu/h	Percent Of Total (%)		Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)		SADB	Cooling	Heating				
Envelope Loads					Envelope Loads					Envelope Loads								
Skylite Solar	0	0	0	0	0	0	0	0	0	0	0	Skylite Solar	0	0	0			
Skylite Cond	0	0	0	0	0	0	0	0	0	0	0	Skylite Cond	0	0	0			
Roof Cond	0	0	0	0	0	0	0	0	0	0	0	Roof Cond	0	0	0			
Glass Solar	0	0	0	0	0	0	0	0	0	0	0	Glass Solar	0	0	0			
Glass Cond	0	0	0	0	0	0	0	0	0	0	0	Glass Cond	0	0	0			
Wall Cond	0	0	0	0	0	0	0	0	0	0	0	Wall Cond	0	0	0			
Partition	0	0	0	0	0	0	0	0	0	0	0	Partition	0	0	0			
Exposed Floor	533		533	1	533	2		-14,892	-14,892	35	Exposed Floor	-14,892	-14,892	35				
Infiltration	1,176		1,176	2	1,288	4		-3,092	-3,092	7	Infiltration	-3,092	-3,092	7				
Sub Total ==>	1,709	0	1,709	3	1,821	6		-17,984	-17,984	42	Sub Total ==>	-17,984	-17,984	42				
Internal Loads					Internal Loads					Internal Loads								
Lights	2,973	743	3,717	6	2,973	10		0	0	0	0	Lights	0	0	0			
People	24,503		24,503	43	13,613	47		0	0	0	0	People	0	0	0			
Misc	10,174	0	10,174	18	10,174	35		0	0	0	0	Misc	0	0	0			
Sub Total ==>	37,650	743	38,393	67	26,760	93		0	0	0	0	Sub Total ==>	0	0	0			
Ceiling Load	89	-89	0	0	89	0		-3,570	0	0	0	Ceiling Load	-3,570	0	0			
Ventilation Load	0	0	17,645	31	0	0		0	-46,384	108	Ventilation Load	0	-46,384	108				
Dehumid. Ov Sizing			0	0				15,476	15,476	-36	Ov/Undr Sizing	15,476	15,476	-36				
Ov/Undr Sizing	0		0	0	0	0		Exhaust Heat	6,083	-14	Exhaust Heat	6,083	-14					
Exhaust Heat		-152	-152	0				OA Preheat Diff.	0	0	OA Preheat Diff.	0	0					
Sup. Fan Heat		0	0	0				Additional Reheat	0	0	Additional Reheat	0	0					
Ret. Fan Heat		0	0	0				System Plenum Heat	-74	0	System Plenum Heat	-74	0					
Duct Heat Pkup		0	0	0				Grand Total ==>	-6,078	-42,883	100.00	Grand Total ==>	-6,078	-42,883	100.00			
Reheat at Design		0	0	0														
Grand Total ==>	39,448	503	57,596	100.00	28,670	100.00												

COOLING COIL SELECTION										AREAS			HEATING COIL SELECTION				
Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	Leave DB/WB/HR °F	gr/lb	Gross Total	Glass ft² (%)	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F						
Main Clg	4.8	57.6	81.0	61.1	62.9	Floor	1,089		-11.1	378	54.0	85.0					
Aux Clg	0.0	0.0	0.0	0.0	0.0	Part	0		0.0	0	0.0	0.0					
Opt Vent	0.0	0.0	0.0	0.0	0.0	ExFlr	1,080		-31.8	1,889	36.2	54.0					
Total	4.8	57.6				Roof	0	0	0.0	0	0.0	0.0					
						Wall	0	0	0.0	0	0.0	0.0					
						Total	-42.9										

Room Checksums

By Stanley Consultants

543 Class Room

COOLING COIL PEAK					CLG SPACE PEAK			HEATING COIL PEAK			TEMPERATURES		
Peaked at Time:		Mo/Hr: 7 / 15			Mo/Hr: 7 / 15		Mo/Hr: Heating Design						
Outside Air:		OADB/WB/HR: 95 / 65 / 61			OADB: 95		OADB: 8						
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)	SADB	Cooling	Heating		
Envelope Loads					Envelope Loads								
Skylite Solar	0	0	0	0	0	0	0	0					
Skylite Cond	0	0	0	0	0	0	0	0					
Roof Cond	0	0	0	0	0	0	0	0					
Glass Solar	0	0	0	0	0	0	0	0					
Glass Cond	0	0	0	0	0	0	0	0					
Wall Cond	0	0	0	0	0	0	0	0					
Partition	1,163		1,163	3	1,163	5	-32,493	-32,493	92				
Exposed Floor	449		449	1	449	2	-12,548	-12,548	35				
Infiltration	983		983	2	1,077	5	-2,584	-2,584	7				
Sub Total ==>	2,594	0	2,594	6	2,688	13	-47,625	-47,625	134				
Internal Loads					Internal Loads								
Lights	2,485	621	3,106	7	2,485	12	0	0	0				
People	20,475		20,475	45	11,375	53	0	0	0				
Misc	4,833	0	4,833	11	4,833	23	0	0	0				
Sub Total ==>	27,792	621	28,414	62	18,692	87	0	0	0				
Ceiling Load					Ceiling Load								
Ventilation Load	74	-74	0	0	74	0	-2,983	0	0				
Dehumid. Ov Sizing	0	0	14,745	32	0	0	0	-38,760	109				
Ov/Undr Sizing	0	0	0	0	0	0	46,060	46,060	-130				
Exhaust Heat		-178	-178	0			0	7,129	-20				
Sup. Fan Heat		0	0	0			0	0	0				
Ret. Fan Heat		0	0	0			0	0	0				
Duct Heat Pkup		0	0	0			0	0	0				
Reheat at Design		0	0	0			0	0	0				
Grand Total ==>	30,461	369	45,575	100.00	21,455	100.00	-4,548	-35,442	100.00				

AIRFLOWS			ENGINEERING CKS		
	Cooling	Heating		Cooling	Heating
Vent	683	683	% OA	48.3	20.0
Infil	46	46	cfm/ft²	1.55	1.55
Supply	1,413	1,413	cfm/ton	372.14	
MinStop/Rh	283	283	ft³/ton	239.60	
Return	1,459	1,459	Btu/hr-ft²	50.08	-38.95
Exhaust	728	728	No. People	46	
Rm Exh	0	0			
Auxil	0	0			

COOLING COIL SELECTION										AREAS			HEATING COIL SELECTION				
Total Capacity ton	Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/WB/HR °F	°F	gr/lb	Leave DB/WB/HR °F	°F	gr/lb	Gross Total	Glass ft² (%)	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F		
Main Clg	3.8	45.6	38.0	82.2	61.4	62.7	54.0	49.2	53.4	Floor	910		-8.3	283	54.0	85.0	
Aux Clg	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	Part	732		0.0	0	0.0	0.0	
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	910		-27.1	1,413	33.7	54.0	
										Roof	0	0	0.0	0	0.0	0.0	
Total	3.8	45.6								Wall	0	0	0.0	0	0.0	0.0	
										Total			-35.4				

Room Checksums

By Stanley Consultants

544 Photo Studio

COOLING COIL PEAK					CLG SPACE PEAK		HEATING COIL PEAK			TEMPERATURES		
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 17		Mo/Hr: Heating Design			Cooling Heating		
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 92		OADB: 8			SADB	54.0	85.0
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)	Plenum	Return	Ret/OA	
Envelope Loads												
Skylite Solar	0	0	0	0	0	Skylite Solar	0	0	0	Fn MtrTD	0.0	0.0
Skylite Cond	0	0	0	0	0	Skylite Cond	0	0	0	Fn BidTD	0.0	0.0
Roof Cond	0	0	0	0	0	Roof Cond	0	0	0	Fn Frict	0.0	0.0
Glass Solar	988	0	988	2	1,307	Glass Solar	0	0	0			
Glass Cond	1,080	0	1,080	2	1,068	Glass Cond	-2,901	-2,901	9			
Wall Cond	321	75	396	1	380	Wall Cond	-1,727	-2,070	6			
Partition	0	0	0	0	0	Partition	0	0	0			
Exposed Floor	533	0	533	1	533	Exposed Floor	-14,892	-14,892	44			
Infiltration	871	0	871	2	835	Infiltration	-2,289	-2,289	7			
Sub Total ==>	3,792	75	3,868	7	4,123	Sub Total ==>	-21,808	-22,151	66			
Internal Loads												
Lights	2,201	550	2,751	5	2,201	Lights	0	0	0			
People	18,135	0	18,135	33	10,075	People	0	0	0			
Misc	17,536	0	17,536	32	17,536	Misc	0	0	0			
Sub Total ==>	37,872	550	38,422	70	29,812	Sub Total ==>	0	0	0			
Ceiling Load												
Ceiling Load	66	-66	0	0	66	Ceiling Load	-2,642	0	0			
Ventilation Load	0	0	13,060	24	0	Ventilation Load	0	-34,330	102			
Dehumid. Ov Sizing			0	0	0	Ov/Undr Sizing	17,242	17,242	-51			
Ov/Undr Sizing	0		0	0	0	Exhaust Heat		6,314	-19			
Exhaust Heat		-157	-157	0		OA Preheat Diff.		0	0			
Sup. Fan Heat		0	0	0		RA Preheat Diff.		0	0			
Ret. Fan Heat		0	0	0		Additional Reheat		0	0			
Duct Heat Pkup		0	0	0		System Plenum Heat		-818	2			
Reheat at Design			0	0								
Grand Total ==>	41,730	402	55,192	100.00	34,001	Grand Total ==>	-7,208	-33,743	100.00			

AIRFLOWS		
	Cooling	Heating
Vent	605	605
Infil	40	40
Supply	2,240	2,240
MinStop/Rh	448	448
Return	2,280	2,280
Exhaust	645	645
Rm Exh	0	0
Auxil	0	0

ENGINEERING CKS		
	Cooling	Heating
% OA	27.0	20.0
cfm/ft²	2.78	2.78
cfm/ton	486.99	
ft²/ton	175.24	
Btu/hr-ft²	68.48	-41.87
No. People	40	

COOLING COIL SELECTION										
	Total Capacity ton	Sens Cap. MBh	Coil Airflow cfm	Enter DB/°F	WB/°F	HR gr/lb	Leave DB/°F	WB/°F	HR gr/lb	
Main Clg	4.6	55.2	48.5	2,240	76.9	59.9	63.4	54.0	50.4	58.5
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	4.6	55.2	48.5	2,240	76.9	59.9	63.4	54.0	50.4	58.5

AREAS			
	Gross Total	Glass ft²	(%)
Floor	806		
Part	0		
ExFlr	1,080		
Roof	0	0	0
Wall	684	95	14

HEATING COIL SELECTION				
	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-13.2	448	54.0	85.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-20.6	2,240	44.3	54.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-33.7			

Room Checksums

By Stanley Consultants

Hall 501

COOLING COIL PEAK					CLG SPACE PEAK			HEATING COIL PEAK			TEMPERATURES					
Peaked at Time:		Mo/Hr: 7 / 15			Mo/Hr: 7 / 16			Mo/Hr: Heating Design			Cooling			Heating		
Outside Air:		OADB/WB/HR: 95 / 65 / 61			OADB: 94			OADB: 8			SADB	54.0	85.0	Plenum	70.3	57.7
	Space Sens. + Lat. Btu/h	Plenum Sens. + Lat. Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)	Fn MtrTD	0.0	0.0	Fn BldTD	0.0	0.0	
Envelope Loads					Envelope Loads			Envelope Loads			AIRFLOWS					
	0	0	0	0	0	0	0	0	0	Vent	792	792	Infil	264	264	
Skylite Solar	0	0	0	0	0	0	0	0	0	Supply	2,253	2,253	MinStop/Rh	676	676	
Skylite Cond	0	0	0	0	0	0	0	0	0	Return	2,517	2,517	Exhaust	1,056	1,056	
Roof Cond	0	0	0	0	0	0	0	0	0	Rm Exh	0	0	Auxil	0	0	
Glass Solar	0	0	0	0	0	0	0	0	0	ENGINEERING CKS						
Glass Cond	0	0	0	0	0	0	0	0	0	% OA	35.2	30.0	cfm/ft²	1.42	1.42	
Wall Cond	0	0	0	0	0	0	0	0	0	cfm/ton	475.47		ft²/ton	334.30		
Partition	0	0	0	0	0	0	0	0	0	Btu/hr-ft²	35.90	-31.06	No. People	32		
Exposed Floor	9,235		9,235	16	10,400	30	-28,377	-28,377	58							
Infiltration	5,703		5,703	10	6,020	18	-14,993	-14,993	30							
Sub Total ==>	14,939	0	14,939	26	16,419	48	-43,370	-43,370	88							
Internal Loads					Internal Loads			Internal Loads								
Lights	4,325	1,081	5,406	10	4,325	13	0	0	0	Ceiling Load	-5,193	0	0	0	0	
People	14,256		14,256	25	7,920	23	0	0	0	Ventilation Load	0	-44,979	91			
Misc	5,406	0	5,406	10	5,406	16	0	0	0	Ov/Undr Sizing	37,687	37,687	-77			
Sub Total ==>	23,987	1,081	25,068	44	17,651	52	0	0	0	Exhaust Heat	10,341	-21				
Ceiling Load	129	-129	0	0	129	0	0	0	0	OA Preheat Diff.	0	0				
Ventilation Load	0	0	17,110	30	0	0	0	0	0	RA Preheat Diff.	0	0				
Dehumid. Ov Sizing			0	0	0	0	0	0	0	Additional Reheat	0	0				
Ov/Undr Sizing	0		0	0	0	0	0	0	0	System Plenum Heat	-8,885	18				
Exhaust Heat		-258	-258	0						Grand Total ==>	-10,876	-49,206	100.00			
Sup. Fan Heat		0	0	0												
Ret. Fan Heat		0	0	0												
Duct Heat Pkup		0	0	0												
Reheat at Design		0	0	0												
Grand Total ==>	39,055	694	56,860	100.00	34,200	100.00										

COOLING COIL SELECTION										
	Total Capacity ton	Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/°F	WB/°F	HR gr/lb	Leave DB/°F	WB/°F	HR gr/lb
Main Clg	4.7	56.9	52.7	2,253	79.0	60.5	63.1	54.0	50.9	60.4
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	4.7	56.9								

AREAS		
	Gross Total	Glass ft² (%)
Floor	1,584	
Part	0	
ExFlr	2,058	
Roof	0	0 0
Wall	0	0 0

HEATING COIL SELECTION				
	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-19.9	676	54.0	85.0
Aux Htg	0.0	0	0.0	0.0
Preheat	-29.4	2,253	40.2	54.0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-49.2			

Room Checksums

By Stanley Consultants

Hall 544

COOLING COIL PEAK					CLG SPACE PEAK		HEATING COIL PEAK			TEMPERATURES		
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 15		Mo/Hr: Heating Design			Cooling Heating		
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 95		OADB: 8			SADB 54.0 85.0		
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Sens Btu/h	Percent Of Total (%)	SADB	Plenum	Return	Ret/OA
Envelope Loads							Envelope Loads			Fn MtrTD 0.0 0.0		
Skylite Solar	0	0	0	0	0	Skylite Solar	0	0	0	0	0	0
Skylite Cond	0	0	0	0	0	Skylite Cond	0	0	0	0	0	0
Roof Cond	0	0	0	0	0	Roof Cond	0	0	0	0	0	0
Glass Solar	0	0	0	0	0	Glass Solar	0	0	0	0	0	0
Glass Cond	0	0	0	0	0	Glass Cond	0	0	0	0	0	0
Wall Cond	498	99	597	11	498	21	Wall Cond	-827	-964	20	0	0
Partition	99		99	2	99	4	Partition	-2,777	-2,777	59	0	0
Exposed Floor	92		92	2	92	4	Exposed Floor	-2,565	-2,565	54	0	0
Infiltration	201		201	4	220	9	Infiltration	-528	-528	11	0	0
Sub Total ==>	890	99	989	19	910	38	Sub Total ==>	-6,697	-6,834	144	0	0
Internal Loads							Internal Loads			Vent 93 93		
Lights	508	127	635	12	508	21	Lights	0	0	0	9	9
People	1,674		1,674	32	930	39	People	0	0	0	156	156
Misc	0	0	0	0	0	0	Misc	0	0	0	31	31
Sub Total ==>	2,182	127	2,309	44	1,438	61	Sub Total ==>	0	0	0	165	165
Ceiling Load							Ceiling Load			Return 102 102		
Ventilation Load	15	-15	0	0	15	1	Ventilation Load	-610	0	0	0	0
Dehumid. Ov Sizing	0	0	2,009	38	0	0	Exhaust	0	-5,282	111	0	0
Ov/Undr Sizing	0		0	0	0	0	Ov/Undr Sizing	6,806	6,806	-144	0	0
Exhaust Heat		-25	-25	0			Exhaust Heat		1,002	-21	0	0
Sup. Fan Heat			0	0			OA Preheat Diff.		0	0	0	0
Ret. Fan Heat			0	0			RA Preheat Diff.		0	0	0	0
Duct Heat Pkup			0	0			Additional Reheat		0	0	0	0
Reheat at Design			0	0			System Plenum Heat		-434	9	0	0
Grand Total ==>	3,087	186	5,282	100.00	2,363	100.00	Grand Total ==>	-501	-4,741	100.00	0	0

AIRFLOWS												
		Cooling	Heating									
Vent		93	93									
Infil		9	9									
Supply		156	156									
MinStop/Rh		31	31									
Return		165	165									
Exhaust		102	102									
Rm Exh		0	0									
Auxil		0	0									

ENGINEERING CKS												
		Cooling	Heating									
% OA		59.8	20.0									
cfm/ft²		0.84	0.84									
cfm/ton		353.56										
ft²/ton		422.53										
Btu/hr-ft²		28.40	-25.49									
No. People		4										

COOLING COIL SELECTION										AREAS		HEATING COIL SELECTION					
Total Capacity ton	Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/°F	WB/°F	HR gr/lb	Leave DB/°F	WB/°F	HR gr/lb	Gross Total	Glass ft² (%)	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F		
Main Clg	0.4	5.3	4.8	156	85.0	62.3	62.3	54.0	49.5	54.7	Floor	186		-0.9	31	54.0	85.0
Aux Clg	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	Part	372		0.0	0	0.0	0.0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	ExFlr	186		-3.8	156	28.0	54.0
Total	0.4	5.3									Roof	0	0	0.0	0	0.0	0.0
											Wall	72	0	0.0	0	0.0	0.0
											Total	-4.7					

System Checksums

By Stanley Consultants

Bypass VAV with Reheat (30% Min Flow Default)

Air Handler 1

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES			
Peaked at Time:		Mo/Hr: 7 / 15		Mo/Hr: 7 / 16		Mo/Hr: Heating Design		Mo/Hr: Heating Design					Cooling	Heating	
Outside Air:		OADB/WB/HR: 95 / 65 / 61		OADB: 94		OADB: 8		OADB: 8					SADB	54.0	85.0
Space Sens. + Lat.	Plenum Sens. + Lat.	Net Total	Percent Of Total	Space Sensible	Percent Of Total	Space Peak	Coil Peak	Percent	Space Sens	Coil Peak	Percent	Ret/OA			
Btu/h	Btu/h	Btu/h	(%)	Btu/h	(%)	Btu/h	Btu/h	(%)	Btu/h	Btu/h	(%)	Fn MtrTD			
Envelope Loads															
Skylite Solar	0	0	0	0	0	0	0	0.00	0	0	0.00	Fn BldTD	0.0	0.0	0.0
Skylite Cond	0	0	0	0	0	0	0	0.00	0	0	0.00	Fn Frict	0.0	0.0	0.0
Roof Cond	0	0	0	0	0	0	0	0.00	0	0	0.00				
Glass Solar	988	0	988	0	1,307	0	0	0.00	0	0	0.00				
Glass Cond	1,080	0	1,080	0	1,068	0	0	0.72	-2,901	-2,901	0.72				
Wall Cond	814	188	1,001	0	878	0	0	0.76	-2,554	-3,034	0.76				
Partition	7,652		7,652	1	7,652	2	2	53.32	-213,895	-213,895	53.32				
Exposed Floor	20,534		20,534	3	22,553	5	5	63.13	-253,269	-253,269	63.13				
Infiltration	17,279		17,279	2	18,453	4	4	11.32	-45,422	-45,422	11.32				
Sub Total ==>	48,348	188	48,535	7	51,911	11	11	129.25	-518,041	-518,521	129.25				
Internal Loads															
Lights	33,559	8,390	41,949	6	33,559	7	7	0.00	0	0	0.00				
People	214,768		214,768	29	119,270	25	25	0.00	0	0	0.00				
Misc	263,019	0	263,019	36	263,019	56	56	0.00	0	0	0.00				
Sub Total ==>	511,347	8,390	519,737	71	415,848	89	89	0.00	0	0	0.00				
Ceiling Load															
	991	-991	0	0	992	0	0	0.00	-39,799	0	0.00				
Ventilation Load															
	0	0	166,072	23	0	0	0	108.82	0	-436,557	108.82				
Ov/Undr Sizing															
	0		0	0	0	0	0	-19.20	476,886	476,886	-118.87				
Exhaust Heat															
		-1,915	-1,915	0				0.00		77,022	-19.20				
OA Preheat Diff.															
				0				0.00			0.00				
RA Preheat Diff.															
				0				0.00			0.00				
Additional Reheat															
				0				0.00			0.00				
Grand Total ==>	560,686	5,671	732,429	100.00	468,752	100.00	100.00	100.00	-80,954	-401,170	100.00				

AIRFLOWS		
	Cooling	Heating
Vent	7,687	7,687
Infil	800	800
Supply	30,879	30,879
MinStop/Rh	5,031	5,031
Return	31,044	31,058
Exhaust	7,852	7,866
Rm Exh	635	621
Auxiliary	0	0

ENGINEERING CKS		
	Cooling	Heating
% OA	24.9	16.3
cfm/ft²	2.54	2.54
cfm/ton	505.92	
ft²/ton	198.92	
Btu/hr-ft²	60.33	-33.04
No. People	477	

COOLING COIL SELECTION									
	Total Capacity	Sens Cap.	Coil Airflow	Enter DB/WB/HR			Leave DB/WB/HR		
	ton	MBh	cfm	°F	°F	gr/lb	°F	°F	gr/lb
Main Clg	61.0	732.4	30,879.3	76.4	59.7	63.5	54.0	50.6	59.3
Aux Clg	0.0	0.0	0	0	0	0	0	0	0
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	61.0	732.4							

AREAS			
	Gross Total	Glass	(%)
		ft²	
Floor	12,141		
Part	5,128		
ExFlr	18,368		
Roof	0	0	0
Wall	756	95	13

HEATING COIL SELECTION				
	Capacity	Coil Airflow	Ent	Lvg
	MBh	cfm	°F	°F
Main Htg	-147.8	5,031.1	54.0	85.0
Aux Htg	0.0	0	0	0
Preheat	-253.4	30,879	45	54
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-401.2			

System Checksums

By Stanley Consultants

Air Handler 2

Fan Coil

COOLING COIL PEAK				CLG SPACE PEAK				HEATING COIL PEAK				TEMPERATURES			
Peaked at Time:		Mo/Hr: 7 / 14		Mo/Hr: Sum of		Mo/Hr: Heating Design									
Outside Air:		OADB/WB/HR: 94 / 65 / 62		OADB: Peaks		OADB: 8									
Space Sens. + Lat.	Plenum Sens. + Lat.	Net Total	Percent Of Total	Space Sensible	Percent Of Total	Space Peak Space Sens	Coil Peak Tot Sens	Percent Of Total							
Btu/h	Btu/h	Btu/h	(%)	Btu/h	(%)	Btu/h	Btu/h	(%)							
Envelope Loads															
Skylite Solar	0	0	0	0	0	0	0	0.00	Skylite Solar	0	0	0.00	SADB	55.0	64.9
Skylite Cond	0	0	0	0	0	0	0	0.00	Skylite Cond	0	0	0.00	Plenum	75.0	60.0
Roof Cond	79,970	0	79,970	22	79,970	25	-42,020	27.87	Roof Cond	-42,020	-42,020	27.87	Return	75.1	60.0
Glass Solar	3,079	0	3,079	1	3,079	1	0	0.00	Glass Solar	0	0	0.00	Ret/OA	76.7	55.6
Glass Cond	2,156	0	2,156	1	2,156	1	-6,117	4.06	Glass Cond	-6,117	-6,117	4.06	Fn MtrTD	0.0	0.0
Wall Cond	126	0	126	0	126	0	-756	0.50	Wall Cond	-756	-756	0.50	Fn BldTD	0.0	0.0
Partition	0	0	0	0	0	0	0	0.00	Partition	0	0	0.00	Fn Frict	0.0	0.0
Exposed Floor	0	0	0	0	0	0	-1,414	0.94	Exposed Floor	-1,414	-1,414	0.94			
Infiltration	11,580	0	11,580	3	10,538	3	-28,704	19.04	Infiltration	-28,704	-28,704	19.04			
Sub Total ==>	96,911	0	96,911	27	95,869	30	-79,011	52.40	Sub Total ==>	-79,011	-79,011	52.40			
Internal Loads															
Lights	7,962	1,990	9,952	3	7,962	2	0	0.00	Lights	0	0	0.00			
People	8,019	0	8,019	2	4,010	1	0	0.00	People	0	0	0.00			
Misc	217,067	0	217,067	60	217,067	67	0	0.00	Misc	0	0	0.00			
Sub Total ==>	233,048	1,990	235,038	65	229,038	70	0	0.00	Sub Total ==>	0	0	0.00			
Ceiling Load															
Ceiling Load	0	0	0	0	0	0	0	0.00	Ceiling Load	0	0	0.00			
Ventilation Load	0	0	28,949	8	0	0	-71,761	47.60	Ventilation Load	0	-71,761	47.60			
Dehumid. Ov Sizing	0	0	0	0	0	0	0	0.00	Ov/Undr Sizing	0	0	0.00			
Ov/Undr Sizing	0	0	0	0	0	0	0	0.00	Exhaust Heat	0	0	0.00			
Exhaust Heat	0	-200	-200	0	0	0	0	0.00	OA Preheat Diff.	0	0	0.00			
Sup. Fan Heat	0	0	0	0	0	0	0	0.00	RA Preheat Diff.	0	0	0.00			
Ret. Fan Heat	0	0	0	0	0	0	0	0.00	Additional Reheat	0	0	0.00			
Duct Heat Pkup	0	0	0	0	0	0									
Reheat at Design	0	0	0	0											
Grand Total ==>	329,958	1,791	360,698	100.00	324,907	100.00	-79,011	100.00	Grand Total ==>	-79,011	-150,772	100.00			

AIRFLOWS		
	Cooling	Heating
Vent	1,458	1,458
Infil	583	583
Supply	17,163	17,163
MinStop/Rh	0	0
Return	17,455	17,455
Exhaust	1,750	1,750
Rm Exh	292	292
Auxiliary	0	0

ENGINEERING CKS		
	Cooling	Heating
% OA	8.5	8.5
cfm/ft²	5.89	5.89
cfm/ton	571.00	
ft³/ton	97.01	
Btu/hr-ft²	123.70	-51.71
No. People	15	

COOLING COIL SELECTION									
	Total Capacity	Sens Cap.	Coil Airflow	Enter DB/WB/HR		Leave DB/WB/HR			
	ton	MBh	cfm	°F	°F	°F	°F	gr/lb	gr/lb
Main Clg	30.1	360.7	353.0	76.7	59.0	59.5	55.0	50.9	58.7
Aux Clg	0.0	0.0	0.0	0	0	0	0	0	0
Opt Vent	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total	30.1	360.7							

AREAS			
	Gross Total	Glass	
		ft²	(%)
Floor	2,916		
Part	0		
ExFlr	40		
Roof	625	0	0
Wall	480	240	50

HEATING COIL SELECTION				
	Capacity	Coil Airflow	Ent	Lvg
	MBh	cfm	°F	°F
Main Htg	-150.8	17,163.3	55.6	64.9
Aux Htg	0.0	0	0	0
Preheat	0.0	0	0	0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-150.8			

System Checksums

By Stanley Consultants

Air Handler 3

Bypass VAV with Reheat (30% Min Flow Default)

COOLING COIL PEAK					CLG SPACE PEAK					HEATING COIL PEAK					TEMPERATURES					
Peaked at Time: Mo/Hr: 7 / 15					Mo/Hr: 7 / 15					Mo/Hr: Heating Design					Cooling Heating					
Outside Air: OADB/WB/HR: 95 / 65 / 61					OADB: 95					OADB: 8					SADB 51.1 229.5					
Space Sens. + Lat. Btu/h	Plenum Sens. + Lat Btu/h	Net Total Btu/h	Percent Of Total (%)	Space Sensible Btu/h	Percent Of Total (%)	Space Peak Space Sens Btu/h	Coil Peak Tot Btu/h	Percent Of Total (%)	SADB	Plenum	Return	Ret/OA	Fn MtrTD	Fn BldTD	Fn Frict					
Envelope Loads					Envelope Loads					Envelope Loads										
Skylite Solar	0	0	0	0	0	0	0	0.00	Skylite Solar	0	0	0	0.00	Skylite Solar	0	0	0.00			
Skylite Cond	0	0	0	0	0	0	0	0.00	Skylite Cond	0	0	0	0.00	Skylite Cond	0	0	0.00			
Roof Cond	0	0	0	0	0	0	0	0.00	Roof Cond	0	0	0	0.00	Roof Cond	0	0	0.00			
Glass Solar	0	0	0	0	0	0	0	0.00	Glass Solar	0	0	0	0.00	Glass Solar	0	0	0.00			
Glass Cond	0	0	0	0	0	0	0	0.00	Glass Cond	0	0	0	0.00	Glass Cond	0	0	0.00			
Wall Cond	0	0	0	0	0	0	0	0.00	Wall Cond	0	0	0	0.00	Wall Cond	0	0	0.00			
Partition	0	0	0	0	0	0	0	0.00	Partition	0	0	0	0.00	Partition	0	0	0.00			
Exposed Floor	2,311		2,311	2	2,311	4	-64,586	51.26	Exposed Floor	-64,586	-64,586	51.26	Exposed Floor	-64,586	-64,586	51.26				
Infiltration	2,363		2,363	2	2,608	4	Infiltration	-6,258	4.97	Infiltration	-6,258	-6,258	4.97	Infiltration	-6,258	-6,258	4.97			
Sub Total ==>	4,674	0	4,674	5	4,918	8	Sub Total ==>	-70,844	56.23	Sub Total ==>	-70,844	-70,844	56.23	Sub Total ==>	-70,844	-70,844	56.23			
Internal Loads					Internal Loads					Internal Loads										
Lights	6,018	1,504	7,522	7	6,018	10	Lights	0	0.00	Lights	0	0	0.00	Lights	0	0	0.00			
People	31,447		31,447	31	15,723	25	People	0	0.00	People	0	0	0.00	People	0	0	0.00			
Misc	35,369	0	35,369	34	35,369	57	Misc	0	0.00	Misc	0	0	0.00	Misc	0	0	0.00			
Sub Total ==>	72,834	1,504	74,338	72	57,110	92	Sub Total ==>	0	0.00	Sub Total ==>	0	0	0.00	Sub Total ==>	0	0	0.00			
Ceiling Load	345	-345	0	0	264	0	Ceiling Load	-9,468	0.00	Ceiling Load	-9,468	0	0.00	Ceiling Load	-9,468	0	0.00			
Ventilation Load	0	0	23,608	23	0	0	Ventilation Load	0	49.63	Ventilation Load	0	-62,527	49.63	Ventilation Load	0	-62,527	49.63			
Dehumid. Ov Sizing			0	0			Ov/Undr Sizing	0	0.00	Ov/Undr Sizing	0	0	0.00	Ov/Undr Sizing	0	0	0.00			
Ov/Undr Sizing	0		0	0	0	0	Exhaust Heat	7,384	-5.86	Exhaust Heat	7,384	-5.86	-5.86	Exhaust Heat	7,384	-5.86	-5.86			
Exhaust Heat		-45	-45	0			OA Preheat Diff.	0	0.00	OA Preheat Diff.	0	0	0.00	OA Preheat Diff.	0	0	0.00			
Sup. Fan Heat		0	0	0			RA Preheat Diff.	0	0.00	RA Preheat Diff.	0	0	0.00	RA Preheat Diff.	0	0	0.00			
Ret. Fan Heat		0	0	0			Additional Reheat	0	0.00	Additional Reheat	0	0	0.00	Additional Reheat	0	0	0.00			
Duct Heat Pkup		0	0	0																
Reheat at Design		0	0	0																
Grand Total ==>	77,853	1,114	102,575	100.00	62,292	100.00	Grand Total ==>	-80,312	-125,987	100.00	Grand Total ==>	-80,312	-125,987	100.00						

AIRFLOWS		
	Cooling	Heating
Vent	1,101	1,101
Infil	110	110
Supply	3,473	3,473
MinStop/Rh	526	526
Return	2,468	3,002
Exhaust	97	630
Rm Exh	1,115	581
Auxiliary	0	0

ENGINEERING CKS		
	Cooling	Heating
% OA	31.7	15.1
cfm/ft²	1.58	1.58
cfm/ton	406.26	
ft²/ton	257.84	
Btu/hr-ft²	46.54	-57.16
No. People	63	

COOLING COIL SELECTION										
	Total Capacity ton	Capacity MBh	Sens Cap. MBh	Coil Airflow cfm	Enter DB/°F	WB/°F	HR gr/lb	Leave DB/°F	WB/°F	HR gr/lb
Main Clg	8.6	102.6	89.5	3,472.7	78.3	60.3	63.5	51.1	48.9	57.1
Aux Clg	0.0	0.0	0.0	0	0	0	0	0	0	0
Opt Vent	0.0	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0
Total	8.6	102.6								

AREAS		
	Gross Total	Glass ft² (%)
Floor	2,204	
Part	0	
ExFlr	4,684	
Roof	0	0 0
Wall	0	0 0

HEATING COIL SELECTION				
	Capacity MBh	Coil Airflow cfm	Ent °F	Lvg °F
Main Htg	-88.7	525.6	51.1	229.5
Aux Htg	0.0	0	0	0
Preheat	-37.2	3,473	40	51
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-126.0			

System Checksums

By Stanley Consultants

Air Handler 4

Fan Coil

COOLING COIL PEAK					CLG SPACE PEAK		HEATING COIL PEAK			TEMPERATURES									
Peaked at Time:		Mo/Hr: 7 / 15			Mo/Hr: Sum of		Mo/Hr: Heating Design			Cooling			Heating						
Outside Air:		OADB/WB/HR: 95 / 65 / 61			OADB: Peaks		OADB: 8			SADB	54.8	78.6	Plenum	72.7	66.1				
Space Sens. + Lat.	Plenum Sens. + Lat.	Net Total	Percent Of Total	Space Sensible	Percent Of Total	Space Peak	Coil Peak	Percent	Ret/OA	Fn MtrTD	Fn BldTD	Fn Frict							
Btu/h	Btu/h	Btu/h	(%)	Btu/h	(%)	Space Sens	Tot Sens	Of Total	Btu/h	(%)									
Envelope Loads													Envelope Loads						
Skylite Solar	0	0	0	0	0	0	0	0.00	0	0	0.00	0	Skylite Solar	0	0	0.00	0	0	0.00
Skylite Cond	0	0	0	0	0	0	0	0.00	0	0	0.00	0	Skylite Cond	0	0	0.00	0	0	0.00
Roof Cond	0	6,339	6,339	10	0	0	-3,994	6.87	0	0	0.00	0	Roof Cond	0	-3,994	6.87	0	0	0.00
Glass Solar	685	0	685	1	756	2	0	0.00	0	0	0.00	0	Glass Solar	0	0	0.00	0	0	0.00
Glass Cond	650	0	650	1	352	1	-1,832	3.15	-1,832	-1,832	3.15	0	Glass Cond	0	-1,832	3.15	-1,832	-1,832	3.15
Wall Cond	4,372	863	5,235	9	5,890	15	-7,656	15.91	-9,243	-9,243	15.91	0	Wall Cond	0	-7,656	15.91	-9,243	-9,243	15.91
Partition	0	0	0	0	0	0	0	0.00	0	0	0.00	0	Partition	0	0	0.00	0	0	0.00
Exposed Floor	533	0	533	1	533	1	-14,892	25.63	-14,892	-14,892	25.63	0	Exposed Floor	0	-14,892	25.63	-14,892	-14,892	25.63
Infiltration	1,004	0	1,004	2	788	2	-2,641	4.55	-2,641	-2,641	4.55	0	Infiltration	0	-2,641	4.55	-2,641	-2,641	4.55
Sub Total ==>	7,242	7,202	14,445	24	8,318	21	-27,020	56.12	-32,601	-32,601	56.12	0	Sub Total ==>	-27,020	-32,601	56.12	0	0	0.00
Internal Loads													Internal Loads						
Lights	2,539	635	3,174	5	2,539	6	0	0.00	0	0	0.00	0	Lights	0	0	0.00	0	0	0.00
People	13,950	0	13,950	23	7,750	20	0	0.00	0	0	0.00	0	People	0	0	0.00	0	0	0.00
Misc	20,478	0	20,478	34	20,478	52	0	0.00	0	0	0.00	0	Misc	0	0	0.00	0	0	0.00
Sub Total ==>	36,967	635	37,602	62	30,767	78	0	0.00	0	0	0.00	0	Sub Total ==>	0	0	0.00	0	0	0.00
Ceiling Load													Ceiling Load						
	782	-782	0	0	587	1	-557	0.00	0	0	0.00	0		0	0	0.00	0	0	0.00
Ventilation Load	0	0	10,036	17	0	0	0	0.00	-26,408	-26,408	45.46	0	Ventilation Load	0	-26,408	45.46	0	0	0.00
Dehumid. Ov Sizing	0	0	0	0	0	0	0	0.00	0	0	0.00	0	Ov/Undr Sizing	0	0	0.00	0	0	0.00
Ov/Undr Sizing	0	0	0	0	0	0	915	-1.58	0	0	0.00	0	Exhaust Heat	0	915	-1.58	0	0	0.00
Exhaust Heat	0	-1,285	-1,285	-2	0	0	0	0.00	0	0	0.00	0	OA Preheat Diff.	0	0	0.00	0	0	0.00
Sup. Fan Heat	0	0	0	0	0	0	0	0.00	0	0	0.00	0	RA Preheat Diff.	0	0	0.00	0	0	0.00
Ret. Fan Heat	0	0	0	0	0	0	0	0.00	0	0	0.00	0	Additional Reheat	0	0	0.00	0	0	0.00
Duct Heat Pkup	0	0	0	0	0	0	0	0.00	0	0	0.00	0							
Reheat at Design	0	0	0	0	0	0	0	0.00	0	0	0.00	0							
Grand Total ==>	44,992	5,769	60,797	100.00	39,671	100.00	-27,578	58.094	-58,094	-58,094	100.00	0	Grand Total ==>	-27,578	-58,094	100.00	0	0	0.00

AIRFLOWS		
	Cooling	Heating
Vent	465	465
Infil	47	47
Supply	2,761	2,761
MinStop/Rh	0	0
Return	2,807	2,807
Exhaust	512	512
Rm Exh	0	0
Auxiliary	0	0

ENGINEERING CKS		
	Cooling	Heating
% OA	16.8	16.8
cfm/ft²	2.97	2.97
cfm/ton	544.87	
ft²/ton	183.56	
Btu/hr-ft²	65.37	-62.47
No. People	31	

COOLING COIL SELECTION										
	Total Capacity	Sens Cap.	Coil Airflow	Enter DB/WB/HR			Leave DB/WB/HR			
	ton	MBh	cfm	°F	°F	gr/lb	°F	°F	gr/lb	
Main Clg	5.1	60.8	2,760.5	76.4	59.8	63.8	54.8	51.4	61.1	
Aux Clg	0.0	0.0	0	0	0	0	0	0	0	
Opt Vent	0.0	0.0	0	0.0	0.0	0.0	0.0	0.0	0.0	
Total	5.1	60.8								

AREAS			
	Gross Total	Glass	
		ft²	(%)
Floor	930		
Part	0		
ExFlr	1,080		
Roof	930	0	0
Wall	1,096	60	5

HEATING COIL SELECTION				
	Capacity	Coil Airflow	Ent	Lvg
	MBh	cfm	°F	°F
Main Htg	-58.1	2,760.5	56.3	78.6
Aux Htg	0.0	0	0	0
Preheat	0.0	0	0	0
Humidif	0.0	0	0.0	0.0
Opt Vent	0.0	0	0.0	0.0
Total	-58.1			

SYSTEM PSYCHROMETRIC STATE POINTS

By Stanley Consultants

Air Handler 1

Bypass VAV with Reheat (30% Min Flow Default)

	Dry Bulb °F	Wet Bulb °F	Relative Humidity %	Humidity Ratio gr/lb	Enthalpy Btu/lb	Temperature Difference °F
Space	70.0	57.7	50.0	64.4	26.8	
Main System						0.0
Return Fan						
Return Air	70.3	57.8	49.5	64.4	26.9	0.3
Return Air Heat Pickup						
Outdoor Air	94.1	63.2	18.7	52.5	30.9	
Entering OA preconditioning	94.1	63.2	18.7	52.5	30.9	
Leaving OA preconditioning	94.1	63.2	18.7	52.5	30.9	
Return/Outdoor Air Mix	76.2	59.2	38.7	61.4	27.9	
Blow Through Fan						0.0
Entering Coil	76.2	59.2	38.7	61.4	27.9	
Leaving Coil	54.0	50.8	82.1	59.9	22.2	
Draw Through Fan						0.0
Fan Frictional Heat						0.0
Supply Duct Heat Gain						0.0
Reheat Device						0.0
Cold Deck Supply Air	54.0	50.8	82.1	59.9	22.2	
Supply Air	54.0	50.8	82.1	59.9	22.2	
Percent Outside Air	24.89	%				
Sensible Heat Ratio (SHR)	0.84					
Coil Airflow	30,879	cfm				

SYSTEM PSYCHROMETRIC STATE POINTS

By Stanley Consultants

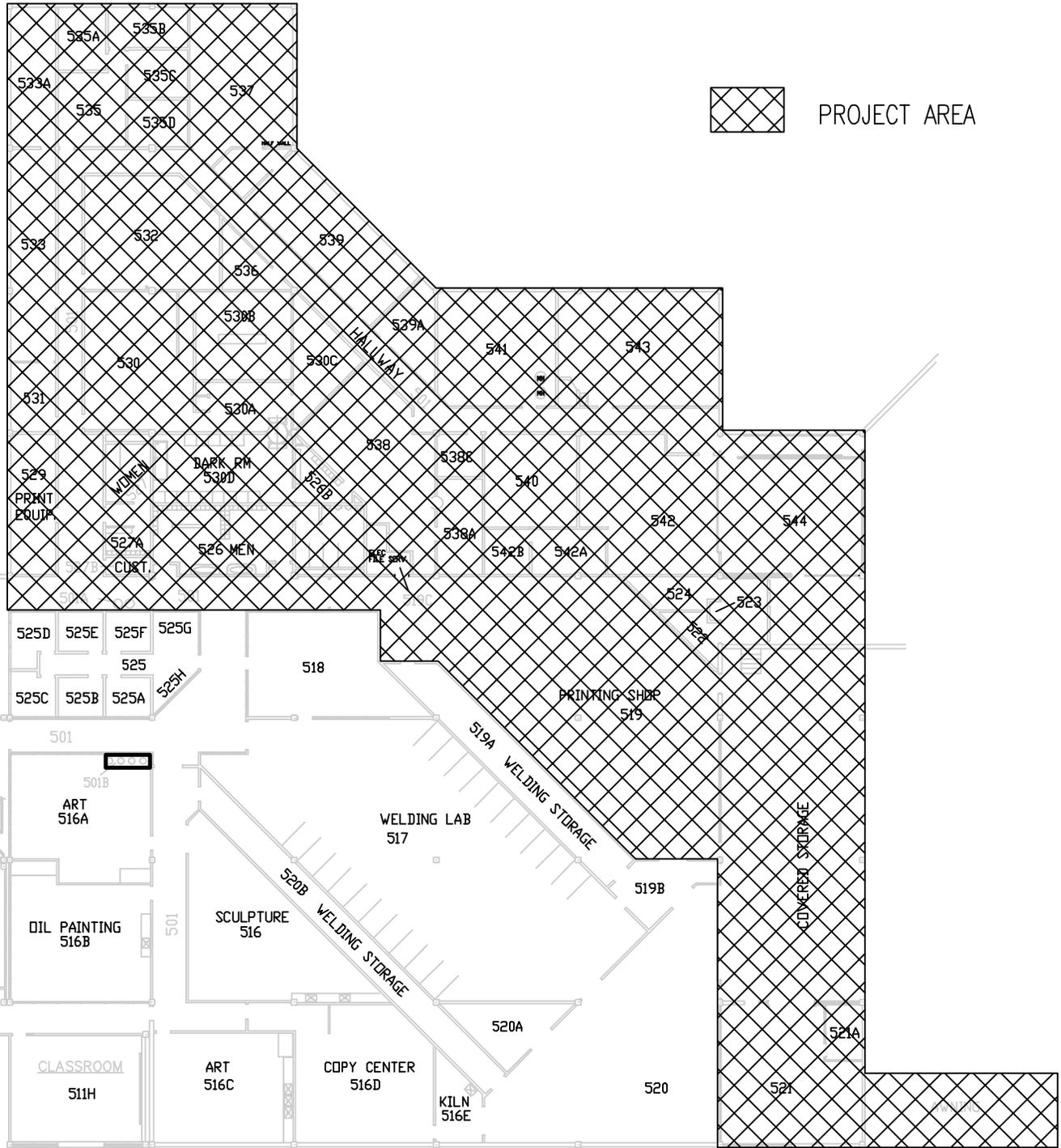
Air Handler 3

Bypass VAV with Reheat (30% Min Flow Default)

	Dry Bulb °F	Wet Bulb °F	Relative Humidity %	Humidity Ratio gr/lb	Enthalpy Btu/lb	Temperature Difference °F
Space	70.0	57.8	50.2	64.6	26.9	
Main System						0.0
Return Fan						
Return Air	70.4	57.9	49.5	64.6	27.0	
Return Air Heat Pickup						0.4
Outdoor Air	95.0	65.0	21.1	60.9	32.4	
Entering OA preconditioning	95.0	65.0	21.1	60.9	32.4	
Leaving OA preconditioning	95.0	65.0	21.1	60.9	32.4	
Return/Outdoor Air Mix	78.2	60.3	37.5	63.4	28.7	
Blow Through Fan						0.0
Entering Coil	78.2	60.3	37.5	63.4	28.7	
Leaving Coil	51.0	49.1	88.0	57.7	21.2	
Draw Through Fan						0.0
Fan Frictional Heat						0.0
Supply Duct Heat Gain						0.0
Reheat Device						0.0
Cold Deck Supply Air	51.0	49.1	88.0	57.7	21.2	
Supply Air	51.0	49.1	88.0	57.7	21.2	
Percent Outside Air	31.70	%				
Sensible Heat Ratio (SHR)	0.80					
Coil Airflow	3,473	cfm				

APPENDIX B

As-Built & Schematic Design Drawings



FLOOR PLAN

SCALE: 1/32"=1'-0"

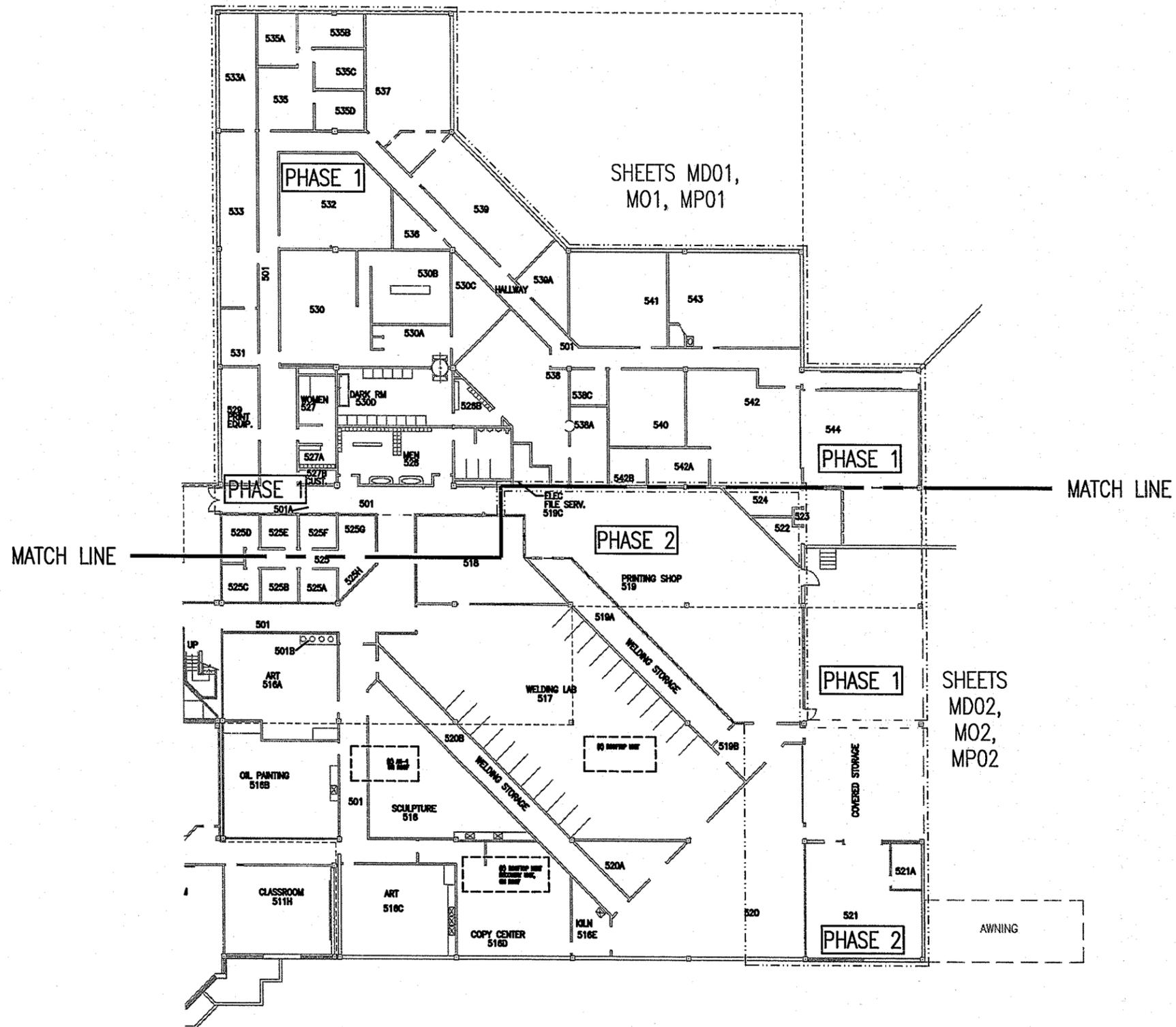
FILENAME
 STANLEY CONSULTANTS
 CADD A1-R3

REVISIONS	DWN	APVD	APVD	DATE



9200 East Mineral Avenue
 Suite 400
 Englewood, Colorado
 80112-3416
 www.stanleygroup.com

DESIGNED _____ DRAWN _____ CHECKED _____ APPROVED _____ APPROVED _____ DATE _____	UTAH VALLEY STATE COLLEGE	GUNTHER TRADES BUILDING LEVEL 5 HVAC RENOVATION	SCALE AS SHOWN NO. A1 REV. 0
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----- UPPER FLOOR OUTLINE
- - - - - PHASE AREA OUTLINE

\$\$\$ FILENAME \$\$\$ STANLEY CONSULTANTS
 CADD B1-R3

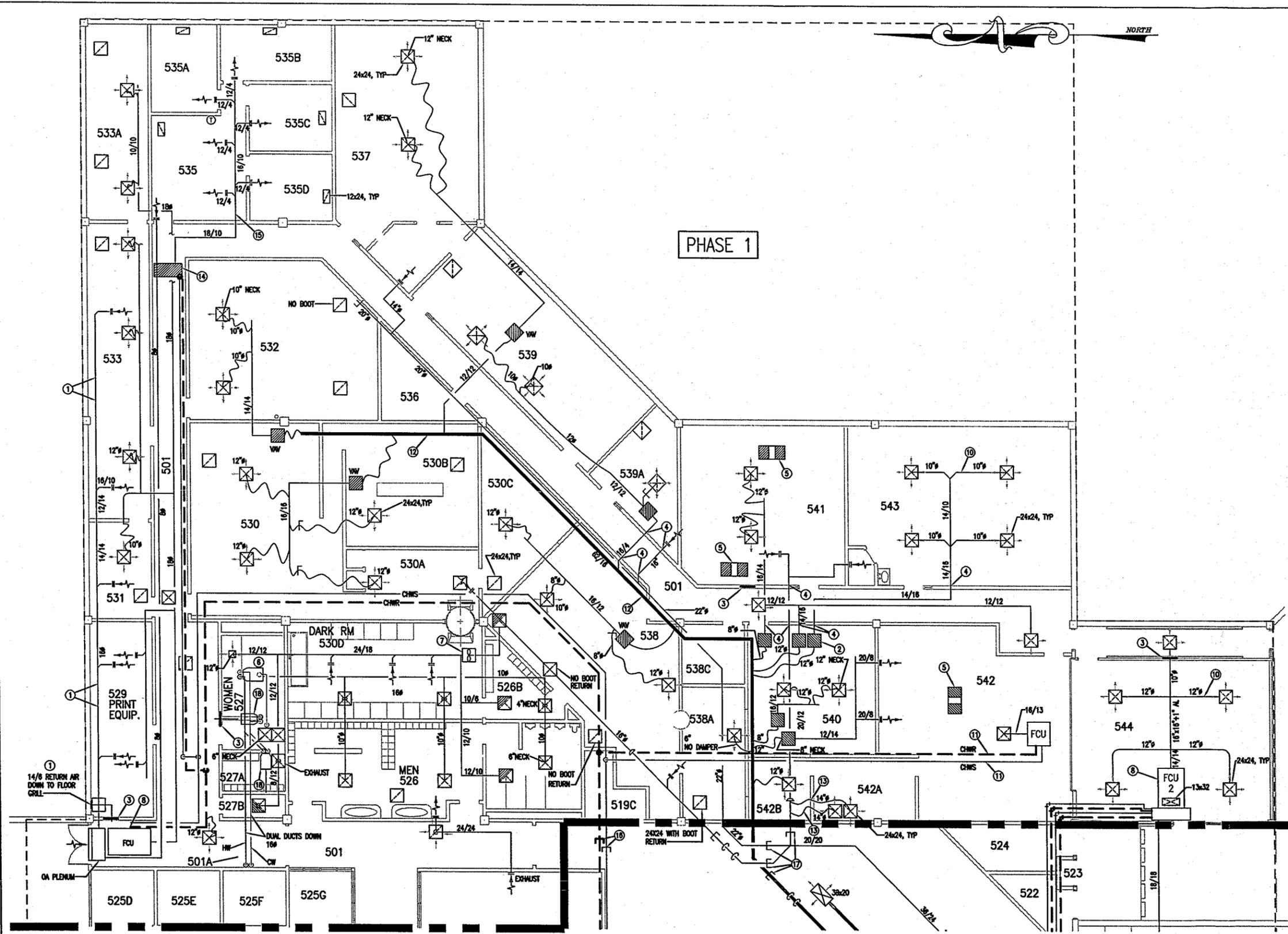
REVISIONS	DWN	APVD	APVD	DATE

DESIGNED D. ROLLINS
 DRAWN J. KIM
 CHECKED P. GREENWOOD
 APPROVED N. CASALINO
 APPROVED
 DATE 02/06/07



UVSC - GUNTHER TRADES BUILDING
LEVEL 5 MECHANICAL KEY PLAN

SCALE N.T.S.	
NO.	REV.
M00	0



- FLAG NOTES: ○
1. DEMO EXISTING RETURN AIR DUCTS.
 2. DEMO VARIABLE AIR VOLUME CONTROL UNIT WITH ELECTRICAL REHEAT.
 3. DEMO EXISTING FIRE SMOKE DAMPER IN WALL.
 4. DEMO SUPPLY & RETURN DUCTS.
 5. DEMO EXISTING AIR CIRCULATION UNIT.
 6. DEMO EXISTING DUAL DUCT BOX.
 7. DEMO EXISTING EXHAUST FAN CAT # CS-74CH-FC13.
 8. DEMO EXISTING FAN COIL UNIT AND DUCTWORK.
 9. DEMO EXISTING EXHAUST DUCTWORK AND FAN.
 10. EXISTING DUCT WORK CAN BE REUSED IN REMODEL.
 11. DEMO CHILLED WATER SUPPLY AND RETURN LINES PAINTED AS HOT WATER SUPPLY AND RETURN.
 12. DEMO EXISTING SUPPLY DUCT COMPOSED OF PRIMARILY DUCTBOARD.
 13. DEMO EXISTING RETURN AIR DUCTS IN PAINT ROOM. SHOULD BE EXHAUST.
 14. DEMO EXISTING FAN COIL UNIT, 4 ROW COIL. RETURN AIR DROPS DOWN TO PLENUM. SUPPLIED BY 8" Ø DUCT FROM OUTSIDE AIR.
 15. EXISTING DUCTWORK MAY BE REUSED IN OFFICE SPACE.
 16. CUT AND CAP EXISTING PIPING IN PRINT SHOP.
 17. CUT AND CAP EXISTING DUCT MAINS IN PRINT SHOP.
 18. EXISTING DUAL DUCT BOX TO REMAIN TO SERVE ZONE ABOVE.

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02-06-07

MATCH LINE (SEE SHEET MD02) **5TH FLOOR EAST PARTIAL MECHANICAL DEMOLITION PLAN**
SCALE: 1/16" = 1'-0"

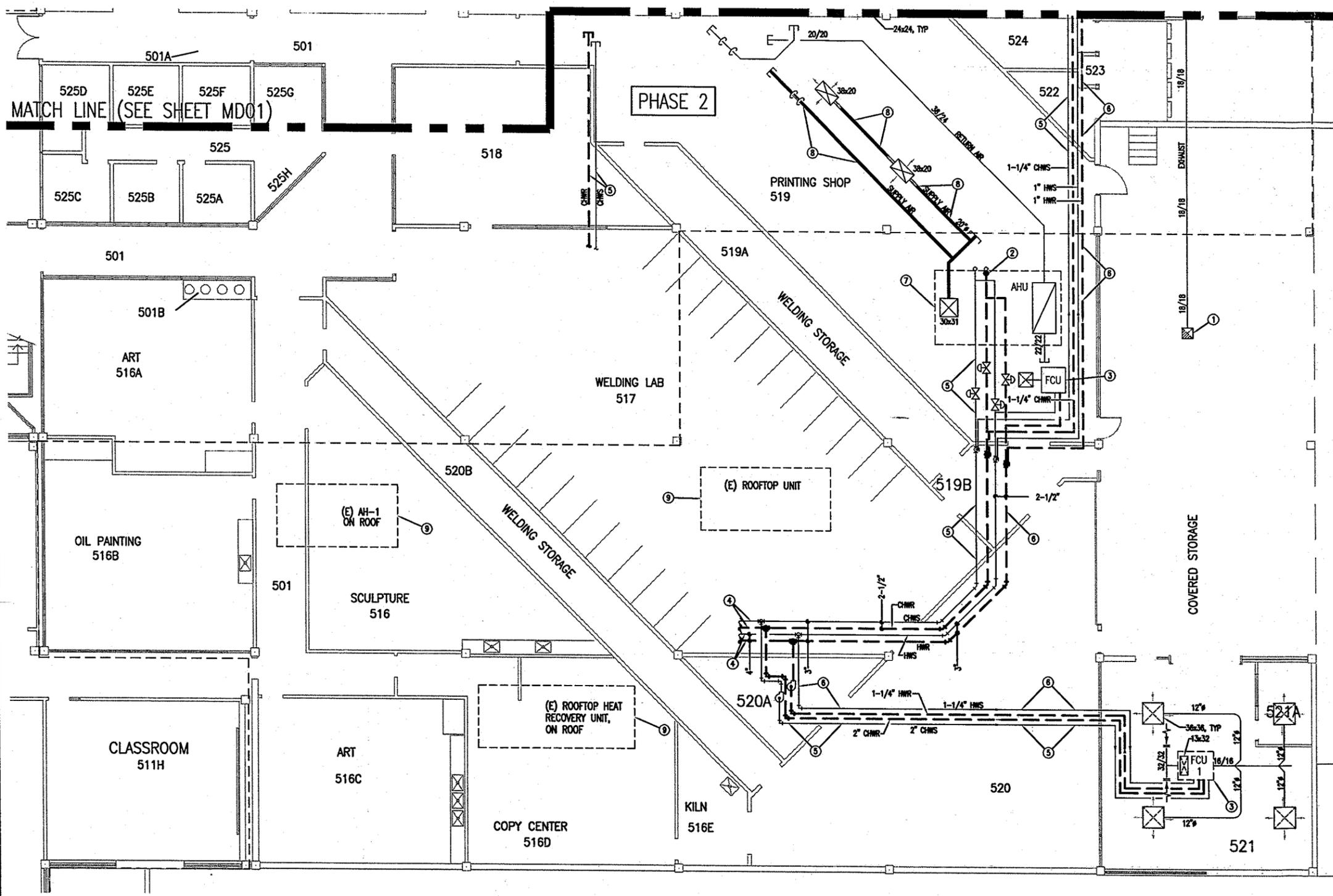
CADD B1-R3 © STANLEY CONSULTANTS

DESIGNED	D. ROLLINS
DRAWN	J. KIM
CHECKED	P. GREENWOOD
APPROVED	N. CASALINO
APPROVED	
DATE	02/06/07



UVSC - GUNTHER TRADES BUILDING PHASE 1
LEVEL 5 EAST MECHANICAL DEMOLITION PLAN

SCALE AS NOTED	
NO.	REV.
MD01	0



- FLAG NOTES: ○
1. DEMO EXISTING EXHAUST FAN AND DUCTWORK.
 2. DEMO CONNECTION TO CHILLED WATER AND HOT WATER MAIN.
 3. DEMO EXISTING FAN COIL UNIT AND DUCTWORK.
 4. EXISTING CHILLED AND HOT WATER DISTRIBUTION SYSTEM TO REMAIN.
 5. DEMO EXISTING CHWS/CHWR BRANCH LINES.
 6. DEMO EXISTING HWS/HWR BRANCH LINES.
 7. DEMO EXISTING AIR HANDLING UNIT.
 8. DEMO EXISTING DUCTWORK.
 9. EXISTING ROOFTOP UNIT TO REMAIN IN SERVICE.

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5TH FLOOR WEST PARTIAL MECHANICAL DEMOLITION PLAN
SCALE: 1/16" = 1'-0"

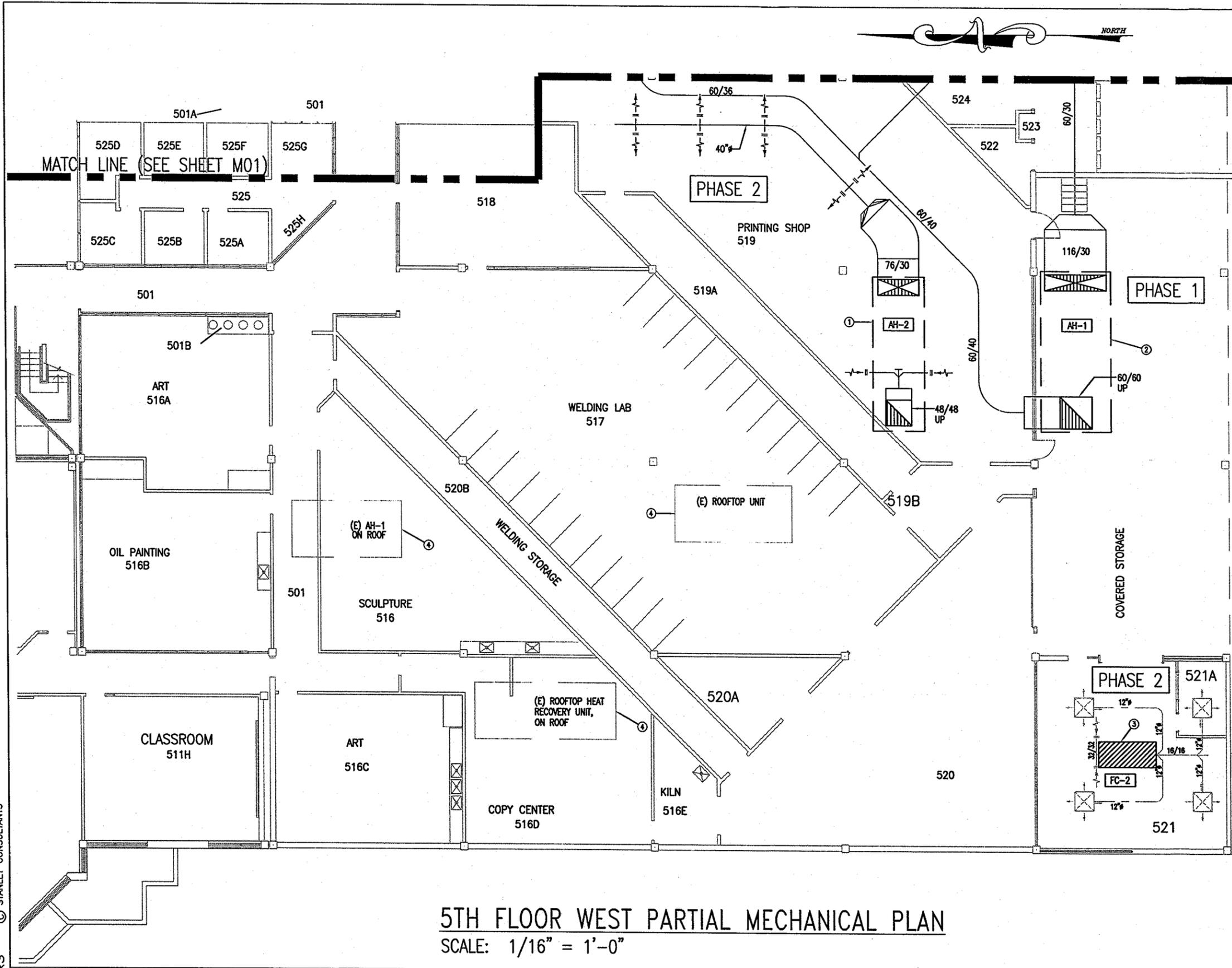
\$\$\$\$\$FILENAME\$\$\$\$\$ STANLEY CONSULTANTS
CADD B1-R3 © STANLEY CONSULTANTS

DESIGNED D. ROLLINS				
DRAWN J. KIM				
CHECKED P. GREENWOOD				
APPROVED N. CASALINO				
APPROVED				
DATE 02/06/07				
REVISIONS	DWN	APVD	APVD	DATE



UVSC - GUNTHER TRADES BUILDING PHASE 2
LEVEL 5 WEST MECHANICAL DEMOLITION PLAN

SCALE AS NOTED	
NO.	REV.
MD02	0



FLAG NOTES: ○

1. PHASE 2, AH-2, DEDICATED TO PRINT ROOM. UNIT NEEDS TO BE SUPPLIED WITH HUMIDITY CONTROL.
2. AH-1 AND ITS DUCT WORK AND ACCESSORIES TO BE INSTALLED IN PHASE 1. COORDINATE INSTALLATION AROUND PRINT SHOP OPERATION HOURS.
3. PHASE 2, FC-2, DEDICATED TO ROOM 521.
4. EXISTING ROOFTOP UNIT TO REMAIN.

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5TH FLOOR WEST PARTIAL MECHANICAL PLAN

SCALE: 1/16" = 1'-0"

\$\$\$\$\$FILENAME\$\$\$\$\$ STANLEY CONSULTANTS
CADD B1-R3

REVISIONS	DWN	APVD	APVD	DATE	DESIGNED D. ROLLINS DRAWN J. KIM CHECKED P. GREENWOOD APPROVED N. CASALINO APPROVED DATE 02/06/07
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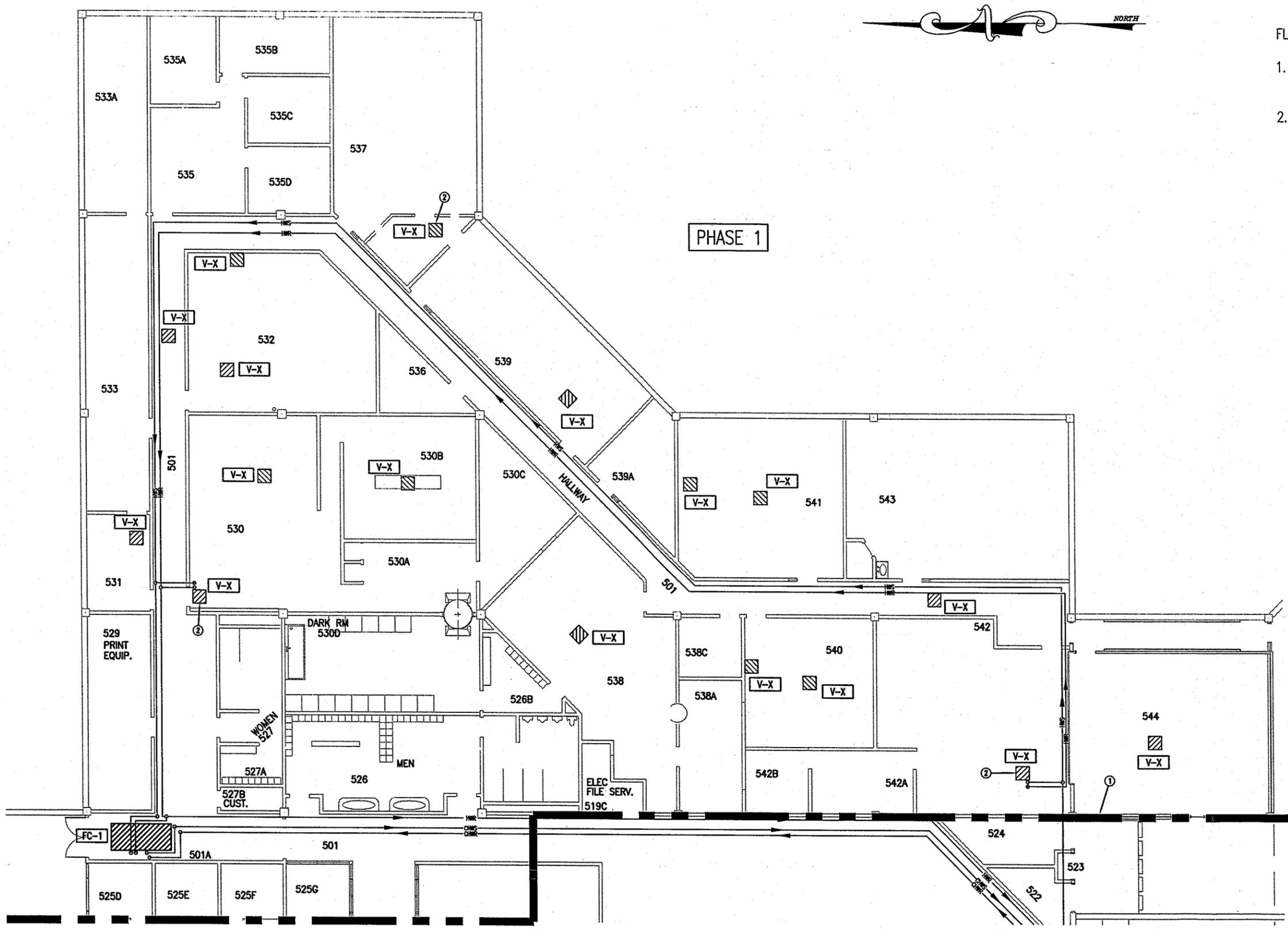


UVSC - GUNTHER TRADES BUILDING PHASE 2
LEVEL 5 WEST MECHANICAL PLAN

SCALE AS NOTED	
NO.	REV.
M02	0



- FLAG NOTES: ○
1. REFER TO SHEET MP02 FOR LOCATION OF AH-1 AND ITS PIPING.
 2. TYPICAL VAV TERMINAL BOX WITH HW REHEAT COIL.



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MATCH LINE (SEE SHEET MP02) **5TH FLOOR EAST PARTIAL MECHANICAL PIPING PLAN**
SCALE: 1/16" = 1'-0"

\$\$\$ FILENAME \$\$\$ STANLEY CONSULTANTS
CADD B1-R3

DESIGNED <u>D. ROLLINS</u>				
DRAWN <u>J. KIM</u>				
CHECKED <u>P. GREENWOOD</u>				
APPROVED <u>N. CASALINO</u>				
APPROVED				
DATE <u>02/06/07</u>				
REVISIONS	DWN	APVD	APVD	DATE



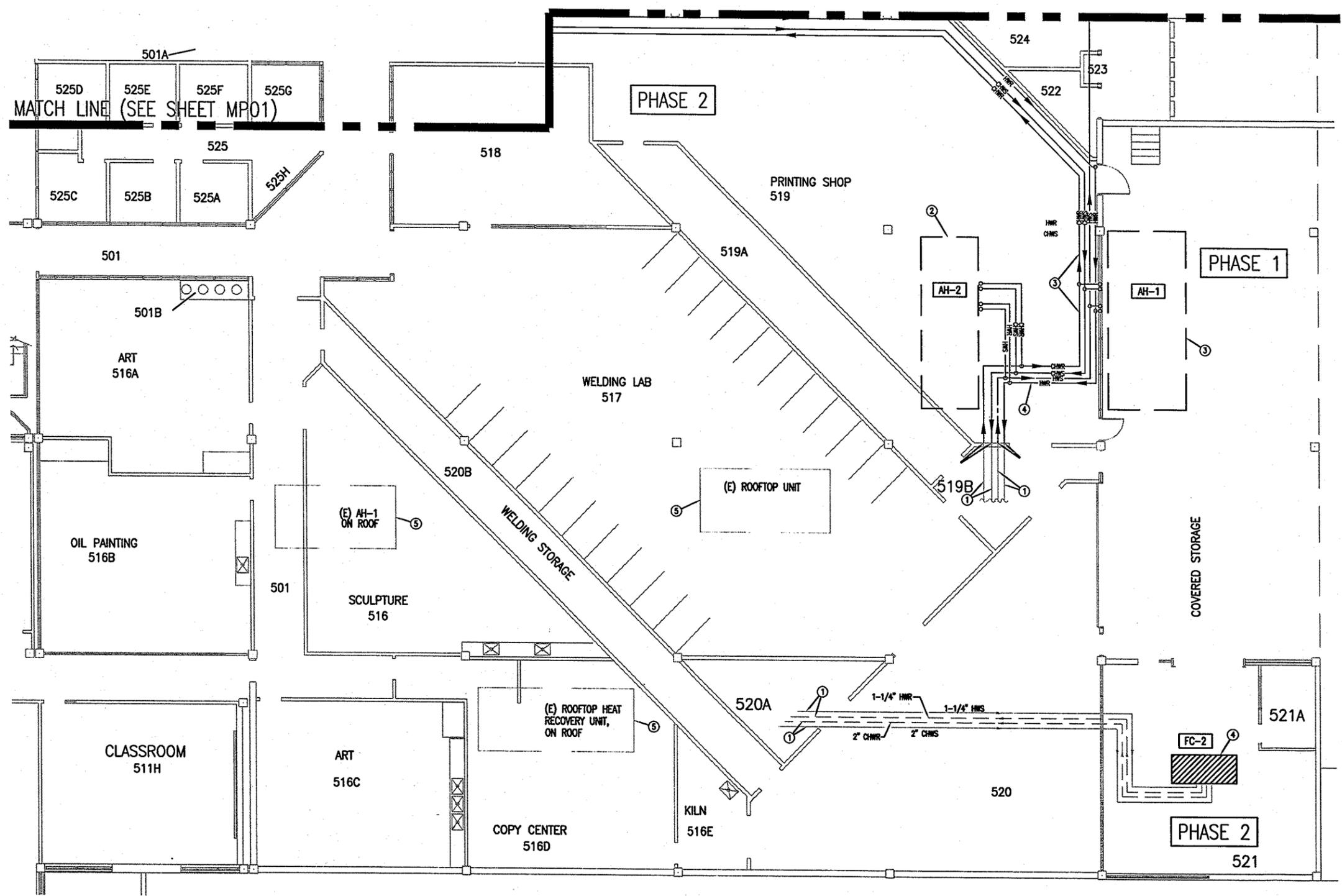
UVSC - GUNTHER TRADES BUILDING PHASE 1
LEVEL 5 EAST MECHANICAL PIPING PLAN

SCALE AS NOTED	
NO.	REV.
MP01	0



FLAG NOTES: ○

1. SUPPLY NEEDS TO BE VERIFIED BY HEATING AND COOLING PLANT TO DETERMINE IF ADEQUATE FLOW IS AVAILABLE.
2. PHASE 2, AH-2, DEDICATED TO PRINT ROOM. UNIT NEEDS TO BE SUPPLIED WITH HUMIDITY CONTROL.
3. PROVIDE AH-1 AND ITS ASSOCIATED PIPING AND ACCESSORIES IN PHASE 1.
4. PHASE 2, FC-2, DEDICATED TO ROOM 521.
5. EXISTING ROOFTOP UNIT TO REMAIN.



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02-06-07

5TH FLOOR WEST PARTIAL MECHANICAL PIPING PLAN
SCALE: 1/16" = 1'-0"

\$\$\$\$\$FILENAME\$\$\$\$\$ STANLEY CONSULTANTS
CADD B1-R3 ©

DESIGNED D. ROLLINS				
DRAWN J. KIM				
CHECKED P. GREENWOOD				
APPROVED N. CASALINO				
APPROVED				
DATE 02/06/07				
REVISIONS	DWN	APVD	APVD	DATE



UVSC - GUNTHER TRADES BUILDING PHASE 2
LEVEL 5 WEST MECHANICAL PIPING PLAN

SCALE AS NOTED	
NO.	REV.
MP02	0

APPENDIX C

Individual Room Equipment Loads

Utah Valley State Collage

Heat Loads Generated by Equipment & Lighting

Date: October 3, 2006

Prepared by: Paul Greenwood

Checked by: Cheol Kim

Stanley Consultants Project Number: 19736

File: Projects F:\19736\Active\07-Design\02-Comps\06-Mech\Cooling Loads

Room Name & No.	Air Handler	Setpoint Temperature (Cooling/Heating)	Total Watts	Difusers Size and Quantity	No. of Lights	No. of Bulbs per Light	Watts per Bulb	Total Lighting Load (Watts)	Control Equip (Watts)	Subtotal Listed Equipment	No. of Computers	No. of Monitors	No. of Printers	No. of Electric Water Coolers	No. of Refrigerators	Size of Refrigerators (Large / Small)	No. of Microwaves	Power out put of Miscellaneous	Miscellaneous Heat Producing Equipmen
											527	527	293	1758	53		398	50%	
519		70 / 70	68,296		47	2	32	3008		1758				1				63,530	Print press 50kw, Print 1.7kw, Roller 600w, Roller 720w, Threader 840w, EMC Press 33.2kw, Graphics 34.9kw, Paint dev 1kw, Shrink Tunnel 2.4kw, Color Dev 1kw, Refrig Air dryer 700w
519C		70 / 70	15,032		1	1	32	32		0								15000	XFMR 30kw
521		70 / 70	6,049		8	4	32	1024		0								5025	Millsaw 3.2kw, Sander 4.2kw, msc 4.1kw, lade 8.6kw
521A		70 / 70	256		2	4	32	256		0									
526		70 / 70	672		4	3	32	384		0								288	(9) FIXT, (2) LAMPS, 32W
526B		70 / 70	128	8" (1)	2	2	32	128		0									
527		70 / 70	64		1	2	32	64		0									
527A		70 / 70	64		1	2	32	64		0									
527B		70 / 70	96		3	1	32	96		0									
529		70 / 70	10,779		6	2	32	384		925	1						1	9470	VACULUX 5KW, AVANTRA 1.6KW, DWG PLATE 2KW, P600E 870W
530		70 / 70	4,093		6	4	32	768		925	1						1	2400	TV & VCR 400W, DWG PLATE 2KW
530A		70 / 70	591		1	2	32	64		527	1								
530B		70 / 70	1,554		1	2	32	64		0								1490	(14) CONDENSOR LT SRC, (2) FIXT, (4) LAMPS, 15W
530C		70 / 70	1,403		3	1	32	96		1107	2				1 SMALL			200	SPEED MASTER 120V, 200W
530D		70 / 70	1,032		2	3	32	192		0								840	(14) CONDENSOR LT SRC, (2) FIXT, (4) LAMPS, 15W
531		70 / 70	256		2	4	32	256		0									
532		70 / 70	698	12" (2)	14	1	32	448		0								250	TV & VCR 400W / PROJECTOR 100W
533		70 / 70	384		6	2	32	384		0									
533A		70 / 70	64		1	2	32	64		0									
535		70 / 70	1,875		2	2	32	128	2	1745	2		1				1		
535A		70 / 70	645		1	2	32	64	1	580	1				1 SMALL				
535B		70 / 70	1,002		2	2	32	128	1	873	1		1		1 SMALL				
535C		70 / 70	592		1	2	32	64	1	527	1	0							
535D		70 / 70	592		1	2	32	64	1	527	1	0							
536		70 / 70	592		1	2	32	64	1	527	1	0							
537		70 / 70	13,418		4	2	32	256	21	12941	21	3	1					200	TV & VCR 400W
538		70 / 70	4,481	8" (2)	10	4	32	1280	7	1874	3		1					1320	HAMADA 120V/22A
538A		70 / 70	1,697		3	4	32	384		293			1					1020	DWG PLATE 120V/17A
538C		70 / 70	1,141		1	1	32	32	2	1107	2				1 SMALL				
539		70 / 70	10,709		12	1	32	384	19	10306	19		1						
539A		70 / 70	784		2	4	32	256	1	527	1								
540		70 / 70	9,382	12" (2)	4	2	32	256	17	8959	17							150	SERVER 200W / FAN 100W
541		70 / 70	1,084		6	2	32	384		0								700	TV/VCR 400W/PROJ 100W/(8) FIXT,(1) LAMP, 65W
542		70 / 70	2,981		18	1	32	576	4	2401	4		1						
543		70 / 70	1,276		18	1	32	576		0								700	TV/VCR 400W/PROJ 100W/(6) FIXT,(1) LAMP, 150W
544		70 / 70	2,592		24	2	32	1536	2	1054	2								
OVERED STORAGE																			

- Check List
- Locate Air Handlers
 - Locate Duct Work Location, sizes, direction, elevation from floor
 - Equipnet location size and capacities
 - Drop Ceiling space and ceiling space
 - Difusers size and quantity and Types
 - Camera pictures of all ducts and equipment and rooms