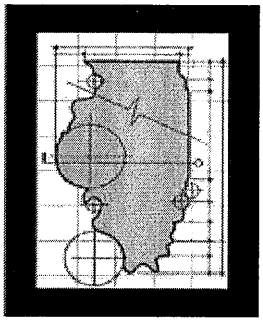
CAPITAL DEVELOPMENT BOARD



BRIDGING DOCUMENT

CDB # 102-777-015
IDNR # 5-11-004

VARIOUS IMPROVEMENTS AT REND LAKE RESORT
11712 EAST WINDY LANE
WHITTINGTON, ILLINOIS

CONTRACT: DESIGN BUILD

State of Illinois

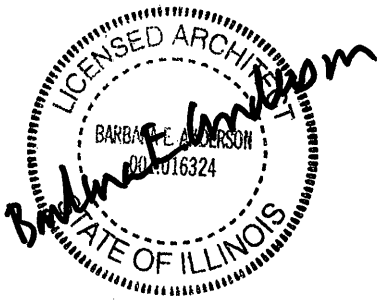
CAPITAL DEVELOPMENT BOARD

USING AGENCY: ILLINOIS DEPARTMENT OF NATURAL RESOURCES

BY:

BRIDGING DOCUMENT ARCHITECT:
OATES ASSOCIATES, INC.
100 LANTER COURT, SUITE 100
COLLINSVILLE, IL 62234
DPR DESIGN FIRM REGISTRATION NO. 184.001115

CONSULTANTS:
HANSON PROFESSIONAL SERVICES, INC.
1524 SOUTH SIXTH STREET
SPRINGFIELD, IL 62703



DATE: JUNE 26, 2012
BRIDGING DOCUMENT SUBMITTAL

License Expiration Date: 11/30/12
Signature: Barbara E. Anderson
Date Signed: 6/26/12

Table of Contents

APPENDIX K – NEW SIGNAGE SCOPE INFORMATION

APPENDIX L – INTERNET TOWER UPGRADE SCOPE INFORMATION

APPENDIX M – IMPROVEMENT LOCATION PLAN

APPENDIX N – EXISTING INTERNET SYSTEM INFORMATION

APPENDIX O – FOOD SERVICE EQUIPMENT CUT SHEETS

APPENDIX P – BOATEL BUILDING DIAGRAMMATIC PLAN

APPENDIX Q – CAMPGROUND LIFT STATION

FOR INFORMATION ONLY

ELECTRIC USAGE – FROM 1/4/11 TO 12/2/11

PROPANE USAGE – FROM 1/5/11 TO 11/3/11

SECTION 00830

DESIGN AND CONSTRUCTION PROCEDURES

I. MANAGEMENT AND COORDINATION

REFER TO AND COMPLY WITH THIS DOCUMENT AND ALL ADDENDA. ALSO REFER TO AND COMPLY WITH THE CAPITAL DEVELOPMENT BOARD STANDARD DOCUMENTS FOR DESIGN BUILD PROJECTS (SD-DB) AND CDB'S RFP PHASE I AND II REQUIREMENTS. IF ANY REQUIREMENTS, CONDITIONS, RESPONSIBILITIES OR OTHER ITEMS ARE FOUND TO BE IN CONFLICT, SD-DB DOCUMENTS ARE TO GOVERN.

A. Parties:

1. Using Agency: Illinois Department of Natural Resources

2. Owner: Capital Development Board

3. Concessionaire: Rend Lake Resort

B. Review of Existing Facility Documents: Prior to Preliminary Design (RFP), and Design Development, all available existing drawings will be provided to Design Builder via a CD containing scanned drawings provided by IDNR and Rend Lake Resort for use in Bridging Document preparation. A current boundary and topographic survey of the entire resort property will be provided by the Using Agency, as well.

C. Access to and Use of Site: Design Builder will have access to the site during business hours throughout the project.

1. Facility Buildings: All buildings and structures will be occupied at some point during the construction phase. Contractor shall coordinate work phasing schedule with the Using Agency. The Using Agency requests that only a minimum number of guest rooms be closed at any one time during construction. The Using Agency will accommodate the contractors schedule when feasible. However, there will be certain events and activities at the resort that the contractor will be required to accommodate. See the table below for the dates and locations of those major events.

Dates Unavailable for Construction Activity									
Location	2012							2013	
	October				Nov		Dec	Feb	Apr
All Conference Rooms	4	16	20	22 - 26	24	25		15 - 17	19 - 21
All Hotel Rooms				22 - 26			31	15 - 17	

2. Construction Staging: The contractor shall coordinate staging and site access with the Using Agency for each component of the project.

D. Coordination with Occupants:

1. Facilities will be occupied by resort employees and guests throughout the construction phase. Contractor shall be considerate of all employee and guest events and activities. Contractor shall coordinate daily work schedule with the appropriate Rend Lake Resort staff to ensure there is no disruption to staff, resort guests, and overnight guests.

2. Existing Utility, Life Safety, and Fire Safety Elements:

a. No unscheduled disruption of services to areas that are occupied. All disruptions shall be arranged with the Using Agency a minimum of 72 hours in advance. However, advance notification could vary depending on the time of year and the location. Using Agency to coordinate with contractor regarding any scheduled events that could affect this minimum notification.

b. Prevent accidental disruptions to facilities outside the project limits by investigation of existing utilities and protection during construction and remedy accidental disruptions at no cost to the Using Agency.

c. Disruption and planned outages will be evaluated prior to implementation by the appropriate Rend Lake Resort staff.

E. Existing Buildings/Site:

1. Emergency Exits Required by Code: Maintained open during construction period, unless alternate means of egress, acceptable to jurisdictional authorities, are provided.

2. Existing Entrances: Maintained open during construction period, protected from weather, kept clear of construction debris and stored materials, and with safe walking surfaces.

3. Work done within existing facilities will require proper environmental and system protection procedures and protocols to provide a dust-free environment.

F. Progress Schedule: As specified in the Capital Development Board Standard Documents for Design Build Projects (SD-DB).

1. Schedule shall be developed based on input from the Resort regarding any special events.

2. Submit updated schedule whenever adjustments that change the Contract Times are approved.

3. Submit Schedule of Submissions at Preliminary Design, and modify accordingly any adjustments of changes in the status.

G. Progress Presentations and Documentation for Using Agency Information:

1. During Design Development, and Construction Documents Phases: Graphic displays and drawings sufficiently detailed to allow individual CDB, IDNR and Rend Lake Resort

representatives to identify the status and compliance of the design with their new and renovated facilities.

2. Documentation:

   a. 1 full-size set of documents; 1 half-size set of documents required for Using Agency's record and review at each phase.

   b. Provide two (2) compact discs (CD's) to Using Agency, Read Only, Non-Editable format, containing all requested substantiation and documentation including documentation called out in 00830 Management & Coordination H.2.a and H.2.b.

   c. Two (2) full-sized set of documentation to Capital Development Board Project Manager.

H. Progress Documentation for Using Agency's Project Record:

1. During Design Development and Construction Documents Periods: Substantiation documentation to be provided to Using Agency for review and record during Design Development and Construction Documentation phases prior to completion of Construction Documents.

2. Documentation: The following documentation will be provided to the Using Agency for review of design, code compliance, and design requirements at the prescribed phases:

   a. Design Development: Design Development Submittal. Using Agency's review will be to verify the design meets the program requirements of all applicable standards, including compliance with the RFP, bridging document, the Capital Development Board SD-DB, and any Rend Lake Resort Facility standards. Include all documentation necessary to communicate the scope of work including concepts, systems, dimensions, materials, locations, layouts, etc. At a minimum, provide the following documentation, where applicable, for each Appendix Item listed in the Facility Improvement Requirements.

      1) Architectural
         a. Site location plan indicating extent of proposed improvements, locations of new facilities, sizes, circulation, parking, etc.
         b. Life safety plan/Code Information
         c. Preliminary floor plan
         d. Roof plan
         e. Exterior elevations
         f. Major building sections
         g. Detail of existing and new construction interface
         h. Material specifications
         i. Room finish schedule

      2) Structural
         a. Description of structural system including lateral loading
         b. Footing and foundation details
         c. Material and fabrication specifications

3) Site/Civil
    a. Site plan showing building footprint, grading, existing utilities, and utility tie-in locations
    b. Location, layout and specification related to landscaping, water features, outdoor fireplace, site amenities, etc.
    c. Walkway specifications and layout
    d. Fencing specifications and layout
    e. Material specifications
    f. Proposed site limits, defined work areas, construction staging and site access routes

4) HVAC
    a. Drawing showing location of primary HVAC system components.
    b. Preliminary one-line drawings of HVAC systems
    c. Equipment cut sheets and material specifications

5) Plumbing and Fire Suppression
    a. System description and material specifications
    b. Roof drainage layouts
    c. Fixture schedule
    d. Fixture cut sheets
    e. Location of primary fire suppression components

6) Electrical
    a. System description and material specifications
    b. Drawing indicating locations of electrical equipment rooms, exterior generator equipment, etc.
    c. Service riser
    d. One-line electrical distribution diagram
    e. Lighting fixture layout
    f. Fire alarm and life safety component locations
    g. Smoke detection system component locations

b. Construction Documents: Construction Document Submittal. Using Agency's review will be to verify the design meets the program requirements of all applicable standards, including compliance with the RFP, bridging document, the Capital Development Board SD-DB, and any Rend Lake Resort Facility standards. Include all documentation necessary to communicate the scope of work including concepts, systems, dimensions, materials, locations, layouts, etc. At a minimum, provide the following documentation, if applicable, for each Appendix Item listed in the Facility Improvement Requirements.

    1) Architectural
        a. Site location plan indicating extent of proposed improvements, locations of new facilities, sizes, circulation, parking, etc.
        b. Life safety plan/Code information
        c. Final floor plans, ceiling plans and roof plans
        d. Final wall sections, roof sections and details

e. Exterior elevations
f. Detail of existing and new construction interface
g. Final exterior and interior material specifications
h. Final room finish schedule
i. Major building cross sections
j. Door schedules and details

2) Structural
   a. Description of structural system including lateral loading
   b. Footing and foundation details including piers
   c. Material and fabrication specifications
   d. Structural framing and footing plans

3) Site/Civil
   a. Site plan showing building footprint, grading, existing utilities, and utility tie-in locations
   b. Location, layout and specification related to landscaping, water features, outdoor fireplace, site amenities, etc.
   c. Erosion plan
   d. Walkway specifications and layout
   e. Fencing specifications and layout
   f. Material specifications
   g. Proposed site limits, defined work areas, construction staging and site access routes

4) HVAC
   a. HVAC system and component load and sizing calculations (see section 7)
   b. Drawing showing location of primary HVAC system components
   c. Drawings and documentation to indicate HVAC systems
   d. Equipment cut sheets and material specifications
   e. Documentation to indicate coordination with other disciplines and systems

5) Plumbing and Fire Suppression
   a. Roof drainage layout and details
   b. Final fixture schedule
   c. Fixture counts/requirements
   d. Riser diagrams
   e. Final fixture cut sheets
   f. Sprinkler layout and hydraulic calculations

6) Electrical
   a. Final drawing indicating locations of electrical equipment rooms, exterior generator equipment, etc.
   b. Final service risers
   c. Final one-line electrical distribution diagram
   d. Final light fixture layout and photometrics
   e. Final fire alarm and life safety component locations
   f. Final fire alarm riser

g. Final smoke detection riser, ceiling layout, and specifications
h. Provide circuit routing on record documents for Power and Lighting plans

3. Prior to Construction Documentation Completion: Design/Builder to provide shop drawings, materials and systems testing data, and other required information to adequately convey compliance with design required information to convey compliance with design requirements, programmatic requirements, facility performance, codes, and other jurisdictional compliance.

4. During Construction: Weekly digital photographic record of each portion of the work, taken from consistent locations, distances, and angles.

5. Design/Builder to provide digital photographic records with payment requests.

6. During Closeout: Detailed digital photographic record of each work item, including interior, exterior, and all site areas.

7. During Closeout: As-Built documents including comprehensive set of construction drawings, specifications, and other record documents with all final built conditions recorded and documented. See Capital Development Board Standard Documents for Design Build Projects (SD-DB) Section 01 78 39.4 for requirements.

II. QUALITY REQUIREMENTS

A. Design Criteria: During the Phase II submittal of the RFP, design criteria will be developed and conceptually established. During Design Development, the design and performance criteria must be refined, finalized and documented.

1. The Using Agency will appoint representatives of the following work group to provide details of functional needs and review proposed documents.

a. Using Agency

b. CDB/IDNR

2. Design Documentation: Record all design and performance criteria that will be used during occupancy and operation of the project, including all items specified for maintenance manuals below.

a. Design Criteria Documentation included in Construction Documents: Organized logically and placed in a prominent location in drawing sets.

b. Shop Drawings (required for substantiation) may be used to accomplish design documentation.

c. Drawings: Prepared using the most current version of AutoCAD compatible with CDB requirements.

d. Shop Drawings: Prepared using the most current version of AutoCAD compatible with CDB requirements.

B. Substantiation Requirements: See Section 2 for definitions and basic requirements; see other Sections for specific items of substantiation required.

C. Substantiation Submittal Procedures:

1. Time Frames: As specified. If there is a conflict between the degree of detail or completion specified and the progress of the design or construction, obtain a clarification before submitting.

2. Recipient: Capital Development Board project manager.

3. Illinois Department of Natural Resources project manager.

4. Rend Lake Resort personnel identified.

5. Number of Copies:

a. Provide 1 full-size and 1 half-size printed sets.

b. Provide two (2) compact discs (CD's) to Using Agency. Read Only; Non-Editable format; containing all requested substantiation and documentation including documentation called out in 00830 Management & Coordination H.2.a and H.2.b.

c. Two (2) full-size set of documentation to Capital Development Board project manager.

6. For time periods that constitute Milestones, all substantiation submittals required during that period must be complete and accepted before the Milestone can be considered achieved. When not specified, all substantiation documentation is to be provided at the beginning of the Construction Document Phase.

7. Submit complete sets of documents containing all substantiation at the end of the following phases:

a. Proposal Phase

b. Preliminary Design Phase

c. Design Development Phase

d. Construction Documents Phase

8. Resubmissions: Clearly identified as such, with all changes made since the original submittal clearly marked.

D. Using Agency's Review of Substantiation:

1. Provide Substantiation Documentation, including Construction Documents to meet all content requirements of referenced codes to Capital Development Board Project Manager for code compliance review.

E. Substantiation Schedule: Prepare and maintain a complete schedule of substantiation items, showing:

1. If desired, schedule may be incorporated into overall progress schedule, provided substantiation data can be reported separately from other progress information.

2. Submission: To Using Agency, within 20 calendar days after notice to proceed

3. Form: Computer database format for Using Agency's use in tracking submittals; database structured so Using Agency's added information will not be overwritten or delayed by incorporation of updated data from Design-Builder.

4. Updates: To Using Agency, monthly in hard copy.

F. Field Testing and Inspection: Perform all testing, observation, and inspection required by code and as specified. Refer to 01 45 23 Construction Tests in the Capital Development Board Standard Documents for Design Build Projects (SD-DB).

1. Commissioning provided for this project shall also be based on requirements noted in the Capital Development Board Standard Documents for Design Build Projects (SD-DB).

2. Qualifications of Testing/Inspection Agencies:

a. Qualified and equipped to perform applicable test/inspections.

b. Regularly engaged in testing and inspection activities on a commercial basis.

c. Independent of Design-Builder and their contractor's organizations.

d. Employed by Design-Builder directly.

e. Authorized to operate in Illinois.

f. Acceptable to Using Agency.

g. Substantiation: Submittal of qualifications, based on ASTM E 329 and ASTM E 548, and other applicable codes.

3. Reports: Written report of each test/inspection; including complete details of conditions, methods, and results, signed by responsible individual.

G. Reference Standards: Where products or workmanship is specified by reference to a document not included in the Contract Document, comply with the requirements of the document, except where more stringent requirements are specified.

1. Date of Issue: Latest edition published as of date of contract documents except where a specific date is specified herein or established by code.

2. Copies on Site: Keep copies of referenced standards that prescribe installation of workmanship standards on site until completion.

H. Training: Design-Builder to provide training and instruction on all major systems.

III. TEMPORARY FACILITIES AND CONTROLS

A. Using Agency will provide access to the following:

1. Electrical power and metering, consisting of connection to existing facilities. CDB shall cover the cost of the electrical power used by the contractor.

2. Water supply, consisting of connection to existing facilities. CDB shall cover the cost of the water used by the contractor.

B. New permanent facilities may be used during construction.

C. Existing facilities may not be used:

1. Design/Builder to provide temporary toilet facilities.

D. Security: Design/Builder to protect the work, existing facilities, and Using Agency's operations from unauthorized entry, vandalism, and theft.

E. Erosion and Sediment Control:

F. Dust Control:

1. Exterior: Minimize raising dust, preventing dispersal of air-borne dust into atmosphere and over property.

2. Interior: Provide and maintain dust-proof barriers between construction areas and occupied areas. Specific comprehensive measures must be given to dust control of work affecting or within food preparation areas and guest occupied areas.

G. Noise Control:

1. Outdoors: Coordinate with resort regarding exceptionally noisy exterior work.

2. Indoors: Coordinate with resort regarding excessively noisy interior work.

H. Waste Control: Provide waste storage and removal as required to maintain site in clean and orderly condition.

1. Waste Removal Service: Daily, including dumpsters. Dispose of waste off-site.

2. Prohibited: Open free-fall chutes, or containers without lids.

I. Pest and Rodent Control: Monthly treatments.

J. Pollution Control: Comply with federal, state, and local regulations.

K. Project Identification Signage: Provided by Design/Builder. Refer to Article 01 58 00 of Capital Development Board Standard Documents for Design Build Projects (SD-DB).

1. No signs allowed on site without the Using Agency's permission.

L. Removal of Temporary Facilities, Utilities, and Controls: Prior to Substantial Completion; including clean up, restoration of existing facilities used to original condition, restoration of permanent facilities used to specified condition, and repair of damage.

IV. PRODUCT REQUIREMENTS

A. See Facility Improvement Requirements in Appendices.

V. EXECUTION

A. Pre-Construction Survey: Provided by Using Agency; control and reference points to be indicated.

B. Health and Safety:

1. The use of explosives is not permitted.

2. Construction operations will comply with NFPA 241-2000, including applicable recommendations in Appendix A.

3. Use physical barriers to prevent access to areas that could be hazardous to workers or the public.

4. Substantiation:

a. Proposal to Include: Summary of health and safety plan.

VI. CLOSEOUT SUBMITTALS

A. As required per Capital Development Board Standard Documents for Design Build Projects (SD-DB).

B. Project Record Documents: During construction, maintain on site one set of all documents forming the contract, including drawings, specifications, and shop drawings, recording all changes made by addenda, by formal modifications, and in performing the work, for Using Agency's future reference.

1. Storage: Separately from documents used for construction, in location where they can be kept clean and safe from fire and damage.

2. Changes to be recorded include:

a. Actual measured locations (horizontal and vertical) of foundations and concealed utilities and appurtenances, referenced to visible permanent appurtenances.

b. Field changes of dimension and detail not on originals.

c. Actual products used, in specification, with brand name or model number.

3. Submittal Copy of Drawings: All marks copied of the original CAD drawing files, using the same drawing and layering conventions.

VII. DEMONSTRATION AND TRAINING:

A. Demonstration: For each equipment item and system, demonstrate all modes to Using Agency at time acceptable to Using Agency; if defects occur during demonstration, demonstration must be rescheduled for a time acceptable to Using Agency.

B. Training: Perform training for Using Agency's personnel in operation and maintenance of equipment, systems, and finish materials, consisting of:

1. Training is required for all software-operated systems, HVAC systems and equipment, plumbing equipment, electrical systems and equipment, conveying systems, other electrically-operated equipment, and fire alarm system.

a. Provide supplemental training within 6 months for operations that are seasonal in nature.

2. Instruction in operation, control, adjustment, shut-down, servicing, troubleshooting, and maintenance, for each equipment item for which training is specified.

3. Instruction in care, cleaning, maintenance, and repair of materials for:

a. Each item for which training is specified

b. Roofing, waterproofing, other weather-exposed or moisture protection products

c. Finishes, including flooring

d. Fixtures and fittings

e. Items as specified in other Sections

4. Major Software-Operated Systems: Training by software manufacturer at their facility for minimum of two Using Agency staff members, with take-home training materials.

5. Training Location: If not otherwise specified, conduct training in classroom or other facilities on site with video media made for future use.

6. Minimum Qualifications of Trainers: Knowledgeable about the project and the equipment and trained by the manufacturer.

7. Maintenance Manuals: Ready for use in training.

8. Video Recording: The contractor shall video record all training sessions. Recorded sessions shall be provided to the Rend Lake Resort Operators.

VIII. OPERATION AND MAINTENANCE

A. Post-Occupancy Survey: Conducted by Using Agency, of actual occupants after minimum of two weeks of full occupancy and operation and again after 6 months.

1. Purpose of Survey: Subjective evaluation of function and quality of occupants' spaces and project as a whole.

2. To be conducted by Using Agency, for Using Agency's use in determining project quality, process evaluation, programmatic and design intent and compliance, code compliance, and overall project success and objectives.

SECTION 1

PROGRAM SUMMARY

I. BASIC FUNCTION

A. The purpose of this project is to provide various improvements to several of the existing facilities, as well as the construction of new amenities, at Rend Lake Resort located in Whittington, Illinois.

B. The overall project involves the following improvements listed in the order of preference. Reference Improvement Location Plan in Appendix M.

II. IMPROVEMENTS

A. Upgrades to Existing Cabins

1. New durable, low maintenance, exterior siding material on all cabins. Repair, replace or refurbish metal or wood railing, wood posts and wood deck material at all walkways leading to cabins. Configuration must remain the same. Replace existing kitchenette, in same configuration, with upgraded items. Replace all ceramic flooring in cabins.

B. Upgrades to Existing Conference Center & Hotel

1. Interior finish upgrades to 3 conference rooms, the lobby, existing restrooms, corridors, and Great Room Lobby. New entry to existing hotel. New HVAC system in the Conference Center. New through the wall HVAC units in the existing hotel rooms.

C. New Pier Restaurant

1. An open air restaurant and bar located over the water and supported by piers. Location to be in close proximity to the existing Windows Restaurant. New restrooms to be provided on land with easy access from new restaurant.

D. Upgrades to Existing Restrooms

1. Cosmetic upgrades to the existing men's and women's restrooms that serve Reilly's Lounge and Windows Restaurant.

E. New Laundry Facilities

1. New structure to accommodate additional laundry facilities. Structure will be addition to existing hotel or separate structure in close proximity.

F. Upgrades to Existing Pool Bathhouse

1. New metal doors and frames to replace the existing damaged items.

G. New Boatel Building

1. New 1 or 2-story hotel with a covered, single loaded, exterior corridor. Hotel to accommodate approximately 18 units. Location to be between the existing Flagship and Schooner Buildings.

H. New Outdoor Events Center

1. Open outdoor space for large events to include a large circular prefabricated pavilion, adequate restrooms and landscaping elements. Location to be in open grass area southwest of the existing hotel building.

I. Upgrades to Existing Gift Shop

1. Upgrades to existing PBX system to accommodate new facilities. Upgrades to the food service, which currently serves only ice cream, to accommodate the additional preparation and serving of cold sub sandwiches.

J. New Outdoor Lounge and Dining Area

1. New outdoor dining area in close proximity to the existing Windows Restaurant to accommodate outdoor dining and smokers.

K. New Signage

1. New identification signage for new construction, as well as the replacement of the large existing monument sign. Add decorative flags, or similar element to the existing outdoor signage.

L. Upgrade Existing Internet Tower

1. New tower to provide better, more consistent service to guests.

III. FACILITY IMPROVEMENT REQUIREMENTS

A. A detailed list of facility improvement requirements for each individual work item can be found in Appendix A through Appendix L.

IV. BID STRUCTURE

A. Base offers shall contain, at a minimum the first 6 items listed; Existing Cabins, Existing Conference Center & Hotel, New Pier Restaurant, Existing Restroom Upgrade, New Laundry Facility, and Existing Pool Bath House Upgrade. The remaining items shall then be added as alternates in any order deemed appropriate, with the Internet Tower being the lowest priority. Base offers and alternates shall meet all of the minimum requirements for each item as outlined in the Appendices.

SECTION 2

FACILITY PERFORMANCE

I. PERFORMANCE

A. Basic Function:

- Provide built elements and site modifications as required to fulfill needs described in the project program.

- The complete project comprises the following elements:

  a. Substructure: Elements below grade and in contact with the ground.

  b. Shell: The superstructure, exterior enclosure, and roofing.

  c. Interiors: Interior construction, finishes, fixtures, and built-in items.

  d. Services: Mechanical, artificial automatic and unattended means of supply, distribution, transport, removal, disposal, protection, control and communication.

  e. Equipment and Furnishings: Fixed and moveable elements operated or used by occupants in the functioning of the project, including foodservice and laundry equipment.

  f. Demolition: Removal of unneeded and undesirable existing elements, including work related to connections to existing structures.

  g. Sitework: Modifications to the site, site improvements, and utilities.

- Code: Make all portions of the project comply with the code. The code referred herein consists of all applicable local, state and federal regulations, including, but not limited to, those listed below. This is a guide to general code requirements and not an all inclusive list. Design Builders are responsible for verifying and complying with the State of Illinois and Capital Development Board's current regulatory requirements. Where two or more codes overlap in responsibility, the more stringent code shall apply.

  a. Federal Regulatory Requirements:

     1) 2010 Americans with Disabilities Act Standards for Accessible Design

  b. State of Illinois regulatory requirements:

     1) State of Illinois Building Codes

     2) State of Illinois Accessibility Code, 1997

3) ICC International Building Code, 2009

4) ICC International Mechanical Code, 2009

5) Illinois Energy Conservation Code

a) 2009 International Energy Conservation Code

b) ASHRAE 90.1-2007

6) Illinois State Plumbing Code 2004

7) NFPA 101, Safety to Life from Fire in Building and Structures, 2012

8) NFPA 13-2010, Standard for Installation of Sprinkler Systems, with Exceptions NFPA 30 & 30B

9) NFPA 70, National Electrical Code, 2011

10) NFPA 72, National Fire Alarm Code, 2010

11) CDB Regulatory Requirements

c. Non-Regulatory Criteria Document: In addition to specific regulatory requirements, the following documents are also incorporated into the definition of 'the code' for the purposes of this project, except for administrative provisions contained herein; where referenced, the role of the code official described in the document will be performed by the Using Agency.

1) Capital Development Board Standard Documents for Design Build (SDDBP)

2) Capital Development Board RFP Phase I and Phase II requirements

- Environmentally Responsible Design: In addition to other requirements, provide design and construction that minimizes adverse effects on the exterior environment, enhances the quality of the indoor environment, and minimizes consumption of energy, water, construction materials, and other resources.

- In addition to the requirements of this section, comply with requirements of Section 1 – Program Summary and Section 00830 – Design and Construction Procedures of this bridging document, Capital Development Board Standard Documents for Design Build Projects (SDDBP), and Capital Development Board RFP Phase I and Phase II requirements.

B. Thermal Performance:

1. Design and construct to provide interior environment in accordance with the code and the following:

a. Outside Air Design Conditions:

1) Summer Outside Air Design Temperature: 94 deg F dry-bulb; 76 deg F wet-bulb.

2) Summer Outside Air Design Temperature on the Building Roof: 104 deg dry-bulb.

3) Winter Outside Air Design Temperature: -10 deg F dry-bulb.

b. Energy Design Wind Speed: 25 mph

C. Health and Safety

1. Fire Resistance: Per facility and as required by code.

2. Prevention of Accidental Injury: As required by code and as follows:

a. Safety Glazing: As defined by 16 CFR 1201; provide in locations required by code.

b. Other requirements specified in other sections.

3. Lightning Hazard: Design to prevent damage to occupants, structure, services, and contents due to lightning strikes. System shall be a continuation the existing system presently installed.

a. Provide protection equivalent to that specified in NFPA 780-2011; without using the superstructure as a grounding conductor or ground terminal. System will be an extension of the existing lightning protection system.

b. Ground Resistance Measurement Methods: As described in NFPA 780-2011.

c. Substantiation:

1) Design Development: If grounding is very shallow or in dry soil, or in rock, then ground resistance measurements and engineering analysis of ground terminal design is required.

2) Design Development: Diagrams showing locations of strike (air) terminals and zones of protection, identification of internal components that require bonding to equalize.

3) Construction Documents: Engineering analysis of equalization of potential to metal bodies with structure.

4) Construction Documents: Drawings showing locations and size of conductors, bonding metal bodies, and components; detailed installations specifications.

5) Closeout: Maintenance and inspection procedures.

6) Closeout: Project record data; location of ground terminals, ground resistance and soil conditions at time of test.

4. Health Hazards:

a. Design to prevent growth of fungus, mold, and bacteria on surfaces and in concealed spaces.

b. Indoor Air Quality: Design and construct to comply with the code and the following:

1) Acceptable air quality as defined by ANSI/ASHRAE 62.1-2004 and as required to maintain stated indoor environmental design conditions.

D. Structure:

1. Building Loads: Accommodate loads as prescribed by ASCE 7-05 and IBC 2006.

2. Refer to Section 4 – Substructure.

3. Substantiation:

a. Proposal: Identification of major structural materials and systems.

b. Preliminary Design: Detailed listing of design criteria and preliminary analysis, prepared by a licensed structural engineer registered in the State of Illinois.

c. Construction Documents: Detailed design analysis by licensed structural engineer registered in the State of Illinois.

E. Durability:

1. Expected Life Span: The expected life span of the built portions of this project is 20 years.

2. Energy Efficiency: Minimize energy consumption while providing function, amenity, and comfort specified.

a. Provide energy efficient design using procedures and values specified in ASHRAE 90.1-2007/IECC 2009. Systems shall be designed to be as energy efficient and as cost effective as possible within the requirements of the project. Individual components shall be selected to comply with minimum requirements of ASHAE 90.1-2007/IECC 2009.

b. Substantiation: Upon request by the Capital Development Board, provide documentation of all system efficiencies employed relative to ASHAE 90.1-2007/IECC 2009.

3. Water Consumption: Design facilities to minimize water consumption, while still meeting the specified design criteria.

4. Ease of Operation: Provide facility, equipment, and systems that are easily operated by personnel with a reasonable level of training for similar activities.

    a. Minimize the need for specialized training in operation of specific equipment or systems; identify all equipment and systems for which the manufacturer recommends or provides training programs.

    b. Train Using Agency's personnel in operation of equipment and systems; see section 00830 for additional requirements.

    c. Substantiation:

        1) Construction Documents: Floor Plans (including proof of maintenance and service access)

        2) Design Development: Operating impact analysis, including identification of type and quantity of staff, tools, and supplies required.

5. Ease of Maintenance: Minimize the amount of maintenance required.

    a. Substantiation

        1) Design Development: Maintenance impact analysis, including identification of maintenance effort (type of staff, time required, and frequency), tools, and supplies required, over expected functional and aesthetic service life of project; including preventative maintenance, replacement of parts, and cleaning.

        2) Construction Documents: Floor Plans (including proof of maintenance and service access).

6. Ease of Repair: Elements that do not meet the specified requirements for ease of repair may be used, provided they meet the specified requirements for ease of replacement of elements not required to have service life span equal to that specified for the project as a whole; the service life expectancy analysis and life cycle cost substantiation specified for service life are provided; and Using Agency's acceptance is granted.

7. Ease of Replacement:

    a. Elements Not Required to have the Expected Service Life Span Equal to the Specified for the Project as a Whole: Make provisions for replacement without undue disruption of building operation.

    b. Substantiation:

1) Construction Documents: Floor Plans (including proof of maintenance and service access)

II. ELEMENTS AND PRODUCTS

A. In addition to requirements specified in other Sections, provide products and elements that comply with the following.

B. Elements Made Up of More Than One Product:

1. Where an element is specified by performance criteria, use construction either proven-in-use or proven-by-mock-up, unless otherwise indicated.

   a. The Design/Builder may choose whether to use elements proven-in-use or proven-by-mock-up, unless either option is indicated as specifically required.

   b. Where test methods accompany performance requirements, use those test methods to test the mock-up.

2. Where a type of product is specified, without performance criteria specifically applicable to the element, use the type of product specified.

3. Where more than one type of product is specified, without performance criteria specifically applicable to the element, use one of the types of products specified.

4. Where a type of product is specified, with applicable performance criteria, use either the type of product specified or another type of product that meets the performance criteria as proven-in-use or proven-by-mock-up.

5. Where more than one type of product is specified, with applicable performance criteria, use either one of the types of products specified or another product that meets performance criteria as proven-in-use or proven-by-mock-up.

6. Where neither types of products nor performance criteria are specified, use products that will perform well within the specified life span of the building.

C. Products:

1. Where a product is specified only by a manufacturer name and model number/brand name, use only that model/brand product.

2. Where the properties of a product are specified by description and/or with performance criteria, use products that comply with the description and/or performance criteria.

3. Where manufacturers are listed for a particular product, use a product made by one of those manufacturers that also complies with other requirements.

III. SUBSTANTIATION

A. Definition: Substantiation is any form of evidence that is used to predict whether the design will comply with the requirements or to verify that the construction, based on the design, actually does comply. During Preliminary Design, Design Development, and Construction Documents, requirements to submit substantiation are primarily intended to forestall use of designs or construction that will not comply. At any time before completion of construction, substantiation is presumed to be only a prediction and may subsequently be invalidated by actual results.

    1. Regardless of whether substantiation is specified or not, the actual construction must comply with the specified requirements and, at the Using Agency's discretion, be examined, inspected, or tested to determine compliance.

    2. Substantiation submittals will not be approved or accepted, except to the extent that they are part of documents required to be approved or accepted in order to proceed to the next stage of design or construction. However, approval or acceptance of substantiation will not constitute approval or acceptance of deviations from the specified requirements unless those deviations are specifically identified as such on the submittal.

    3. The Using Agency accepts the responsibility to review substantiation submittals in a timely manner and to respond if they are unacceptable.

B. In addition to the requirements stated in other Sections, provide the following substantiation of compliance at each stage of this project:

    1. If a substantiation requirement is specified without an indication of when it is to be submitted, submit or execute it before the end of Construction Documents.

C. Design Analysis (including Engineering Calculations):

    1. Where a design analysis or calculation is specified without identifying a particular method, perform analysis in accordance with accepted engineering or scientific principles to show compliance with specified requirements, and submit report that includes analysis methods used in the name and qualifications of the designer.

    2. Where engineering design is allowed to be completed after commencement of construction, substantiation may be in the form of shop drawings or other data.

    3. Submit design analyses at the end of Design Development unless otherwise indicated.

    4. Where design analysis is specified to be performed by licensed design professional, use a design professional licensed in the State of Illinois.

D. Products:

    1. Where actual brand name products are not identified by either the Using Agency or the Design Builder, identify the products to be used.

2. In the Proposal:

    a. Identify one or more product types for each system, assembly or element.

    b. For each product type, provide brief descriptive or performance specifications.

    c. For major manufactured products that are commonly purchased by brand name, and any other products so indicated, identify at least one manufacturer that will be used.

3. During Preliminary Design or Design Development:

    a. Where more than one product type is identified for a particular system, assembly or element, identify exactly which type will be used.

    b. For each product type, provide descriptive or performance specifications; early submittals may be minimal, but complete specifications are required prior to completion of construction documents.

    c. For each product type, identify at least one manufacturer that will be used.

    d. For major manufactured products that are commonly purchased by brand name, and any other products so indicated, provide manufacturer's product literature on at least one actual brand name product that meets specifications, including performance data and sample warranty.

4. During Construction:

    a. Identify actual brand name products used for every product, except commodity products specified by performance or description.

    b. Where a product is specified by performance requirements with test methods, and if so specified, provide test reports showing compliance.

    c. Provide manufacturer's product literature for each brand name product.

    d. Provide the manufacturer's certification that the product used on the project complies with the contract documents.

5. Before End of Closeout:

    a. Provide copies of all manufacturers warranties that extend for more than one year after completion.

SECTION 3

SUBSTRUCTURE

I. PERFORMANCE

A. Basic Function:

1. Provide substructure as required to support the completed and occupied building safely and without uncontrolled subsidence or other movement.

2. Substructure comprises the following elements:

   a. Foundations and Footings: Structures responsible for transferring dead loads, live loads and environmental loads of completed building to the earth in such a way that the building is supported evenly and without movement.

   b. Other Substructure Elements: Slab on grade.

   c. Other Substructure Elements: Underwater support piers.

3. Where substructure is integral with elements defined within another element group, meet requirements of both elements groups.

4. In addition to the requirement of this section, comply with all applicable requirements of Section 2 – Facility Performance.

5. Some existing drawings to be available by CDB/IDNR for Design-Builder review. Reference Section 000830 to coordinate document review.

B. General Criteria:

1. Thermal Performance: Provide construction that will have thermal resistance as necessary to maintain interior comfort levels specified and in accordance with the required code and the following:

   a. Energy Efficiency: As specified in Section 2 – Facility Performance.

   b. Average Thermal Transmittance: U-value of 0.05 installed performance, maximum, for entire shell. The maximum U-value of 0.15 installed performance for the portions if the substructure in contact with the earth and enclosed conditioned space.

   c. Condensation: None on interior surface under any interior temperature and relative humidity conditions, during 100 percent of the days in the coldest 3 months of the year.

   d. Minimum thermal performance values for individual shell elements are also specified in other sections.

e. Substantiation:

1) Preliminary Design: Identification of major thermal resistance materials and systems.

2) Design Development: Detailed listing of design criteria and design analysis, prepared by licensed mechanical engineer.

3) Construction Documents: Product data on thermal materials and details of continuous thermal barrier.

f. Maintain thermal continuity between substructure and shell to avoid locations of thermal bridging.

2. Water Penetration: Prevent ground water penetration into the interior of the building, under any circumstances.

a. Substantiation:

1) Preliminary Design: Identification of major water resistant assemblies and drainage features.

2) Construction Documents: Details of proven-in-use or proven mock-up design.

b. Foundation walls are to be designed as water-tight retaining walls where the exterior grade is above the finish floor level.

C. Structure:

1. Capacity: Provide load bearing substructure members as required by code and designed to distribute dead loads, live loads, and environmental loads such that the allowable bearing capacity of the soil is not exceeded.

2. Dead Loads: Accommodate weights of building materials, construction itself, and all fixed equipment.

3. Live Loads: Accommodate loads from use and occupancy of the building, whether uniformly distributed loads as prescribed by code or concentrated loads, whichever are more demanding structurally.

4. Concentrated Loads: Accommodate loads from use and occupancy that are required for building functionality, specialty items and mechanical units.

5. Environmental Loads: Accommodate loads from all environmental forces in accordance with required code and the following:

a. Soil Analysis: Soil borings and geotechnical analysis shall be the responsibility of the Design Builder. All structures shall be designed based on the results of this analysis.

b. Lateral Soil Loads: Lateral pressure of soil adjacent to vertical substructure elements, including potential surcharge from fixed or moving loads and potential hydrostatic pressure.

    1) Increase lateral pressure assumptions if expansive soils have been identified by a geotechnical investigation, unless expansive soils are excluded from backfill.

    2) Minimum Lateral Soil Load: 50 psf per ft of depth (equivalent fluid pressure).

c. Vertical Soil Loads: Full hydrostatic pressure applied over entire substructure area.

    1) Increase vertical pressure assumptions if expansive soils have been identified by a geotechnical investigation, unless expansive soils removed and replaced by non expansive soils to a minimum depth of 24 in below horizontal substructure elements or as recommended by a geotechnical engineer.

d. Seismic: In accordance with Section 2 – Facility Performance and with International Building Code, 2006 and ASCE 7-2005 Minimum Design Loads for Buildings and Other Structures.

e. Wind: Overturning forces attributable to design and wind speed of 90 mph applied to full building height and in accordance with International Building Code, 2006 and ASCE 7-2005 Minimum Design Loads for Buildings and Other Structures.

D. Unacceptable Features:

1. Any substructure element or system that is experimental or has not been proven-in-use to meet the specified design criteria and code requirements.

SECTION 4

BUILDING SHELL

I. PERFORMANCE

A. Basic Function:

1. Provide permanently enclosed spaces for all functional areas outlined in the Facility Improvement Requirements, unless otherwise indicated. Provide a physical enclosure that keeps out weather, unwelcome people, animals and insects without requiring specific action by occupants, while providing conventional movement of occupants between inside and outside, desirable natural light, and views from inside to outside. Provide level floor areas and essentially vertical walls.

2. The elements forming usable enclosed space and separating that space from the external environmental compromise the shell and consist of:

   a. Superstructure: All elements forming floors and roofs above grade, and the elements required for their support, insulation, fireproofing, and firestopping.

   b. Exterior Enclosure: All essentially vertical elements forming the separation between exterior and interior conditioned space, including exterior skin, components supporting weather barriers, and jointing and interfacing components; not including the interior skin unless an integral part of the enclosure.

   c. Roofing: All elements forming weather and thermal barriers at horizontal and sloped roofs and decks, and roof fixtures. Roofs must comply with State of Illinois CDB roofing program and IBC.

   d. Other Shell Elements:

      1) Exterior Doors: Provide doors as required by code to achieve fire and smoke ratings required, as well as appropriate security measures as necessary to maintain desirable conditions.

      2) Windows: Provide windows meeting code requirements with appropriate security measures as necessary to maintain desirable conditions. All windows shall be fixed. There shall be no operable windows at any facility located at the Resort.

3. Exterior Surface Exposed to View: Surface visible from street to ground level, and adjacent existing buildings.

4. Where shell elements also function as elements defined within another element group, meet requirements of both groups.

5. In addition to the requirements of the section, comply with all applicable requirements of Section 2 – Facility Performance.

B. Amenity and Comfort:

1. Thermal Performance: Provide construction that will have thermal resistance as necessary to maintain interior comfort levels specified and in accordance with required code and the following:

    a. Energy Efficiency: As specified in Section 2 – Facility Performance.

    b. Average Thermal Transmittance: U-value of 0.05 Installed Performance, maximum, for entire shell. The maximum U-value of 0.048 installed performance for the roof assembly.

    c. Condensation: None on any interior surface under any interior temperature and relative humidity conditions, during 100 percent of the days in the coldest 3 months of the year.

    d. Components That Have Surface Facing Both Interior and Exterior Environment: Condensation Resistance Factor (CRF) as required to meet requirement above when tested in accordance with AAMA 1503-1998.

    e. Minimum thermal performance values for individual shell elements are also specified in other Sections.

    f. Substantiation:

        1) Preliminary Design: Identification of major thermal resistant materials and systems.

        2) Design Development: Detailed listing of design criteria and design analysis, prepared by licensed mechanical engineer.

        3) Construction Documents: Product data on thermal materials and details of continuous thermal barrier.

2. Air Infiltration: Design and select material to limit air infiltration as follows:

    a. Use supplementary air barrier if necessary to maintain performance over entire shell.

    b. Used method of sealing joints between elements that will be effective given available construction.

3. Water Penetration: Design and select material to prevent water penetration into the interior of the building under conditions of rain driven by 90 mph wind.

    a. Substantiation:

        1) Preliminary Design: Identification of major water resistant assemblies.

2) Design Development: Details of proven-in-use or proven-by-mock-up design.

4. Acoustical Performance:

   a. Design and construct the shell of all facilities to provide an STC rating as required for similar facilities.

   b. Use shell elements that will not resonate at frequencies that are characteristic of ambient exterior sound sources at the project site.

5. Cleanliness of Exterior Surfaces: Design and select exterior materials for all facilities as follows:

   a. Prevent attraction and adherence of dust and air-borne dirt and soot, and minimize appearance of settled dust and dirt.

   b. Surfaces should be washed reasonably clean by normal precipitation.

   c. Prevent precipitation from washing settled dust and dirt over surface exposed to view.

6. Appearance: Design and select materials to provide exterior appearance with characteristics as follows:

   a. Compatible with adjacent buildings and existing resort theme.

   b. For additions, materials shall match adjacent structures.

   c. Substantiation:
      1) Proposal: Conceptual drawings of proposed solutions indicating overall building configuration, massing, scale, and relationship to surrounding buildings.
      2) Preliminary Design: Drawings indicating façade treatments for all elevations identifying visible materials.
      3) Design Development: Drawings indicating all building elements that are part of the shell with sizes and locations shown to scale.
      4) Construction Documents: Details of building shell, annotated to show compliance with performance requirements. Provide samples for review of material and appearance.

C. Health and Safety:

1. Fire Resistance: Design and select materials to provide the resistance in accordance with required codes and additional criteria as indicated.

2. Accidental Injury: Design and select materials to protect pedestrians and building occupants in accordance with code and the following:

a. Prevent ice and snow from falling off the building elements onto pedestrians, building occupants, and vehicles.

b. Protect pedestrians, building occupants, and vehicles from objects accidentally dropped from elevated observation decks, balconies or plazas.

3. Physical Security: Design and construct facilities to provide protection of occupants and interior building elements, equipment and furnishings from intrusion or vandalism.

4. Explosion: Design and construct shell to provide relief from explosion hazards so as to minimize effect on occupants and structural members.

D. Structure:

1. Structural Performance: Design and select materials to support all loads without damage due to structure in accordance with code.

2. Construction Loads and Erection Stresses: Accommodate temporary construction loads and erection stresses during construction.

3. Environmental Loads:

a. Seismic: In accordance with requirements of Section 2 – Facility Performance and with International Building Code, 2006 and ASCE 7-2005 Minimum Design Loads for Buildings and Other Structures.

b. Wind: Overturning forces attributed to design wind speed of 90 mph applied to full building height in accordance with International Building Code, 2006 and ASCE 7-2005 Minimum Design Loads for Buildings and Other Structures.

c. Snow: In accordance with International Building Code, 2006 and ASCE 7-2005 Minimum Design Loads for Buildings and Other Structures.

4. Roof Slopes: To be designed at the Design Builders discretion, but should match the design characteristics of the surrounding existing facilities.

E. Durability:

1. Service Life Span: Same as building service life span, which is 20 years.

2. Water Penetration: Design and select materials to prevent water penetration into the interior of shell assemblies, under conditions of rain driven by 90 mph winds.

3. Weather Resistance: Design and select materials to minimize deterioration due to precipitation, sunlight, ozone, normal temperature changes, and atmospheric pollutants.

4. Impact Resistance: Design and select material to resist damage due to impact in accordance with code and the following:

a. Minimize damage from windborne debris propelled at up to 50 mph.
b. Design and select materials to resist damage from hail of size up to ½ inch.
c. Minimize damage due to potential vandalism.
d. Natural hazards: Design to resist damage from perching, nesting, and feeding birds and rodents.
e. Minimum performance values for individual shell elements may be specified in other sections.

5. Moisture Vapor Transmission: Design to prevent deterioration of materials due to condensation of moister vapor inside assemblies.

    a. Use supplementary vapor retarder if necessary to meet requirements.
    b. Use method of sealing joint between elements that will be effective given available construction practices.

6. Wear Resistance: Design and select materials to provide resistance to normal wear-and-tear in accordance with code and the following:

    a. Elements Within Reach of Pedestrians: Minimize degradation from rubbing and scratching caused by pedestrians.

II. PRODUCTS

A. All products used throughout this project shall be proven in use, have the warranty necessary to meet the life span criteria, and shall meet all requirements of this document.

B. No experimental products shall be used.

C. Do not use:

1. Pre-engineered metal buildings.

2. Air-supported structures.

3. Pre-engineered glazed structure.

4. Different metals subject to galvanic action in direct contact with each other.

5. Aluminum in direct contact with concrete or cementitious materials.

6. Materials and products that require field finishing on surfaces exposed to the weather.

7. Metal siding.

8. Aggregate or stone roofing ballast.

9. Refer to Capital Development Board Standard Documents for Design Build Projects (SDDBP), Section 01 61 10, Prohibited Products.

III. METHODS OF CONSTRUCTION

A. The construction methods implemented for this project shall be proven in use, have the warranty necessary to meet the life span criteria, and shall meet all requirements of this document.

B. No experimental methods of construction shall be used.

C. Do not use:

1. Geodesic domes.

2. Lift-slab construction.

3. Dead-flat roofs.

4. Insulated concrete form walls.

SECTION 5

INTERIORS

I. PERFORMANCE

A. Basic Function:

1. Provide appropriately finished interiors for all specifications indicated in the program, equipped with interior fixtures as required to function properly for specific occupancies.

2. Interiors comprised of the following assemblies:

   a. Interior Construction: All elements necessary to subdivide and finish space enclosed within the shell, including applied interior surfaces of the exterior enclosure.

   b. Interior Fixtures: All elements attached to interior construction that adds function to enclosed spaces, except for elements classified as equipment or services fixtures.

   c. Other Interior Elements: Signage for door numbers for each unit in the New Boatel Building as identified in Appendix G. Signage shall be similar to the existing hotel system.

3. Provide physical separation between spaces, constructed to achieve fire ratings required by code and additional criteria indicated. Provide appropriate security between adjacent spaces, and visual, acoustical, olfactory, and atmospheric isolation as necessary to maintain desirable condition in each space.

4. Provide finishes for interior surfaces that are appropriate for the functions of each space.

5. Provide interior fixtures that are necessary for proper function of each space.

6. Where interior elements also must function as elements defined within another element group, meet requirement of both element groups.

7. Provide doors as required by code to achieve fire and smoke rating required. Provide appropriate security between adjacent spaces, and visual, acoustical, olfactory, and atmospheric isolation as necessary to maintain desirable condition in each space.

B. Amenity and Comfort:

1. Access: Provide access to all primary interior spaces from circulation spaces. There shall be no access to any primary interior space exclusively through another primary interior space.

2. Natural Light: Provide natural light throughout the facility where appropriate and where feasible.

   a. Substantiation:

1) Proposal: Information on overall building configurations that will permit daylighting to appropriate levels.
2) Construction Documents: Details of lighting control mechanisms.
3) Construction: Field test of lighting levels verifying compliance with performance requirements.

3. Acoustical Performance:

   a. Background Noise: Provide interiors that maintain ambient sound levels within primary spaces at levels recommended in ASHRAE HVAC Applications Handbook, 2003, when adjacent spaces are occupied and are being used normally.
   b. Reverberation: Provide reverberation times in primary spaces for frequencies of 500 – 1000 Hz.

4. Appearance: Provide interiors that are pleasing in appearance, coordinate with the existing resort theme and do not detract from the primary functions performed in each space.

5. Texture: Provide interior elements and surfaces that are textured appropriately for primary functions to be accommodated within each space.

   a. For surfaces that are within normal reach of occupants, provide textures that are safe for occupants and require minimum maintenance.
   b. For surfaces that are not within normal reach of occupants, design may provide textures that are generally of a coarser scale than those permitted within normal reach.

C. Health and Safety:

1. Egress: Provide egress from all interior spaces in accordance with code.

2. Fire Resistance: Design and select materials to provide fire resistance in accordance with code.

D. Structure:

1. Structural Performance: Provide interior construction and fixtures to support all loads without damage as required by code.

E. Durability:

1. Service Life Span: Same as building service life, which is specified as 20 years.

2. Wear resistance: Provide interior construction and fixtures that are suitable in durability for the degree and type of traffic anticipated in each space.

F. Operations and Maintenance:

1. Cleaning: Provide interior construction and fixtures that will not be damaged by ordinary cleaning and maintenance operations.

II. PRODUCTS

A. Design and construct interiors using materials and systems that are proven in use, have the warranty necessary to meet the life span criteria, and meet all requirements of this document.

B. No experimental products shall be used.

C. Do not use:

1. Carpet tiles in any area of any facility at any location at the Resort. The Using Agency prefers broadloom carpet.

III. METHODS OF CONSTRUCTION

A. The following existing interior elements must be preserved and protected during construction:

1. Fire-rated partitions.

2. Existing adjacent interior elements and finishes that may be affected during construction and are to remain once project is complete.

B. Construct the interior using methods and techniques that are proven in use, have the warranty necessary to meet the life span criteria, and meet all requirements of this document.

C. Do not use:

1. Site built wall panels.

2. Encapsulation of existing asbestos and asbestos-containing materials and finishes.

3. Refer to Capital Development Board Standard Documents for Design Build Projects (SDDBP), Section 01 61 10, Prohibited Products.

SECTION 6

EQUIPMENT AND FURNISHINGS

I. PERFORMANCE

A. Basic Function:

1. Design the facility to accommodate the equipment and furnishings required by the Using Agency, as specified below.

2. The following equipment and furnishings are to be provided by the Design Builder:

   a. All permanently installed equipment and furnishings.

   b. Electrically operated equipment with permanently wired connection.

   c. Items requiring water supply or drainage connection.

   d. Items requiring an air distribution or exhaust connection.

   e. Items requiring special services connection.

   f. Items required by code.

3. The following recommended food service equipment is to be provided by the Design Builder for the New Pier Restaurant as identified in Appendix C and the Gift Shop Upgrades as identified in Appendix I:

   a. The New Pier Restaurant recommended food service equipment shall be as follows. The Using Agency welcomes design or cost saving input from the Design Builder. Reference equipment cut sheets in Appendix O.

      Double convection oven - 1
      4 burner stove with flat top grill - 1
      Deep fryer – 2
      Char broiler – 2
      Under counter refrigerating unit – 3
      Sandwich/salad unit – 2
      Ice machine – 2
      Microwave

   b. The Gift Shop Upgrade recommended food service shall be as follows. The Using Agency welcomes design or cost saving input from the Design Builder. Reference equipment cut sheets in Appendix O.

      1 door glass door reach-in merchandiser freezer -1
      3 door glass door reach-in merchandiser refrigerator – 2

Sandwich prep table with insulated hood – 1
Merchandising style ice cream dipping cabinet w/ plumbing for dipping well – 1
Bakery display case - 1
Under counter-size high temp sanitizing dishwasher - 1
Under counter 3 door refrigerator - 1

4. The following equipment and furnishings are to be provided by the Using Agency:

   a. All loose (moveable) equipment and furnishings.

   b. Electrically operated equipment with cord-and-plug connection. Except for those specifically identified to be provided by the Design Builder.

   c. Items indicated as Not in Contract (NIC).

5. Using Agency Furnished Items: Performance requirements that specify characteristics of equipment or furnishings items do not apply; requirement for accommodating items to the project do apply.

6. Where equipment or furnishings elements also must function as element defined within another element group, meet requirements of both element groups.

7. In addition to the requirement of this section, comply with all applicable requirements of Section 2 – Facility Performance.

B. Amenity and Comfort:

   1. Appearance:
      a. Service Connections to Equipment: Concealed behind or under items of their housings.

C. Health and Safety:

   1. Accident Prevention:

      a. Comply with requirement of 29 CFR 1910, regulations of Occupational Safety and Health Administration.

      b. Prevent accidental pinching, crushing, and cutting of operator limbs, fingers and toes in or near moving parts of equipment by using intelligent design or protection, without reliance on self-protective operation by operator.

D. Durability:

   1. Service Life Span: Same as for buildings, 20 years.

   2. Vandal Resistance: Parts not easily removed without the use of tools.

E. Operation and Maintenance:

1. Ease of Maintenance: Not requiring any routine measure to maintain operation or finishes, other than washing with soap and water.

2. Ease of Repair: Serviceable parts and access panels easily removable with common tools.

3. Ease of Equipment Service: As specified in Section 2.

II. PERFORMANCE

A. Equipment:

1. All equipment provided by the Design Builder shall meet industry standard performance criteria for the type of equipment, installation, application and usage.

SECTION 7

ENGINEERING SYSTEMS

I. PERFORMANCE

A. Basis of Mechanical, Plumbing & Fire Protection Design:

1. This project consists of providing mechanical, plumbing and fire protection systems for both new and existing buildings. The project scope for improvements/upgrades is outlined in Appendices A through N of this report.

2. Reference Codes and Standards:

    a. International Mechanical Code (IMC). 2009

    b. International Building Code (IBC). 2009

    c. Illinois Plumbing Code. 2004

    d. National Fire Protection Association (NFPA). 2010

    e. Sheet Metal and Air Conditioning Contractors' National Association (SMACNA).

    f. American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)

3. Engineering System Requirements:

    a. Plumbing

        1) Refer to General Specifications section for performance requirements of the building elements included in the plumbing system.

        2) The plumbing system for this facility consists of all fixtures, potable cold and hot water piping and equipment, piping insulation, water heating equipment, sanitary waste and vent piping systems, and other specialty piping and equipment within 5 feet of the building. Refer to the facility improvement requirements in the appendices for building occupancy levels and functions associated with the various spaces in this project.

            a) General System Requirements

                i) Provide working space around all equipment. Provide concrete pads under all equipment. Provide all required fittings, connections and accessories required for a complete and usable system. Design and installation shall be in accordance with Illinois Plumbing Code (IPC) and manufacturer's instructions. Where the word "should" is used in the manufacturer's recommendations, substitute the word "shall."

b) Plumbing Fixtures

i) Provide quantity and type of plumbing fixtures required for the occupancy, use, and functions described for this facility. Provide handicapped fixtures in accordance with the referenced criteria in the Project Program.

c) Water Closets

i) Provide wall/floor mounted flush valve type water closets (including ADA toilets) with manual flush in all public restroom spaces.

d) Urinals

i) Provide flush valve type urinals with manual control in all public restroom spaces.

e) Lavatories

i) Provide wall mounted lavatories made of vitreous china, with manual faucets in restrooms.

ii) Provide handicapped lavatories in accordance with ADA guidelines.

f) Sinks

i) Refer to the facility improvement requirements in the appendices for the number and type of sinks required. In addition to the above, provide sinks in work areas, break rooms, etc., as per using agency's request.

ii) Provide mop sink in the janitor's space.

g) Showers/Tubs

i) Refer to Project Description Section for the location/number of showers required.

ii) Provide a shower/tub and supply fittings.

iii) Provide handicapped showers to comply with ADA guidelines.

h) Drinking Fountains and Coolers

i) Refer to the facility improvement requirements in the appendices for the number and type of water coolers required.

ii) Provide water coolers (including ADA compliant unit) at each floor level.

i) Pipes and Fittings

i) Provide Copper tubing and fittings for above ground and buried piping.

j) Valves & Hydrants

i) Provide isolation valves at supply to each floor and each restroom. Provide hose bibbs in mechanical rooms and interior work zones as per the facility improvement requirements in the appendices and as requested by the Using agency. Provide wall hydrants along the building exterior such that all points along the perimeter can be reached with a 100 foot (30 meter) long hose.

k) Domestic Water Equipment

i) Provide backflow preventers of types and at points within domestic water systems as specified by IPC. Locate inside the mechanical room on service entrance lines where not provided exterior to the building.

ii) Provide propane gas water heater for heating of domestic water. Smaller HW requirement may be met with electric water heaters.

iii) Provide in-line circulator for domestic hot water distribution system.

l) Insulation & Identification

i) Provide mineral fiber insulation with vapor barrier on domestic water (hot and cold) supply and recirculation piping. Provide identification for piping and equipment.

m) Other Domestic Water Supply

i) Provide piping supports in accordance with the IPC. Provide inspections, disinfection, and testing in accordance with the IPC.

n) Sanitary Waste/Vent Pipe & Fittings

i) Provide cast iron hub and spigot pipe and fittings, rubber compression gasket joints for below ground installation. Above ground soil, waste, and vent piping shall be hubless cast iron pipe and fittings with neoprene gasket clamp and shield. Above ground soil, waste, and vent piping may also be cast iron hub and spigot pipe and fittings. PVC piping, fittings and solvent cement for above and below ground installation shall also be acceptable.

o) Floor Drains

i) Provide in mechanical rooms, restrooms, plumbing chase areas, and to receive condensate from air conditioning equipment. Provide trench drains where required.

p) Sanitary & Vent Equipment

i) Provide duplex sump pump package (if necessary).

ii) Provide duplex sewage pump package (if necessary).

q) Rain Water Pipe & Fittings

i) Provide Cast iron hub and spigot pipe and fittings.

r) Roof Drains

i) Provide roof drains that are compatible with the roofing system.

s) Insulation & Identification

i) Provide the same as domestic water piping.

t) Special Piping Systems

i) Contractor is responsible for any applications and permits, and shall provide the complete propane gas system from the source to the heating equipment. The Contractor shall be responsible for the tanks, piping and appurtenances.

u) Interceptors

i) Provide a grease separator for the waste where oil/grease may be carried over into the waste system.

b. HVAC

1) Refer to General Specification section for performance requirements of the building elements included in the HVAC system.

i) Provide a heating, ventilating and air conditioning (HVAC) system for the project facility that attains the following objectives: Occupant comfort, Indoor air quality, Acceptable noise levels, Energy efficiency, Reliable operation, and Ease of maintenance. Design and installation shall be in accordance with International Mechanical Code (IMC) and ASHRAE Standards. Refer to facility improvement requirements in the appendices for building occupancy levels and functions associated with the various spaces in this project. Any combination of equipment that attains these goals, and meets the requirements outlined below, will be acceptable.

ii) It is acceptable to have stand-alone mechanical systems for this project. A Building Automation System is NOT required.

a) General System Requirements

1) Provide working space around all equipment. Provide all required fittings, connections and accessories required for a complete and usable system. All equipment shall be installed per IMC, NFPA, SMACNA, and other codes enforced by local authorities having jurisdiction and the manufacturer's recommendations. Where the word "should" is used in manufacturer's instructions, substitute the word "shall".

2) Provide air conditioning and heating for spaces as indicated and for the following Design conditions:

Outside Conditions					
Summer	95	Degrees F dry bulb	Winter	0	Degrees F
	35	Degrees C dry bulb		-18	Degrees C
	78	Degrees F wet bulb			
	26	Degrees C wet bulb			

Inside Conditions					
Summer	76	Degrees F dry bulb	Winter	72	Degrees F
	24	Degrees C dry bulb		22	Degrees C
	50-55	%RH			

Heating & Ventilating Inside Conditions					
Summer	100	Degrees F dry bulb	Winter	60	Degrees F
	38	Degrees C dry bulb		16	Degrees C
	12-15	[Air changes per hour]			

3) Provide Ventilation rates and systems per the latest edition of ASHRAE Standard 62.1 and IMC.

4) The HVAC system shall provide each zone with the choice of heating and/or cooling year round unless otherwise indicated. Each zone shall have its own limited range of control, as allowed by the control system. Space temperature control for each system may be stand-alone.

5) Material and Equipment Qualifications: All materials and equipment shall have been in satisfactory commercial or industrial use for 2 years prior to the bid opening. The 2-year use shall include applications of equipment and materials under similar circumstances and of similar size. The product shall have been for sale on the commercial market through advertisements, manufacturer's catalogs, or brochures during the 2-year period.

6) Motors: Single-phase fractional-horsepower alternating-current motors shall be high efficiency types corresponding to the applications listed in

NEMA MG 11. Select polyphase motors based on high efficiency characteristics relative to the applications as listed in NEMA MG 10. Additionally, all polyphase squirrel-cage medium induction motors with continuous ratings shall meet or exceed energy efficient ratings per Table 12-10 of NEMA MG 1. Provide controllers for 3-phase motors rated 0.75 kW (1 hp) and above with phase voltage monitors designed to protect motors from phase loss and over/under-voltage. Provide means to prevent automatic restart by a time adjustable restart relay. For packaged equipment, the manufacturer shall provide controllers including the required monitors and timed restart. Provide reduced voltage starters for all motors 25 hp and larger.

7) Provide housekeeping pads and vibration isolators under all floor-mounted equipment.

8) All mechanical equipment shall have painted finishes that pass a salt-spray test conducted per ASTM B117 for duration of at least 500 hours.

9) All equipment shall be installed as per manufacturer's recommendations.

b) Fuel Gas Supply System

Contractor is responsible for providing complete propane storage and delivery systems for this project including any applications and permits. Provide gas piping to the heating equipment.

c) Heat Generating Systems

i) The heating requirement for the various portions of this facility shall be served by stand-alone gas/electric heating units such as overhead radiant heaters, unit heaters, etc.

d) Furnaces

i) Provide gas-fired condensing furnace(s) with cooling coil.

e) Fuel-Fired Unit Heaters

i) Provide gas-fired unit heaters and/or infrared radiant heaters.

f) Equipment Thermal Insulation

i) Provide insulation for hot water equipment.

g) Direct Expansion Systems

i) Provide air-cooled package, split, ductless split, variable refrigerant flow, etc., HVAC systems. Include economizer, heat pump, heat recovery, demand based ventilation, occupied/unoccupied operation, etc., towards energy

conservation and system efficiency. Provide UV lights if requested by the Using agency. Units shall operate with environmentally friendly refrigerant such as R-410A.

h) Air Distribution, Heating & Cooling

i) Provide insulated, galvanized steel ductwork constructed, braced, reinforced, installed, supported, and sealed per the IMC and SMACNA standards.

i) Exhaust Systems

i) Provide ductwork constructed, braced, reinforced, installed, supported, and sealed per the IMC and SMACNA standards.

ii) Provide ducted exhaust ventilation systems and exhaust fans to serve all ventilated zones of the facilities. Provide in-line, rooftop, or ceiling centrifugal exhaust fan(s).

j) Electronic Controls

i) Provide electronic stand-alone controls for the HVAC systems and equipment.

k) Systems Testing And Balancing

i) Provide complete Testing and Balancing (TAB) of all air distribution systems and HVAC equipment.

l) General Construction Items

i) Provide seismic restraints to Comply with IBC and ASCE as adopted by local authorities having jurisdiction.

m) Other Special Mechanical Systems

i) Provide total energy (enthalpy) type energy recovery wheels (heat wheels) in the HVAC units system (where applicable for energy conservation).

c. Fire Protection

1) Refer to General Specification section for performance requirements of the building elements included in the fire protection systems.

a) System Description

b) Provide an integrated fire suppression system capable of notifying building occupants and controlling any fire that may start inside the facility.

2) General System Requirements

a) Provide working space around all equipment. Provide concrete pads under all equipment. Provide all required fittings, connections and accessories required for a complete and usable system. All equipment shall be installed per NFPA and the manufacturer's recommendations. Where the word "should" is used in the manufacturer's recommendations, substitute the word "shall."

b) All Design Documents, (i.e. Building Code/Life Safety Analysis, plans, specifications, and calculations) shall be prepared by, or under the supervision of the design/build contractor's Qualified Fire Protection Engineer, the Fire Protection Design Builder of Record (FPDOR).

c) Provide training for the active systems consisting of two (2) two (2) hour sessions to accommodate all shifts of the facility staff.

3) Fire Suppression Water Supply And Equipment

a) Perform a flow test and hydraulic calculations for the sprinkler system.

b) The incoming sprinkler service shall be provided with a double check backflow preventer or reduced pressure principle backflow preventer, as required by local code and/or IPC observed by the authority having jurisdiction.

4) Sprinkler Systems

a) Provide wet pipe automatic sprinkler protection to provide complete coverage throughout the building (where specified and/or required). Areas subject to freezing shall be provided with a dry pipe system.

b) Hazard level, density, and hose stream allowance shall be determined based on the building's use and provisions in current edition of NFPA-13. Provide concealed sprinklers with ordinary temperature rating in areas with finished ceilings. Provide white sprinkler cover plates to match ceiling color.

5) Other Fire Protection Systems

a) Portable fire extinguishers shall be as approved by the Fire Department.

4. General Specifications

a. Plumbing

1) Narrative

a) This section must be used in conjunction with all parts of the Design Build (D/B) Request for Proposal (RFP) to determine the full requirements of this solicitation.

b) This section includes the construction of interior plumbing systems. This section covers installations inside the facility and out to the five foot line.

2) Plumbing Design Guidance

a) Provide the design and installation in accordance with the Illinois Plumbing Code and other codes as adopted by local authorities having jurisdiction.

3) Design Submittals

a) Design Submittals shall be in accordance with CDB guidelines and General Specifications for this project.

4) Construction Submittals

a) Submit construction submittals in accordance with CDB guidelines and General Specifications for this project. In addition to the above, the Design Builder of Record (DOR) shall approve the following construction submittals as a minimum:

i) Fixtures, equipment, and O&M information for all equipment and fixtures.

5) Plumbing Fixtures

a) Plumbing fixtures shall be provided in accordance with the IBC, IPC, and as specified:

i) Water Closets

- ASME A112.19.2M, white vitreous china, siphon jet. Provide ASME A112.19.5 trim. Provide self-closing metering type flush valve. Handicapped fixture mounting height and appurtenances shall be in accordance with ADA guidelines.

ii) Urinals

- Flush Valve Type Urinals

  - ASME A112.19.2M, white vitreous china, wall-mounted, wall outlet, siphon jet, integral trap, extended side shields. Provide large diaphragm (not less than 2.625 inches upper chamber inside diameter at the point where the diagram is sealed between the upper and lower chambers) flush valve of chrome plated cast brass conforming to ASTM B 584, including vacuum breaker and angle (control-stop) valve. Provide ASME A112.19.5 trim and ASME 112.5.1M concealed chair carriers. Provide self-closing metering type flush valve. Handicapped fixture mounting height and appurtenances shall be in accordance with ADA guidelines.

6) Lavatories

a) Countertop Lavatories

i) Unless integral bowl is specified elsewhere, lavatories shall be white, ASME A112.19.2M vitreous china lavatories with minimum dimensions of 20 inches wide x 18 inches front to rear, and self-rimming type. Provide ASME 112.18.1M copper alloy centerset faucets unless self-closing metering is specified/desired. Provide with aerator, adjustable P-traps, and perforated grid strainers.

b) Wall-Mounted Lavatories

i) ASME A112.19.2M white vitreous china with ASME A112.6.1M concealed arm carrier support, with minimum dimensions of 20 inches wide by 18 inches front to rear. Provide ASME 112.18.1M copper alloy centerset faucets unless self closing metering is specified. Provide with aerator, adjustable P-traps and perforated grid strainers.

c) Handicapped Lavatories

i) ASME A112.19.2M white vitreous china with ASME A112.6.1M concealed arm carrier support, with minimum dimensions of 20 inches wide by 18 inches front to rear. Provide ASME 112.18.1M copper alloy centerset faucets unless self closing metering is specified. Provide with aerator, adjustable P-traps and perforated grid strainers. Height and appurtenances shall be in accordance with ADA guidelines.

d) Sinks

i) Countertop Sinks

- ASME/ANSI A112.19.3M sink, 20 gage stainless steel with integral mounting rim, minimum dimensions of 33 inches wide for two compartment or 21 inches wide for one compartment by 21 inches front to rear, with ledge back and undersides coated with sound dampening material. Provide top-mounted ASME A112.18.1M copper alloy faucets, swing spout with aerator, and stainless steel drain outlets with cup strainers. Provide adjustable P-trap with drain piping to vertical vent stack. If specified in project documents, provide UL 430 waste disposer unit in right compartment.

ii) Service Sinks

- ASME A112.19.1M, white enameled cast-iron or ASME A112.19.2M white vitreous china, wall mounted and floor supported by wall outlet cast-iron P-trap, minimum dimensions of 22 inches wide by 18 inches front to rear with 9 inch splashback, and stainless steel rim guard. Provide ASME A112.18.1M copper alloy back-mounted combination faucets with vacuum breaker and 0.75 inch external hose threads.

iii) Mop Sinks

- Pre-cast terrazzo floor-mounted mop sink, 36 inches x 36 inches x 12 inches shall be made of marble chips cast in white Portland cement to a compressive strength of not less than 3625 PSI 7 days after casting. Provide brass body drains with nickel bronze strainers cast integral with terrazzo. Provide stainless steel rim guard for mop sink. Provide chrome-plated exposed hot and cold water faucets ASME A112.15.M wall-mounted copper alloy faucets swing spout with 3/4 inch hose connection, vacuum breaker, and pail hook. Provide mop hanger on wall above sink suitable for four mops.

iv) Laundry Sinks

- ANSI Z124.1, plastic, two compartment, minimum dimensions of 40 inches wide by 21 inches front to rear, with floor-supported steel mounting frame secured to wall. Provide ASME A112.18.1M copper alloy centerset faucets, swing spout with aerator, and stainless steel drain outlets with cup strainers, and 1.5 inch adjustable P-trap with drain piping to vertical vent stack.

7) Showers/Tubs

a) One Piece Bath and Shower Modules

i) ANSI Z124.2, made of white fiberglass reinforced plastic (FRP) or acrylic with slip-resistant bathing surfaces, integral grab bar, and three walls integrally molded in one piece. Provide outlet at left or right as necessary to suit module arrangement. Provide pop-up drain fittings and adjustable P-trap. Bathtub and shower supply fittings shall be diverter type with body mounted from behind the wall. Provide tub fill over-rim spout with diverter.

b) Shower Floors

i) Precast terrazzo or Acrylic Shower Floors: Terrazzo shall be made of marble chips cast in white Portland cement to produce a compressive strength of not less than 3625 psi 7 days after casting. Provide brass body drains with nickel bronze strainers cast integral with terrazzo.

c) Shower Supply Fittings

i) ASME A112.18.1M, ball joint, self-cleaning, adjustable spray pattern shower heads, connected to concealed pipe connected to copper alloy pressure balance single control type mixing valves with front access integral screwdriver stops. Anchor the mixing valves and the pipe to each showerhead in wall to prevent movement.

d) Handheld Shower Head

i) ASSE 1014, adjustable spray hand-held shower head with swivel fitting, 60 inch minimum flexible chrome plated copper alloy hose and in-line vacuum breaker. Provide push button flow control if specified in ESR section D20. Provide 25 inch grab bar with sliding spray holder that locks at any height.

8) Drinking Fountains and Coolers

a) Drinking Fountains

i) Wall mounted drinking fountain shall be constructed of white enameled cast iron with bubbler and push button control. Handicapped fixture mounting height and appurtenances shall be in accordance with ADA guidelines.

b) Electric Water Coolers

i) ARI 1010, wall-mounted, bubbler style, air-cooled condensing unit, 4.0 gph (4.20 mL per second) minimum capacity, stainless steel splash receptor, double wall heat exchanger, and all stainless steel cabinet. Provide ASME A112.6.1M concealed wall hangers with thru-bolts and back plates. Handicapped fixture mounting height and appurtenances shall be in accordance with ADA guidelines.

9) Domestic Water Distribution

a) Pipes and Fittings

i) Copper

- Use copper tubing and fittings for pipe sizes 4 inches or smaller. Use type L tubing above ground with either solder fittings, or press-on copper fittings. For buried piping, use type K tubing with either solder fittings, or press-on copper fittings.

b) Valves & Hydrants

i) Valves: Provide valves at water supplies to fixtures and to provide ease of maintenance as required in the IPC.

ii) Hose bibbs & hydrants: use non-freeze wall hydrants where the winter design temperature is at or below freezing.

- Hose bibbs are acceptable for use elsewhere.
  - Hose bibs: Angle type, copper alloy hose bibbs with vacuum breaker.

iii) Wall Hydrants: Non-freeze, ASSE 1019, cast bronze, with vacuum breaker, locking shield and tee-handle.

10) Domestic Water Equipment

a) Backflow Preventers

i) Reduced pressure principle type. Furnish proof that each make, model/design, and size of backflow preventer being furnished for the project is approved by and has a current “Certificate of Approval” from the Foundation for Cross-Connection Control and Hydraulic Research (FCCCHR)-USC. Listing of the particular make, model/design, and size in the current FCCCHR-USC will be acceptable as the required proof. Provide freeze protection for aboveground exterior applications in areas where the winter design temperature is at or below freezing.

b) Water Heaters

i) Electric Water Heaters: Electric water heaters with double heating element per UL 174 for water heaters with less than 120 gallons of storage and 200,000 btuh input. Provide water heater per UL 1453 for commercial water heaters with 120 gallons of storage or more and 200,000 btuh input or more. Water heaters shall be equipped with glass-lined steel tanks, high-efficiency type, insulated polyurethane foam insulation, replaceable anodes, and adjustable range thermostat to allow hot water settings between 110 and 160 degrees F. Water heater warranty shall be a minimum of 5 years.

ii) Gas-Fired Water Heaters: High efficiency storage type water heaters per ANSI Z21.10.1 for water heaters with less than 120 gallons of storage and 200,000 btuh input. Provide water heater per ANSI Z21.10.3 for commercial water heaters with 120 gallons of storage or more and 200,000 btuh input or more. Water heaters shall meet AGA requirements. Water heaters shall be equipped with glass-lined steel tanks, polyurethane foam insulation, replaceable anodes, and adjustable range thermostat to allow hot water settings between 110 and 160 degrees F. Water heater warranty shall be a minimum of 5 years. Provide vent in accordance with NFPA 54.

iii) Instantaneous Water Heater (Electric): UL-499, heater(s) shall be of the modulating, under the sink, point-of-use type. Output temperature shall be adjustable from 40 degrees F to 160 degrees F. Heating elements shall be field replaceable. Unit(s) shall have a 10-year warranty.

c) Pumps

i) Inline Pumps: In-line circulator for service water distribution system. Factory assembled and tested pumps constructed of materials suitable for hot domestic water service.

d) Expansion Tanks

i) Steel expansion tank with polypropylene or butyl lined diaphragm at water heater.

e) Water Meters

i. AWWA C701 turbine type, with register reading in liters and U.S. gallons.

11) Insulation & Identification

a) Piping Insulation

i) Mineral fiber insulation on domestic hot water supply and recirculation piping. Provide vapor retarder on cold water piping.

b) Piping & Equipment Identification

i) Provide laminated plastic nameplates for valves. Stop valves in supplies to fixtures will not require nameplates. Identify above ground pipe with type of service and direction of flow. Letter size, lengths and colors shall be per ANSI A13.1.

12) Specialties

a) Valve Boxes

i) For each buried valve provide cast-iron, ductile-iron box of a suitable size. Provide cast-iron or ductile-iron cover for the box with the word “WATER” cast on the cover.

b) Water Hammer Arrestors

i) PDI WH201, water hammer arrestors in lieu of air chambers.

c) Icemaker Connector Box

i) Recessed wall box fabricated of PVC plastic. Provide bronze shut-off valve.

13) Other Domestic Water Supply

a) Supports

i) Provide piping supports in accordance with the IPC.

b) Inspections

i) Prior to initial operation, inspect piping system for compliance with drawings, specifications, and manufacturer’s submittals.

c) Disinfection

i) Upon completion of the installation, disinfect all systems per the IPC.

d) Plumbing Systems Testing

i) Upon completion of the installation, test all systems per the IPC.

14) Waste Pipe & Fittings

a) Below-Ground Piping

i) Cast iron hub and spigot pipe and fittings, rubber compression gasket joints. Where approved for use by the local authority and IPC, plastic PVC or ABS piping, fittings, and solvent cement per ASTM D 2665 or ASTM D 2661 may be provided.

b) Above-Ground Piping

i) Cast-iron hubless pipe and fittings, CISPI 301 with CISPI 310 couplings. Where approved for use by the local authority and IPC, plastic PVC or ABS piping, fittings, and solvent cement per ASTM D 2665 or ASTM D 2661 may be provided. Plastic piping shall be equipped with approved firestopping devices as required by code.

c) Cleanouts

i) Provide cleanouts as required by the IPC. Material shall be consistent with the piping system materials.

15) Vent Pipe & Fittings

a) Cast-iron hubless pipe and fittings, CISPI 301 with CISPI 310 couplings. Where approved for use by the local authority and IPC, plastic PVC or ABS piping, fittings, and solvent cement per ASTM D 2665 or ASTM D 2661. PVC piping shall be equipped with approved firestopping devices as required by code. Single drainage/vent stack systems (such as Philadelphia system) and mechanical air admittance valves are not acceptable.

16) Floor Drains

a) Floor drains shall be flush strainer or extended rim type as required by the IPC. Provide in mechanical rooms, restrooms, fire pump room, laundry room, plumbing chase areas, and any other areas required to receive condensate from air handling equipment that is not located in the mechanical room. Provide floor sinks in kitchens.

17) Sanitary & Vent Equipment

a) Submersible Sump Pumps (if required)

i) Factory assembled and tested submersible type pumps for operation under water.

b) Sewage Pumps (if required)

i) FS A-A-50555, single or duplex type to meet demand. Duplex types shall be provided with automatic controls to alternate the operation from one pump to the other.

18) Rain Water Drainage

a) Pipe & Fittings

i) Above-Ground Piping

- Cast iron hubless pipe and fittings, CISPI 301 with CISPI 310 couplings. Where approved for use by the local authority and IPC, plastic PVC or ABS piping, fittings, and solvent cement per ASTM D 2665 or ASTM D 2661 may be used. PVC piping shall be equipped with approved firestopping devices as required by code. Size and install piping in accordance with the IPC.

ii) Below-Ground Piping

- PVC or ABS pipe to convey the roof drainage from downspouts to a manhole or catch basin in the drainage system. Size and install piping in accordance with the IPC.

b) Roof Drains

i) Roof drains shall conform to ASME A112.21.2M, with dome and integral flange, and shall have a device for making a watertight connection between roofing and flashing.

c) Rain Water Drainage Equipment

i) Where required by building design, provide expansion joint(s) of proper size to receive the conductor pipe. The expansion joint shall consist of a heavy cast-iron housing, brass or bronze sleeve.

d) Insulation & Identification

i) Mineral fiber insulation on all drainage piping that may be subject to condensation. Provide a vapor retarder.

e) Other Plumbing Systems

i) Propane Gas Piping

- Provide a complete propane storage and delivery system. Provide gas piping to equipment.

ii) Grease Interceptors

- Provide where required, in accordance with the IPC and PDI 6101 and with a minimum flow capacity to meet system demand.

b. HVAC

1) Narrative

   a) This section includes the construction of interior mechanical systems. This section covers installations inside the facility and out to the five foot line.

2) Mechanical Design Guidance

   a) Provide the design and installation in accordance with IMC, ASHRAE, NFPA, SMACNA and other codes/standards adopted by local authority having jurisdiction.

3) Design Submittals

   a) Design Submittals shall be in accordance with CDB guidelines and General Specifications for this project.

   b) In addition to the above, the Design Builder of Record (DOR) shall approve the submittals.

4) Construction submittals

   a. Submit construction submittals in accordance with CDB guidelines and General Specifications for this project. In addition to the above, the Design Builder of Record (DOR) shall approve the following construction submittals as a minimum:

      i) O&M manual for all equipment, devices, and systems.

5) Motors

   a) Single-phase fractional-horsepower alternating-current motors shall be high efficiency types corresponding to the applications listed in NEMA MG 11. Select polyphase motors based on high efficiency characteristics relative to the applications as listed in NEMA MG 10. Additionally, all polyphase squirrel-cage medium induction motors with continuous ratings shall meet or exceed energy efficient ratings per Table 12-10 of NEMA MG 1. Provide controllers for 3-phase motors rated 1 hp (0.75 kW) and above with phase voltage monitors designed to protect motors from phase loss and over/under-voltage. Provide means to prevent automatic restart by a time adjustable restart relay. For packaged equipment, the manufacturer shall provide controllers including the required monitors and timed restart. Provide reduced voltage starters for all motors 25 hp and larger.

6) Gas-Fired Unit Heaters

   a) ANSI Z83.8 and AGA label. Equip each heater with individually adjustable package discharge louver. Provide with stand-alone electronic thermostat.

7) Infrared Heaters

   a) ANSI Z83.8 and AGA label.

8) Direct Expansion System

a) Heat Pumps – Air to Air

i) Air-cooled, split system heat pumps with ducted type air distribution. Provide units factory assembled, designed, tested, and rated in accordance with ARI 210/240 or ARI 340/360. Provide manufacturer's minimum recommended clearance around condensing units. Refrigerant piping size shall be per the manufacturer's recommendations. Insulate refrigerant piping suction lines and condensate drain.

b) Condensing Units

i) Air-cooled, split system air conditioner with ducted air distribution. Provide units factory assembled, designed, tested, and rated in accordance with ARI 210/240 or ARI 340/360. Provide manufacturer's minimum recommended clearance around condensing units. Refrigerant piping size shall be per the manufacturer's recommendations.

c) Ductless Split System

i) Air-cooled, ductless split system. Provide units factory assembled, designed, tested, and rated in accordance with ARI 210/240. Provide manufacturer's minimum recommended clearance around heat pump or condensing units. Refrigerant piping size shall be per the manufacturer's recommendations. Insulate refrigerant piping suction lines and condensate drain.

9) Air Distribution Systems Heating & Cooling

a) Ductwork

i) Except as specified herein, provide ductwork constructed, braced, reinforced, installed, supported, and sealed per SMACNA standards.

- Flexible Ducts
  - Use insulated flexible duct only for connections to air distribution devices to adapt to minor offsets. Flexible duct shall be UL 181 listed and per SMACNA DCS with a minimum R value of 4. Maximum length of flexible ductwork shall be 5 feet.
- Flexible Connections
  - Provide flexible connectors between fans and ducts.
- Volume Dampers

- Provide manual volume dampers in each branch take-off from the main duct to control air quantity. Dampers shall conform to SMACNA DCS and shall be seal class “A” construction.

- Fire Dampers
  - Fire dampers shall be rated per UL 555. Fire dampers shall be dynamic type rated for closure against a moving airstream. Provide fire dampers that do not intrude into the air stream when in the open position.

- Smoke Dampers
  - Smoke dampers shall be rated per UL 555S.

b) Louvers & Hoods

i) Louvers

- Louvers shall bear AMCA ratings seal for air performance and water penetration in accordance with AMCA 500 and AMCA 511. Louvers shall be constructed of anodized aluminum alloy or stainless steel. Provide birdscreens.

ii) Hoods

- Hoods shall be constructed of anodized aluminum alloy or stainless steel. Provide with birdscreens.

c) Grilles, Registers, & Diffusers

i) Factory-finished grilles, registers, and diffusers. Exterior and exposed edges shall be rolled, or otherwise stiffened and rounded.

d) Insulation

i) Provide external thermal insulation for all ductwork. Insulate ductwork in concealed spaces with blanket flexible mineral fiber (minimum 1.5” thick and 1.5 PCF density). Insulate ductwork in Mechanical Rooms and exposed locations with rigid mineral fiber insulation (2” thick and 3.0 PCF density). Insulation (on ducts and pipes) exposed to outdoors shall be weather proofed and provided with Aluminum jacketing.

ii) Provide insulation with factory applied all-purpose jacket with integral vapor retarder. In exposed locations, provide a jacket with white surface suitable for painting. Flame spread/smoke developed rating for all insulation shall not exceed 25/50. Insulate the backs of all supply air diffusers with blanket flexible mineral fiber insulation.

10) Exhaust Systems

a) Fans

i) Fans shall be AMCA 210 certified, with AMCA seal. Fan bearings shall have a minimum average life of 200,000 hours at design operating conditions. Provide bird screens for outdoor inlets and outlets. Provide direct-drive type fans with means for verifying operation via the building DDC system or with speed controllers.

b) In-Line Fans

i) UL-Listed centrifugal fans.

c) Wall Fans

i) Propeller fans with fan guards. Provide centrifugal fans with backdraft dampers and wall bracket.

d) Rooftop Fans

i) UL-Listed centrifugal fans with roof curb.

e) Utility Sets

i) AMCA 210 with AMCA seal.

11) Electric Heating

a) Unit Heaters

i) Factory assembled, UL-1025, unit heaters.

b) Baseboard Heaters

i) Factory assembled, UL-1042, heaters.

c) Wall Heaters

i) Factory assembled, UL-1025, cabinet heaters.

d) Infrared Heaters

i. Factory assembled, UL-Listed and labeled heaters.

12) Package HVAC Units

a) Factory packaged units in accordance with ARI 430 and suitable for outdoor installation. Provide with manufacturer's curb (as required).

13) Controls and Instrumentation

a) Electronic Controls

i) If required, provide programmable thermostats with built in keypads for scheduling of day and night temperatures with two setback periods per day. Provide independent summer and winter programs. Thermostats shall have temporary and manual override of schedule and battery backup.

14) Systems Testing and Balancing

a) HVAC System

i) The Design Builder of Record shall utilize Masterspec *HVAC Testing/Adjusting/Balancing*, for the project specification, and shall submit the edited specification section as a part of the design submittal for the project.

15) Other HVAC Systems and Equipment

a) Seismic Design

i) Provide in accordance with International Building Code and ASCE 07 adopted by local authorities having jurisdiction.

b) Energy Recovery Wheels

i) Total energy (enthalpy) type energy recovery wheels (heat wheels). Media shall be aluminum or a lightweight polymer coated with a corrosion-resistant finish. Etched or oxidized surfaces are not acceptable. Heat transfer surfaces shall be coated with a non-migrating (permanently bonded) absorbent specifically developed for the selective transfer of water vapor. Equal sensible and latent recovery efficiencies shall be documented through a certification program conducted per ASHRAE 84 and ARI 1060. The energy recovery wheel shall have an insulated housing of double wall construction, rotor seals that are specifically designed to limit cross-contamination, and a rotation detector. Should rotation stop, the rotation detector shall alarm the HVAC control system. Filter sections shall be readily accessible for maintenance.

c. Fire Protection

1) Design Guidance

a) Provide the design and installation of fire protection systems in accordance with NFPA.

2) Quality Assurance

a) Materials and assemblies installed in the work shall be inspected and found to be in compliance with industry standards and these specifications prior to acceptance of the

work. Items found not to be in compliance shall be removed, or corrective measures taken, to assure compliance with the referenced standard.

b) Qualifications, Training Plans, and Test Plans and Procedures indicated herein, shall be submitted 45 calendar days prior to the expected date of execution. Notify the using agency/engineer 14 calendar days prior to all testing. Submit test results within 7 calendar days of completion of testing.

i) Qualified Workers

- Use qualified workers who are certified as a minimum Level III Technician by National Institute for Certification in Engineering Technologies (NICET), thoroughly trained and experienced, and completely familiar with the specified requirements and the methods needed for proper performance of the work in this section. Installers of systems shall be certified at a minimum Level IV NICET.

ii) Fire Protection Design Builder of Record

- The FPDOR shall review and approve all fire protection engineering submittals.

iii) Fire Protection QC Specialist

- Qualifications/Experience: The FPQC Specialist shall have obtained their professional registration by successfully completing the Engineering examination. This FPE shall have a minimum of 5 years full time and exclusive experience in every aspect of facility design and construction as it relates to fire protection, which includes, but is not limited to, building code analysis, life safety code analysis, design of automatic detection and suppression systems, passive fire protection design, water supply analysis, and a multi-discipline coordination reviews, and construction surveillance.

- Area of Responsibility: The FPQC Specialist is responsible for assuring the proper construction and installation of life safety and fire protection features across all disciplines and trades. The FPQC Specialist shall be responsible for assuring that life safety and fire protection features are provided in accordance with the design documents, approved construction submittals, and manufacturer's requirements. Examples include, but are not limited to, water distribution systems including fire pumps and fire hydrants, fire resistive assemblies such as spray-applied fire proofing of structural components and fire rated walls/partitions, fire alarm and detection systems, fire suppression and standpipe systems, and emergency and exit lighting fixtures.

- Construction Surveillance: The FPQC Specialist shall visit the construction site as necessary to ensure life safety and fire protection systems are being constructed, applied, and installed in accordance with the approved design documents, approved construction submittals, and manufacturer's

requirements. Frequency and duration of the field visits are dependent upon particular system components, system complexity, and phase of construction. At a minimum, field visits shall occur just prior to installation of suspended ceiling system to inspect the integrity of passive fire protection features and fire suppression system piping, preliminary inspections of fire alarm/detection and suppression systems, and final acceptance testing of fire alarm/detection and suppression systems. The FPQC Specialist shall prepare a written report detailing compliance of any outstanding submittal review comments, summarizing the results of all tests, detailing all discrepancies discovered, corrective action taken, all forms as required by the respective NFPA codes, and recommendations/certifications for acceptance.

iv) Performance Verification Testing

- All systems shall have operational tests to demonstrate compliance with contract requirements and respective NFPA codes, International Building Code and as noted below. Test procedures shall be in full compliance with the respective NFPA codes and the equipment manufacturer recommendations. Provide all personnel, equipment, and materials for tests. Return trips to witness repeat acceptance tests due to failure of previous tests will be at the Contractor's expense.

    - Preliminary Inspections and Final Acceptance Testing

        - The FPQC Specialist shall personally witness all preliminary inspections of fire alarm/detection and suppression systems. Once preliminary inspections have been successfully completed, the FPQC Specialist shall submit a signed certificate to the using agency that systems are ready for final inspection and testing. The using agency's representative shall witness formal tests and approve all systems before they are accepted.

    - Final Life Safety/Fire Protection Certification

        - The FPQC Specialist shall provide certification that all life safety and fire protection systems have been installed in accordance with the contract documents, approved submittals, and manufacturer's requirements. This certification shall summarize all life safety and fire protection features, and shall bear the professional seal of the FPQC Specialist.

    - System manufacturer's Representatives

        - The systems manufacturer technical representative shall be present for the final inspection and test for the following systems: fire alarm and detection and fire pump.

    - Fire Suppression Water Supply and Equipment

- The fire hydrants shall be inspected prior to backfilling the trench surrounding the fire hydrants. A report, including pictures, shall be provided to the using agency.
- Fire pump tests (if applicable) shall be conducted in the presence of the pump, controller, and engine manufacturer technical representatives. The fire pump manufacturer shall also be present for the preliminary test of the fire pump system.

▪ Spray-Applied Fire Proofing and Fire Stopping

- See Interiors, Health & Safety section for requirements.

v) Training

- The contractor shall provide training for the active systems within 6 weeks of final acceptance of the systems. The training shall be scheduled at least 2 weeks in advance.

3) Design Submittals

a) Design Submittals shall be in accordance with CDB guidelines and General Specifications for this project.

4) Construction Submittals

a) Submit construction submittals in accordance with CDB guidelines and General Specifications for this project. In addition to the above, the Design Builder of Record (DOR) shall approve the following construction submittals as a minimum:

i) All fire protection engineering submittals including:

- Shop Drawings. Provide shop drawings for all systems.
- Product Data. Provide product data for all equipment.
- Design Data. Provide design data for all system calculations.
- Test Reports.
- Certificates.

B. Basis of Electrical Design:

1. This project consists of providing mechanical, plumbing and fire protection systems for both new and existing buildings. The project scope for improvements/upgrades is outlined in Appendices A through N of this report.

2. Reference Codes and Standards:

    a. NFPA National Electrical Code (NEC) 2011.

    b. NFPA Life Safety Code 101.

    c. International Building Code 2009 (IBC 2009).

    d. National Electrical Manufacturers Association (NEMA).

    e. Underwriters Laboratories, Inc. (UL)

    f. American National Standards Institute (ANSI).

    g. Illuminating Engineering Society (IES).

    h. Institute of Electrical and Electronics Engineers (IEEE).

    i. Illinois Accessibility Code.

C. Primary Electrical Service:

1. New primary electrical services will need to be obtained for the local utility for the following portions of the project:

    a. Appendix C: New Pier Restaurant

    b. Appendix E: New Laundry Facilities

    c. Appendix G: New Boatel

    d. Appendix H: New Outdoor Lounge and Dining Area

    e. Appendix J: New Outdoor Events Center

2. The new facilities will require extension of the utilities primary distribution system to new liquid filled pad mounted transformers located adjacent to the new structures. The transformer should step down the voltage from the primary rating to 208Y/120 VAC 3 Phase. The secondary voltage should match the existing 3 Phase electrical systems that are existing at the resort.

D. Secondary Electrical Service:

1. Conduit and cable will be provided from each utility transformer to distribution panels throughout as required throughout the new facilities.

2. Secondary Distribution

a. Distribution panels will be used to distribute power to lighting, receptacles, and small motors. The panels will be circuit breaker type.

b. Power to electric hand dryers in the new and remodeled restrooms.

c. All new power panels will be served at 208Y/120 VAC and be fed from the Utility Transformers.

d. Panels will have spare breakers or spaces equivalent to 20 percent of the active circuits in the panel. Circuit breakers will be of bolt-in construction with a minimum interrupting rating of 10,000 amperes RMS, symmetrical for 208Y/120 VAC minimum.

e. Receptacles will be specification grade grounding type, 20-ampere, 125-volt, duplex, NEMA 5-20R. Receptacles in toilet rooms, kitchens and on building exterior will include ground fault circuit interrupter.

f. Wall switches will be rated 20 amperes 120/277 volt.

g. All of the building 3 phase service loads for fans, pumps, and other mechanical equipment will be provided with combination motor circuit protectors (MCP) full-voltage, non-reversing motor starters or variable speed (frequency) drives. Solid state, reduced voltage starter units will be used for any loads 25 HP or greater.

3. Voltage Drop: The combined voltage drop on feeders and branch circuits will not exceed five (5) percent; two (2) percent for the utility service and three (3) percent for the branch circuit and feeder loads.

4. Conductors: Conductor materials for all sizes used will be annealed coated copper. The minimum conductor size for lighting and power will be No. 12 AWG.

a. Service conductors will be 600-volt NEC Type XHHW-2 moisture and heat resistant cross-linked polyethylene insulation for use in wet locations at conductor temperatures not exceeding 75 Deg C. Underground wire will be rated XLP-USE.

b. Feeder and branch circuit conductors will be 600-volt NEC Type THWN moisture and heat resistant polyvinylchloride insulation for use in dry locations at conductor temperatures not exceeding 75 Deg C.

c. Conductor identification in multiphase system serving single-phase loads will be by color-coded insulation as indicated below:

208Y/120 Volt System:
Phase: Red, Black and Blue
Neutral: White for all New Work or Light Grey if needed to match existing conditions.
Ground: Green

d. Wiring Methods: Service entrance conduits will be polyvinyl chloride (PVC). Panel feeder conduits will be rigid galvanized steel or intermediate metal conduit (IMC). All other conduits will be electrical metallic tubing (EMT).

e. Motor Circuits: Motors less than 1/2 horsepower will be connected to 120-volt AC single phase circuits. Those larger will be connected to 208-volt AC single or three-phase circuits.

f. Grounding: All panels and equipment will be grounded with a separate wire in the conduit system. The conduit system ground will be made continuous.

g. Transient voltage surge suppression (TVSS) equipment will be provided at the main service panelboard and any branch circuit panel that serves mechanical equipment or equipment located outside of the building.

5. Lighting:

a. Maintained lighting levels will be provided in accordance with Illuminating Engineering Society (IES) recommendations as follows:

1)	Pier Restaurant:	20-30 FC
2)	Outdoor Events Center:	20-30 FC
3)	Boatel Sleeping Rooms:	15-20 FC
4)	Boatel Lobby:	30 FC
5)	Conference Center:	30-50 FC
6)	Outdoor Lounge:	20 FC
7)	New Laundry Facility:	50 FC
8)	New Hotel Entry:	20 FC

NOTE: Lighting levels based on a work plane 2 ft - 6 in. above floor line.

b. No wall mounted light fixtures are to be placed near the exterior doors to try to elimination the attraction of bugs near the doors and into the building.

c. All light fixtures will be reviewed and approved by Rend Lake personnel.

6. Lighting Fixtures

a. Generally, fluorescent or LED lighting will be used throughout the building. Light fixtures will be recessed in the ceiling for finished areas.
   1. For standard troffer fixture use prismatic lens #12 with a minimum of 0.125” thickness.
   2. For volumetric troffers utilize a two piece refractor system with an optical film and extruded prisms to refract the light similar to Lithonia RT5 fixture.

b. Accent lighting will utilize recessed can type fixtures with fluorescent PL or LED lamps and electronic ballasts/drivers.

1. For recessed can lighting utilize tempered prismatic glass lenses.

c. For hotel sleeping rooms provide wall mounted or desk mounted lamps with shades and fluorescent lamps. Provide vanity mirror lighting in the sleeping room bathrooms.

d. Exit lights will be provided such that egress may safely be achieved during emergency conditions. The location will be governed by the Life Safety Code of the National Fire Protection Association.

e. Emergency/night lighting fixtures will be provided by fixtures located throughout facilities leading to personnel exits. Exit lights will be LED type.

f. Emergency lighting will be powered by internal battery units inside the general lighting fixtures and exit lights will be supplied with battery backup.

g. Fluorescent lighting fixtures will be provided with high power factor electronic ballasts. Fluorescent fixtures will utilize energy-efficient 25-watt T8 lamps for 3 ft fixtures and 32-watt T8 lamps for 4 ft fixtures.

h. Exterior building lighting will utilize wall-mounted or soffit fixtures with a metal-halide or LED lamps and be controlled by a time switch and photoelectric cell.

1. For wall mounted exterior lighting utilize tempered glass lenses with one piece solid silicone basket. Exterior fixtures to be IP-65 rated and UL listed wet location.

i. All interior lighting will be provided with automatic off controls per the latest energy code applicable to the local/state authority having jurisdiction.

j. Building lighting energy consumption will be required to meet the latest energy code applicable to the local/state authority having jurisdiction.

7. Telephone and Communications:

a. New telephone service will be required to the new pier restaurant, outdoor events center, Boatel, outdoor lounge and new laundry facilities. Provide a minimum of a 25 pair backbone cable from the Gift shop to each of these facilities. All telephone underground cabling will be routed in a minimum of 2 inch Schedule 40 PVC conduit.

b. New television services will be required from the existing television distribution equipment to the new Boatel. All television underground cabling will be routed in a minimum of 3 inch Schedule 40 PVC Conduit.

c. Television and telephone/data cabling required inside the new facilities will be routed in a minimum of 1 inch EMT conduit.

d. Upgrades to the existing wireless internet system will be provided, See Appendix L.

8. Fire Alarm and Detection System, as required by IBC 2009 & NFPA 72:

a. A non-coded, multi-zone, fully supervised, addressable fire alarm system will be provided for the new facilities per NFPA 72. A fire alarm panel will be located in buildings electrical/telephone space. The system will be designed and located in accordance with applicable codes. The system will be coordinated with the local fire department.

b. Smoke detectors will be installed in the corridors, sleeping rooms, data / telephone rooms, electrical rooms, stairwells, mechanical air ducts, and equipment rooms. The detectors in the air ducts will be provided with a remote test/reset switch.

c. Manual pull stations will be provided at all exits and other locations as required by code.

d. Audible/Visual devices will be installed in conformance with the NFPA and ADA requirements.

e. Flow, tamper and pressure switches will be installed to monitor the automatic sprinkler system.

f. A remote annunciator panel will be located at the main entry to the facilities.

g. A digital communicator / dialer will be located at the FACP to communicate alarm and trouble signals to a central monitoring station.

9. Lightning Protection System:

a. A risk assessment will be performed for the new structures, utilizing Appendix H of the Risk Assessment Guide from NFPA Article 780.

b. If the risk assessment indicates a system is required, the proposed system will consist of air terminals on the roof perimeter and down conductors for connection to driven ground rods. The system will be designed in compliance with NFPA 780 and be provided with a UL master label.

c. For additional information see section 2 of this document, page 3 item C-3.

10. General:

a. Provide video taping of all training between the vendors and the Rend Lake Personnel. Provide the video in a digital format on a thumb drive or equal.

SECTION 8

SITEWORK

I. PERFORMANCE

A. Basic Function:

1. Provide all modifications to the site and site improvements and utilities required for proper functioning of the project and as indicated in the project program.

2. Sitework comprises the following elements:

   a. Site Preparation: All modifications to the site and grades required for construction of new work and for proper functioning of the project.

   b. Site Improvements: All elements required to provide finished and durable site surfaces and outdoor improvements described in the project program.

      1) Site grading and erosion protection.

      2) Site paving including sidewalks and curb & gutter.

      3) Exterior Security Fencing and Gates if necessary.

   c. Site Services: All outdoor and underground elements required to complete the design of services to include:

      1) Storm piping connections to existing utilities.

      2) Sanitary piping connections to existing utilities.

      3) Utility service connections to existing utilities

   d. Other Site Construction: Miscellaneous site elements, including but not limited to sidewalks and ADA accessible ramps.

   e. Site Demolition: Remove existing sidewalk, parking surfaces, vegetation, and existing facilities as required to construct the improvements.

3. See Section 00830 for site elements to be removed by others prior to start of construction.

4. Where site elements also must function as elements defined within another element group, meet the requirements of both element groups.

5. In addition to the requirements of this section, comply with all applicable requirements of Section 2 – Facility Performance.

B. Amenity and Comfort

1. Heat/Cold: Design to minimize heat gain in summer and maximize heat gain in winter.

2. Appearance:

a. Existing vegetation that need not be removed to accomplish the design of the new facility shall be preserved including trees, shrubs, ground cover plants, and sod.

b. Fit the new activities on site to the topography, soils, and existing vegetation as much as possible.

c. Finished Surfaces:

1) Make finished surfaces smooth and uniform in appearance, without depressions that collect water.

2) Do not leave soil surfaces exposed in finished work; minimize the amount of time soil surfaces are left exposed.

3) If, after consideration of other performance requirements, options remain as to methods of finishing soil surfaces, the Using Agency prefers:

a) Landscaping, rather than paving.

d. Conceal unsightly site elements from view from the streets, lake, and windows of adjacent buildings.

C. Health and Safety:

1. Maximum Slopes:

a. Slopes with Smooth Pavement: 1:10, unless restricted to vehicular use.

b. Slopes Covered with Grass: 1:5, unless less than 3 feet in height.

c. Slopes with Pedestrian-Inhibiting Vegetation: 1:1, unless less than 5 feet in height.

d. Nothing in this section shall relieve the Design Builder from meeting all requirements of the Illinois Accessibility Code and the Americans with Disabilities Act (ADA).

2. Vermin/Animal Control

a. Prevent and eliminate standing water that could become stagnant.

D. Structure:

1. Earthwork: Provide structural design in accordance with ASCE 7-2005 if not otherwise required by code.

    a. Bearing Capacity: Under substructure, paving, and site structural elements, maintain natural bearing capacity or achieve or correct compaction as required to prevent uncontrolled subsidence or other movement.

    b. Provide site prep as necessary.

    c. Substantiation:

        1) Design Development: Engineering design of any structural fills required.

2. Site Fixtures, Equipment, and Services.

    a. Provide foundations or other mountings as required to support the completed and operational element permanently and safely and without uncontrolled subsidence or other movement.

    b. Design structural elements in accordance with code and requirements specified in Section B.

    c. Substantiation: Same as required for superstructure.

E. Durability:

1. Weather Resistance of Built Elements: Comply with requirements of Section B.

2. Soil Erosion Resistance: Comply with the code and the following:

    a. Illinois NRCS “Illinois Urban Manual”; requirements for coverage to be obtained for the project under NPDES Permit ILR10, and codes and ordinances of agencies having jurisdiction over the project.

    b. Maintain the existing site features that contribute to erosion resistance to improve the resistance to erosion.

    c. Where the present natural resistance to erosion is insufficient; take measures to improve the resistance to erosion.

    d. Design to minimize soil erosion.

    e. If erosion occurs during construction and within one year after completion, relocation or replacement of eroded soil and repair of eroded areas shall be performed by the Design-Builder at no cost to the Using Agency.

f. If erosion occurs within one year after completion, provide improved erosion control measures within one week after notification by Using Agency.

3. Flooding

a. Control storm water runoff as required to prevent damage to existing site and facilities as well as project elements, including vegetation, and to prevent damage to neighboring sites, including vegetation.

b. Prevent storm water runoff into public utilities in excess of actual capacity or amount allowed by public agencies.

c. Minimize increase in storm water runoff into rivers, streams, lakes, and other waterways and drainage ways as required by authorities having jurisdiction.

d. Control runoff of chemicals or other materials which may cause damage to existing lake, creeks, and/or waterways.

e. Protect wildlife habitat.

f. Substantiation:

1) Design Development: Engineering design of site drainage, including drainage volume calculations and area.

F. Operation and Maintenance:

1. Utilities: See Part A – Basic Function in this Section.

2. Ease of Maintenance:

a. Snow Removal: Design to facilitate removal of snow from vehicular and pedestrian trafficways using mechanized equipment or automatic means wherever possible; where not possible, design to minimize the effort required to use manual snow removal methods.

3. Theft Deterrence

a. Provide fixtures that are either anchored securely to the ground using fastenings not easily removable or that are too heavy for one person to carry, and that are made of materials with no intrinsic or salvage value.

END OF SECTION 8

APPENDIX A

EXISTING CABINS

A. BASIC FUNCTION

1. Provide new exterior siding material on all 11 duplex cabins (22 units). Upgrade all wood walkways, stairs and metal railing leading to each cabin. Upgrade existing kitchenette in each cabin. Provide new flooring material in lieu of existing tile.

B. COMPONENTS

1. Cabin Siding

    a. Provide a durable, low maintenance siding material to replace existing wood siding on all cabins. New material shall not attract wood peckers.

2. Wood Walkways and Metal Railing/Wood Railing

    a. Provide renovated walkways in the same configuration as the existing walkways. It is imperative that the existing configurations of the walkways and railings remains the same even if new elements are installed.

    b. Provide evaluation of wood planks on all existing walkways and stairs. Replace or refurbish all planks. If planks are deemed in good condition and can be reused, they shall be removed, stained and reinstalled. If planks are to be reused they shall be screwed down and not nailed. New and existing planks shall have the same appearance.

    c. Provide evaluation of existing horizontal metal or wood railing and either replace or repaint/restain all metal and wood railing. All wood vertical posts shall be replaced. New posts to be stained to match wood planks.

3. Kitchenette

    a. Provide a new kitchenette to replace the existing in similar configuration with new appliances, sink, cabinets and countertop. New appliances are to be provided by the Using Agency. Contractor to coordinate regarding size, location and utility requirements.

4. New Flooring

    a. Provide new durable flooring material to replace existing tile located in the entry, kitchenette and bathroom. The existing subfloor may be damaged. If so, it shall be replaced. New flooring to coordinate with existing adjacent finishes and be durable, easy to clean and maintain, and appropriate for proposed functions.

    b. New flooring shall not be tile. Using Agency prefers a monolithic flooring material, such as linoleum, that is easy to clean.

c. The existing tile base shall be removed and replaced with a solid, easy to clean, integral cove base.

C. MECHANICAL, PLUMBING & FIRE PROTECTION SYTEMS

1. Provide complete plumbing system design per the following:

   a. Disconnect and remove existing kitchen sink.

   b. Provide new stainless steel kitchen sink to conform to new kitchen layout and cabinets. Reconnect HW/CW piping and waste piping.

D. ELECTRICAL SYSTEMS

1. Disconnect and reconnect existing electrical appliances to allow for the remodeling of the Cabin kitchenettes.

2. Provide a new receptacle fed from the existing panelboard to allow for the installation of a new microwave.

APPENDIX B

EXISTING CONFERENCE CENTER AND HOTEL

A. BASIC FUNCTION

1. Provide interior renovations to 3 conference rooms, lobby and corridor in order to update the existing spaces. Provide new finishes in the Great Room Lobby and the existing restrooms. Provide a new prominent entry to the existing hotel building. Provide new HVAC system for the Conference Center. Provide new through the wall HVAC units in existing hotel rooms noted.

B. COMPONENTS

1. Conference Rooms, Lobby and Corridor

    a. Provide new interior finishes to update the existing spaces. New finishes to include broadloom carpet throughout, new ceilings, lighting, new wallcovering, wood moldings, light sconces, and paint to compliment the new design concept. Level of finish should be comparable to other areas of the resort and appropriately serve the conference center function.

    b. Provide new doors from corridors into each conference room. New doors to be compatible with the new design concept and include glass panels.

    c. Provide new moveable partitions in the same location as the existing partitions. Finish on new partitions to be compatible with new design theme. Design Builder to verify that the existing structure can support the new partitions. New moveable partition system to have STC rating that will not allow sound transmission between the adjacent rooms during activities such as banquets, wedding receptions and meetings.

2. Great Room Lobby, Existing Restrooms

    a. Provide new interior finishes to update the existing spaces. Provide new broadloom carpet in the Great Room Lobby. Provide new wallcovering and new ceiling system in both existing restrooms. All finishes to be compatible with the new design theme.

3. New Hotel Entry

    a. New entry shall be prominent to hotel guests. Design Builder to determine configuration. The preferred material is a lighted canvas canopy with identifying signage.

    b. Provide a new accessible route into the existing hotel lobby via the new entrance canopy.

C. MECHANICAL, PLUMBING & FIRE PROTECTIONS SYSTEMS

1. Conference Center – New HVAC

   a. Five (5) existing heating and cooling rooftop package units (RTUs) located on the roof above the Great Room and Conference Center shall be removed and disposed of. Existing interior ductwork may be retained for connection to S&R ductwork from new units.

   b. Provide insulated sheet metal caps over each existing RTU curb and seal weather tight.

   c. Utilities associated with existing RTU's on the roof shall be removed to the extent possible and capped.

   d. Provide five (5) new heating and cooling package type HVAC units equivalent to the existing RTU's in terms of heating/cooling capacity and factory mounted options such as heat recovery wheel, double wall construction, hot gas reheat, etc. New units shall be installed on grade on concrete house-keeping pads. Intent is to locate these units such that they are outside the line of sight for guests approaching the main entrance to the buildings. The HVAC units shall operate with R-410A refrigerant. In addition to including the optional features on existing units, new package units shall be equipped with features such as 100% economizer capability, anti-short cycle for compressor, high efficiency motors, digital compressor, demand based ventilation, programmable stat/controller with override switch, freeze stat, OAT lockout for mechanical refrigeration, phase and brown-out protection, stainless steel or polycarbonate drain pan and hail guard for condenser coils. A heat pump feature (in addition to gas heat) is strongly encouraged for energy efficiency. The service location, make, model and serial numbers of the existing RTUs are as follows:

Rooftop Unit Schedule (Existing)					
Mark	RTU-1	RTU-2	RTU-3	RTU-4	RTU-5
Service	Great Room	Great Room	Conference Center	Conference Center	Conference Center
Manufacturer	Aaon	Aaon	Trane	Trane	Trane
Model #	RK-20-2-EO-511	RK-20-2-EO-511	TWE09CA300BB	GLPA025AD	GPD0025AD
Serial #	200110-AKGN28357	200110-AKGN28357	L373L5N5H	F10M38777	F08E34162

   e. Provide new supply and return ductwork from the grade mounted RTUs to existing ductwork within the facility. Provide new ductwork (indoors and outdoors) for a complete functional system. Existing ductwork within the building may be reused to the extent possible. All outdoor ductwork shall be air tight, insulated and weatherized with external jacketing. Duct joints shall be constructed with ductmate joints or equivalent. Include testing and balancing for each system.

   f. Provide LP gas piping, piping accessories and final terminations to each HVAC unit.

4. Existing Hotel – New HVAC

    a. Twenty-five (25) existing heating and cooling package terminal units (PTACs) located within the facility shall be removed and turned over to the Using Agency. Using Agency shall designate the rooms which require replacement of PTAC's

    b. Provide twenty-five (25) replacement PTACs with a heating (heat pump with back-up electric heat) and cooling capacity of 12,000 MBH, equipped with R-410A refrigerant, integral unit mounted thermostat, outdoor grille (to match existing style and color), sub-base and power supply cord.

D. ELECTRICAL SYSTEMS

1. Conference Center & Existing Hotel

    a. Relocate electrical power for HVAC equipment from the roof to the ground.

    b. Provide lighting upgrades for the rooms described in paragraph A of this appendix in the conference center to include dimming and decorative lighting. Provide automatic off controls for all new lighting installed.

    c. For the new entry provide lighting underneath of the canopy. Provide 20 Foot candles at the ground level. Metal Halide or LED lamps are to be used. Provide automatic controls using photoelectric control and a time clock.

    d. Provide new electrical to support new HVAC equipment for the conference center. System to be located outside in the courtyard of the facility. Provide all VFD's, starters, disconnects conduit and wire for a complete and operational system. All equipment outside to be in a weatherproof enclosure.

    e. Coordinate with the HVAC Design Builder to ensure the existing electrical service for the 48 through the wall HVAC system is adequate for the new systems supplied. Provide all 120V and above wiring support for the installation of these new units.

APPENDIX C

NEW PIER RESTAURANT

A. BASIC FUNCTION

1. Provide an on the water restaurant and bar located in the area indicated on improvement location plan with boat access and pedestrian access.

B. COMPONENTS

1. Boat Access

    a. Provide a valet dock to accommodate 3 boats. Driver to drop off passengers and park boat in existing boat slip.

2. Pedestrian Access

    a. Provide for pedestrian access from shore via area near Reilly's Lounge and Windows Restaurant. Pedestrian access shall meet all requirements of the Illinois Accessibility Code and the 2010 Americans with Disabilities Act Accessibility Guidelines (ADAAG), with the more stringent governing.

3. Function

    a. Provide an open air structure to accommodate 250 occupants. Accommodate 150 on fixed seating. Others shall be accommodated at the bar which should seat 12 or at standup tables near the bar. Approximately 75% of the seating shall be covered and 25% in open deck area.

    b. Provide for a 3 season facility. The space shall not be conditioned, but a heat source should be provided and ceiling fans should be installed for circulation. Facility shall be drained down and not used in the winter.

    c. Provide for bar and cooking line adjacent to each other in a linear design or back to back.

    d. Food orders will be placed by customer at a designated area. The majority of drink orders will be placed by wait staff, with some drink orders placed by customers at the bar.

    e. The bar will be full service with bottled beverages will be served on ice in troughs.

    f. The food menu will be limited. Reference Section 6 for a list of food service equipment items to be provided by the contractor for use at this facility.

4. Structure

a. Provide for an over the water structure supported by piers.
b. Provide a prefabricated open air structure. Shape of structure to be determined by the Design Builder. Roof of structure shall match adjacent standing seam metal roofs in appearance.

c. Provide for restrooms on shore to adequately accommodate the occupants of this facility. New restrooms shall be similar to existing freestanding restroom facilities located throughout the resort.

5. Site Improvements

a. Provide a reasonably level, stable, and well drained site for the new pier restaurant facility. Conduct any geotechnical and/or environmental testing and analysis necessary for the design of the facility.

b. Provide additional parking area adjacent to the new pier restaurant facility.

i. Existing parking capacity has been determined to be adequate. An adequate number of accessible parking spots in accordance with the Illinois Accessibility Code and the requirements of the 2010 Americans with Disabilities Act Accessibility Guidelines (ADAAG), with the more stringent governing.

ii. Pedestrian access in accordance with Section B.2.a above shall be provided to connect the new parking area with the pier restaurant facility.

iii. The parking lot shall be constructed of a stable all-weather material and shall be designed to support vehicle and truck traffic of the types typically present at the resort.

iv. Permanent pavement markings to designate individual parking spots, accessible parking areas, and intended traffic flow shall be provided.

v. The parking lot shall be graded to allow adequate stormwater drainage and a stable discharge point to direct water into the lake shall be provided.

c. Provide sanitary sewer, water, telephone, cable television, and electrical utility lines to serve the new pier restaurant facility. The sanitary sewer lines shall discharge to the resort's existing waste collection facilities. New facilities will tie into Lift Station #1. Lift Stations #2 & #3 have been previously upgraded. Lift Station #1 shall be upgraded as part of this project. See Appendix Q for equipment specifications related to previous upgrades. Similar equipment shall be used to upgrade Lift Station #1. See Section C – Mechanical, Plumbing, and Fire Protection Systems for additional utility requirements.

d. Obtain all required permits and signoffs from agencies having jurisdiction over the construction of the project. These shall include, but are not limited to, the Illinois Environmental Protection Agency (IEPA), the Illinois Department of Natural Resources (IDNR), the Illinois Historic Preservation Agency (IHPA), the U.S. Army Corps of Engineers (USACOE), the Illinois Department of Public Health (IDPH), and all city, county, state, and federal agencies.

e. Provide stormwater collection and treatment facilities and erosion control measures in accordance with the requirements of the National Pollution Discharge Elimination System (NPDES) requirements during construction and for the long term operation of the facility.

C. MECHANICAL, PLUMBING & FIRE PROTECTION SYSTEMS

1. Provide complete mechanical, plumbing and fire protection system design per the following:

   a. Provide a kitchen hood exhaust system equipped with an ansul fire suppression system for the restaurant cooking equipment. The installation of a make-up air system for the kitchen hood exhaust system is not anticipated because make-up air will be drawn through the open air facility.

   b. Provide lavatories, water closets, sinks, hot & cold water/waste/vent piping, hot water heating equipment, piping accessories and other components necessary for a complete functional system for the restaurant, restroom facilities and full-service bar. The hot and cold water piping systems for each restroom and full-service bar shall be equipped to facilitate a complete drain down for winter.

   c. Provide electric heaters (semi-recessed wall type or suspended unit heaters) with integral thermostats for each restaurant restroom facility. The heaters shall be sized to maintain an indoor space temperature of 60°F for an outdoor air temperature (OAT) of 0°F.

   d. Provide either electric or liquid propane fired overhead radiant heating systems (or equivalent) sized to maintain an outdoor space temperature of 50°F for an outdoor air temperature (OAT) of 0°F.

   e. A liquid propane (LP) gas tank shall be provided adjacent to the facility to serve as the fuel supply for the kitchen cooking equipment and hot water heating equipment. Provide LP gas piping, piping accessories, final terminations to cooking equipment and hot water heating equipment and other components for a complete functional system. The LP gas tank shall be sized to accommodate the estimated fuel consumption requirements of the contractor furnished kitchen equipment and hot water heating equipment as well as to satisfy the tank capacity requirements of the Using Agency.

   f. Provide exhaust for restrooms and other utility type spaces for code compliance.

D. ELECTRICAL SYSTEMS

1. Provide complete electrical design of systems including the following:

   a. New electric service from the utility. Wiring must cross a pier over the lake.

   b. Lighting systems, dimming to be incorporated in the dining area.

      1) Automatic off controls per code.

2) Approach lighting on the pier manual control.

c. Convenience power located per NEC.

d. Power for an ice machine.

e. Power for heating and exhaust systems in the restrooms.

f. Power for ceiling fans in the dining area.

g. Provide power if required for minimal space type heater in the dining area.

h. Provide power to permanently install patio heaters outside of the Pier Restaurant.

i. Power for all kitchen equipment required. The following is a list of equipment intended for the kitchen. The Design Builder is encouraged to provide design input on the type of equipment and the layout:

1) Double convection oven – 1
2) 4 burner stove with flat top grill – 1
3) Deep fryer – 2
4) Char broiler – 2
5) Under counter refrigerator unit – 3
6) Sandwich/salad unit – 2
7) Ice machine – 2
8) Microwave – 1

j. Cut sheets for the items listed above can be found in Appendix O.

k. Fire Alarm and Notification system per IBC 2009 and NFPA 72.

l. Power, Lighting and Fire alarm for any ANSUL equipped hoods within the kitchen.

m. Provide automatic shut off for all electrical equipment located under a kitchen hood.

n. Telephone to the facility.

o. Cable television to the dining area.

1) Locate electronics for the cable television and telephone distribution both at the gift shop and at the new facility.

APPENDIX D

EXISTING RESTROOM UPGRADE

A. BASIC FUNCTION

1. Provide a cosmetic upgrade to the existing men's and women's restrooms utilized for Windows Restaurant and Reilly's Lounge.

B. COMPONENTS

1. Restroom Configuration

    a. There will be no reconfiguration of the existing restroom layout. All existing plumbing fixtures and equipment will be reused. Existing toilets are wall mounted. The existing hand dryers and paper towel dispensers shall be reused. This is a cosmetic upgrade only.

2. Interior Finishes

    a. Restroom interiors shall be upgraded with durable and appealing finishes. The Design Builder shall determine the new finishes. However, it is recommended that the existing CMU walls be covered with a new material. At a minimum, provide new flooring, toilet partitions, wall finish, ceilings, light fixtures and countertops.

C. MECHANICAL, PLUMBING & FIRE PROTECTION SYSTEMS

1. No work anticipated.

D. ELECTRICAL SYSTEMS

1. Provide new lighting with automatic shut off controls.

APPENDIX E

NEW LAUNDRY FACILITY

A. BASIC FUNCTION

1. Provide new laundry facilities that are similar to the existing laundry facilities located in the hotel. Existing facilities are to remain. New facilities to double the capacity of the current system.

B. COMPONENTS

1. New Facility

    a. Provide a new facility that is located adjacent to and attached to the existing facilities. If new facilities are located in addition, provide for adequate sound proofing between adjacent guest rooms. Capacity shall accommodate all new facilities and shall double the size of the existing facility.

    b. Or provide a new facility located in a separate independent structure. If new facilities are located in independent structure, the existing equipment shall be moved to the new location and the new equipment added. Capacity shall accommodate all new facilities and shall double the size of the existing facility. The existing abandoned laundry room would then be used for storage. Additional sound proofing would not be required.

    c. New facility shall operate 24 hours and be designed to not disturb guests occupying adjacent rooms.

    d. Layout of new facility to be similar to layout of existing facility.

2. Laundry Equipment

    a. Provide for two new large capacity commercial washers and two new large capacity commercial dryers. New equipment to be similar to existing equipment in function and capacity.

C. MECHANICAL, PLUMBING & FIRE PROTECTION SYSTEMS

1. Provide complete mechanical and plumbing system design per the following:

    a. Provide domestic hot water heater/s, hot & cold water/waste/vent piping, make-up air, drier vent exhaust ducts, final terminations to new washer and dryer equipment as well as other components for a complete functional commercial grade laundry facility.

    b. Provide a liquid propane (LP) gas tank adjacent to the new facility to serve the fuel requirements for the dryer machines and domestic hot water heating equipment. Provide LP gas piping, piping accessories, final terminations to dryer machines and hot water heating equipment and other components for a complete functional system The

LP gas tank shall be sized to accommodate the fuel consumption requirements of the contractor furnished dryer machines and hot water heating equipment as well as to satisfy the tank capacity requirements of the Using Agency.

c. If the Design Builder wishes to route LP gas piping from another LP gas tank (new or existing) in lieu of providing a tank dedicated to serve the new laundry facility, this method would be considered acceptable. However, Using Agency's concurrence is required if this option is exercised.

d. If existing laundry facility utilities (i.e. waste/water/vent piping, LP gas piping, etc.) are deemed adequately sized to accommodate the load of additional washer and dryer equipment, the continuation of these utilities to the new equipment in lieu of providing new services will be considered acceptable. However, Using Agency's concurrence is required if this option is exercised.

e. If the new laundry facility is contiguous with the existing building, extend fire protection from existing building to serve the new laundry room. If new laundry facility is not contiguous with the existing building, provide a new fire protection system (if necessary) to conform to building code/s.

f. Provide HVAC for new laundry facility. Provide air conditioning consistent with the cooling load for the new laundry room. The type of existing HVAC unit in the existing laundry shall not be used as the guideline for the type of HVAC system for the new laundry room.

D. ELECTRICAL SYSTEMS

1. Provide complete electrical system design per the following:

   a. Provide new electrical service from the utility or utilize power from the existing building to be determined during design. Provide a dedicated panel board for the new facility to accommodate all loads.

   b. Provide new lighting systems complete with automatic off controls.

   c. Provide convenience power located per NEC

   d. Provide a dedicated 120V, 20A circuit and Nema 5 – 20R receptacle for each washing machine and dryer. Dryers will be gas fired.

   e. Provide extension of the existing fire alarm system into the new space per IBC 2009 and NFPA 72.

   f. Provide wall mounted telephone in the new space.

   g. Provide power to all HVAC equipment for the new space.

h. As an option to adding on to the existing laundry facility, a new facility could be provided at the contractor's discretion. If this option is chosen the new facility will need to have an independent electrical service, fire alarm system per IBC 2009 and NFPA 72 and telephone system.

APPENDIX F

EXISTING POOL BATH HOUSE UPGRADE

A. BASIC FUNCTION

a. Provide new exterior entrance doors and frames at existing men's and women's pool bath house restrooms located adjacent to the existing pool.

B. COMPONENTS

1. Doors & Frames

    a. New doors and frames shall be appropriate for outdoor pool location and shall be constructed of materials and installed to withstand all chemicals used in their vicinity.

C. MECHANICAL, PLUMBING & FIRE PROTECTION SYSTEMS

1. No work anticipated.

D. ELECTRICAL SYSTEMS

1. No work anticipated.

APPENDIX G

NEW BOATEL BUILDING

A. BASIC FUNCTION

1. Provide new hotel building similar to existing hotel building that is located adjacent to the conference center. New boatel building shall be located as indicated on the improvement location plan between the existing Flagship Boatel and Schooner Boatel buildings.

B. COMPONENTS

1. Building Exterior

    a. Building shall be a simple rectilinear shape with a single loaded corridor. Corridor can be interior or exterior.

    b. Building shall be two story. Stairs can be interior or exterior.

    c. Provide an area for coin operated laundry facilities for guest use. Ice machine shall be located in this same area.

    d. Exterior finishes shall be basic and can be similar to existing hotel. The exterior does not need to match the existing adjacent boatel units.

2. Building Interior

    a. Guest rooms to be a standard double room layout similar to the existing hotel.

    b. Configuration to allow for adjoining rooms that can be rented as one, two or three bedroom suites.

    c. Provide a kitchenette/lounge unit between two bedroom units in a repeating pattern. Kitchenette/Lounge units to contain kitchen area, dining area and living area. Contractor to provide a new electric stove and a full size refrigerator (with ice maker) in each kitchenette unit. These units shall have a deck or balcony on the water side. Do not provide a deck or balcony on the bedroom units. Do not provide wood decks at ground level. Reference diagrammatic layout in Appendix P.

    d. Building shall accommodate approximately twelve double bedroom units and six kitchenette/lounge units.

    e. Interior finishes shall be similar to existing hotel.

    f. Do not provide any furniture, artwork, bedding, etc. Only permanent items are to be included in this project.

3. Site Improvements

   a. Provide a reasonably level, stable, and well drained site for the new boatel building. Conduct any geotechnical and/or environmental testing and analysis necessary for the design of the facility.

   b. Conduct an analysis of the existing parking capacity available at the resort to determine if any additional parking areas are required. If necessary, provide additional parking area adjacent to the new boatel building. New parking area shall meet the following:

      1)Existing parking capacity has been determined to be adequate. An adequate number of accessible parking spots in accordance with the Illinois Accessibility Code and the requirements of the 2010 Americans with Disabilities Act Accessibility Guidelines (ADAAG), with the more stringent governing.

      2)Pedestrian access in accordance meeting the requirements of the Illinois Accessibility Code and ADA requirements above shall be provided to connect the new parking area with the new boatel building.

      3)The parking lot shall be constructed of a stable all-weather material and shall be designed to support vehicle and truck traffic of the types typically present at the resort.

      4)Permanent pavement markings to designate individual parking spots, accessible parking areas, and intended traffic flow shall be provided.

      5)The parking lot shall be graded to allow adequate stormwater drainage and a stable discharge point to direct water into the lake shall be provided.

   c. Provide sanitary sewer, water, telephone, and electrical utility lines to serve the new boatel building. The sanitary sewer lines shall discharge to the resort's existing waste collection facilities. The sanitary sewer lines shall discharge to the resort's existing waste collection facilities. New facilities will tie into Lift Station #1. Lift Stations #2 & #3 have been previously upgraded. Lift Station #1 shall be upgraded as part of this project. See Appendix Q for equipment specifications related to previous upgrades. Similar equipment shall be used to upgrade Lift Station #1. See Section C – Mechanical, Plumbing, and Fire Protection Systems for additional utility requirements.

   d. Obtain all required permits and signoffs from agencies having jurisdiction over the construction of the project. These shall include, but are not limited to, the Illinois Environmental Protection Agency (IEPA), the Illinois Department of Natural Resources (IDNR), the Illinois Historic Preservation Agency (IHPA), the U.S. Army Corps of Engineers (USACOE), the Illinois Department of Public Health (IDPH), and all city, county, state, and federal agencies.

4. Provide stormwater collection and treatment facilities in accordance with the requirements of the National Pollution Discharge Elimination System (NPDES) during construction and for the long term operation of the facility.

C. MECHANICAL, PLUMBING & FIRE PROTECTION SYSTEMS

1. Provide complete mechanical, plumbing & fire protection systems per the following:

   a. Provide lavatory/sink, water-closet, shower/tub, hot & cold water/waste/vent piping, piping accessories and other components necessary for a complete functional system for each guest room and other areas of the building.

   b. Provide domestic hot water heating equipment, hot/cold water piping, piping accessories, and other components necessary for a complete functional plumbing system for the guest rooms and other areas of the building. Contractor shall coordinate utility connection requirements for Using Agency furnished kitchen appliances.

   c. Provide a PTAC unit with a heating (heat pump with back up electric heat) and cooling capacity sized to match the HVAC load calculations (estimated 12,000 BTUH), equipped with R-410A refrigerant, integral unit mounted thermostat, architectural outdoor grille, sub-base and power supply cord for each guest room. Provide heating and cooling units for other common areas of the building.

   d. Provide a liquid propane (LP) fuel tank adjacent to the facility to serve as the fuel supply system for the hot water heating equipment. Provide LP gas piping, piping accessories, final terminations to hot water heating equipment and other components for a complete functional system. The LP gas tank shall be sized to accommodate the fuel consumption requirements for the building as well as to satisfy the tank capacity requirements of the Using Agency .

   e. If the contractor wishes to route LP gas piping from another LP gas tank used to service the New Pier Restaurant, New Outdoor Events Center and New Laundry Facilities in lieu of providing a tank dedicated to serve the New Boatel Building this method would be considered acceptable. However, Using Agency ’s concurrence is required if this option is exercised.

   f. Provide necessary piping and accessories for the installation of a fire protection sprinkler system for the entire building in accordance with NFPA.

   g. Provide exhaust for restrooms and other utility type spaces for code compliance.

D. ELECTRICAL SYSTEMS

1. Provide complete electrical design of systems including the following:

   a. New electric service from the utility.

   b. Lighting systems, switchable lamps in the sleeping rooms.

1) Decorative lighting in the lobby to include dimming.

2) Automatic off controls in the common spaces and common restrooms.

3) Vanity lighting in the restroom of the sleeping area.

4) Exterior building lighting controlled by photoelectric cell and timeclock. Wall mounted building lighting is not preferred; utilize soffit recessed or grade mounted exterior lighting.

c. Power to support a hair dryer in the restroom, an iron in the closet and a coffee pot in the bedroom area.

d. Provide power for a full sized refrigerator in each kitchenette unit.

e. Provide power for an electric range in each kitchenette unit.

f. Provide power for a microwave in each kitchenette unit.

g. Convenience power in the sleeping rooms a minimum of one receptacle on each wall and one GFI receptacle in the restroom.

h. Convenience power for cleaning in the hallways and for the lobby and reception desk area.

i. Telephone to each sleeping room and to the reception desk.

j. Television to each sleeping room and to the reception office.

1) Locate electronics for the television and telephone distribution both at the gift shop and at the new facility.

k. Fire alarm and notification system per IBC 2009 and NFPA 72.

l. Provide a card access control system for the boatel. The system is to match the existing system at the resort.

APPENDIX H

NEW OUTDOOR EVENTS CENTER

A. BASIC FUNCTION

1. Provide an outdoor events center with a prefabricated pavilion and green space to accommodate up to 300 people. Utilize area as indicated on improvement location plan

B. COMPONENTS

1. Pavilion

    a. Provide an open air, pre-fabricated pavilion, circular in shape with materials that complement the existing resort.

    b. Provide lighting for evening events, outlets as necessary to support function of facility and ceiling fans as required for proper ventilation.

2. Green Space

    a. Provide features to enhance the green space for events such as weddings, family reunions and other similar gatherings. Features may include a pergola area, an event lawn, a fountain, ornamental fencing, trees, landscape plantings, decorative walls and sidewalks.

3. Restrooms

    a. Provide a separate restroom facility to accommodate the events area occupant. New restrooms shall be similar to existing independent facilities and located in parking lot area immediately adjacent to the event center area.

4. Site Improvements

    a. Provide a reasonably level, stable, and well drained site for the new outdoor events center. Conduct any geotechnical and/or environmental testing and analysis necessary for the design of the facility.

    b. Provide additional parking area adjacent to the new outdoor events center.

        1)Existing parking capacity has been determined to be adequate. An adequate number of accessible parking spots in accordance with the Illinois Accessibility Code and the requirements of the 2010 Americans with Disabilities Act Accessibility Guidelines (ADAAG), with the more stringent governing.

2)Pedestrian access meeting the requirements of the Illinois Accessibility Code and the ADA shall be provided to connect the new parking area with the outdoor events center.

3)The parking lot shall be constructed of a stable all-weather material and shall be designed to support vehicle and truck traffic of the types typically present at the resort.

4)Permanent pavement markings to designate individual parking spots, accessible parking areas, and intended traffic flow shall be provided.

5)The parking lot shall be graded to allow adequate stormwater drainage and a stable discharge point to direct water into the lake shall be provided.

c. Provide sanitary sewer, water, telephone, and electrical utility lines to serve the new outdoor events center. The sanitary sewer lines shall discharge to the resort's existing waste collection facilities. The sanitary sewer lines shall discharge to the resort's existing waste collection facilities. New facilities will tie into Lift Station #1. Lift Stations #2 & #3 have been previously upgraded. Lift Station #1 shall be upgraded as part of this project. See Appendix Q for equipment specifications related to previous upgrades. Similar equipment shall be used to upgrade Lift Station #1. See Section C – Mechanical, Plumbing, and Fire Protection Systems for additional utility requirements.

d. Obtain all required permits and signoffs from agencies having jurisdiction over the construction of the project. These shall include, but are not limited to, the Illinois Environmental Protection Agency (IEPA), the Illinois Department of Natural Resources (IDNR), the Illinois Historic Preservation Agency (IHPA), the U.S. Army Corps of Engineers (USACOE), the Illinois Department of Public Health (IDPH), and all city, county, state, and federal agencies.

5. Provide stormwater collection and treatment facilities and erosion control measures in accordance with the requirements of the National Pollution Discharge Elimination System (NPDES) requirements during construction and for the long term operation of the facility.

C. MECHANICAL, PLUMBING & FIRE PROTECTION SYSTEMS

1. Provide complete mechanical and plumbing system design per the following:

a. Provide lavatory/sink, water-closet, hot & cold water/waste/vent piping, piping accessories and other components necessary for a complete functional system for each restroom facility. The hot and cold water piping systems for each restroom shall be equipped to facilitate a complete drain down for winter.

b. Provide domestic hot water heating equipment (electric), hot & cold water piping, piping accessories and other components necessary for a complete functional domestic hot water system for the restroom facilities.

c. Provide exhaust for restrooms and other utility type spaces for code compliance.

d. Provide electric heaters (semi-recessed wall type or suspended unit heaters) with integral thermostats for each restroom facility. The heaters shall be sized to maintain an indoor space temperature of 60°F for an outdoor air temperature (OAT) of 0°F.

D. ELECTRICAL SYSTEMS

1. Provide complete electrical system design per the following:

   a. Provide new electrical service from the utility.

   b. Provide a complete lighting system with manual dimmer controls. Lighting should support evening wedding reception type events.

   c. Provide a minimum of 10 duplex weatherproof GFI convenience receptacles at the events center. Provide a minimum of three 20A dedicated circuits for the receptacles.

   d. Provide an additional 3 dedicated circuits and 3 quadruplex GFI weatherproof receptacles at a location determined during design to be a place for a table for potluck events.

   e. Provide power with manual controls to ceiling fans on the ceiling structure of the facility.

   f. Provide extension of electrical service to new restroom facility adjacent to the events center.

      1) Provide new branch circuit panel in the restroom

      2) Provide a complete lighting system for the restroom including automatic off controls.

      3) Provide one dedicated 20A circuit to each of the men's and women's restroom for a GFI receptacle at the sink and a GFI receptacle located in a convenient place for cleaning machines.

      4) Provide a 30A circuit for a hand dryer in each of the restrooms.

      5) Provide power as indicated during design for automatic towel dispensers, faucets and flushers.

      6) Provide power to the heating and exhaust equipment for the restroom.

      7) Provide building exterior lighting on the bathroom controlled by a photoelectric cell.

APPENDIX I

EXISTING GIFT SHOP UPGRADE

A. BASIC FUNCTION

a. Provide for additional food service at existing gift shop counter. Shop currently serves only ice cream and will be upgraded to also serve cold sub sandwiches.

b. Provide for satellite TV system that will accommodate all new guest rooms.

B. COMPONENTS

1. Food Service Equipment

   a. Reference Section 6 for a list of food service equipment items to be provided by the contractor for use at this facility. Fresh bread will be made off site and delivered daily to the gift shop for sandwich preparation.

   b. The shop currently has a 3-compartment sink and a hand sink. However, the hand sink may need to be moved closer to food preparation area in order to meet code requirements.

2. PBX System

   a. New system shall accommodate all existing guest rooms, as well as all new guest rooms.

C. MECHANICAL, PLUMBING & FIRE PROTECTION SYSTEMS

1. No work, unless relocation of hand sink is required.

2. Contractor shall coordinate utility connection requirements for general contractor furnished food service equipment. Utility connections shall be equipped to facilitate a complete drain down during winter. Existing Gift Shop food service equipment are currently equipped for drain down. Therefore, modifications to this equipment will not be required.

D. ELECTRICAL SYSTEMS

1. Provide electrical circuits and receptacle and connections to electrical food service equipment to support a new subway style sandwich shop. There will be no heated sandwich's only cold sandwiches served. The following is a typical list of equipment to be used. The Design Builder is encouraged to provide design input on the type of equipment and the layout.
   a. 1 door glass door reach-in merchandiser freezer, 24 cu. ft, 120 V, requires 20A receptacle - 1
   b. 3-door glass door reach-in merchandiser refrigerator, 72 cu. ft., 120V, requires 20A receptacles – 2

c. Sandwich prep table with insulated hood, 12 - 20 cu. ft., 120V. Does not have to be merchandising style depending on placement -1
d. Merchandising style ice cream dipping cabinet, 16 – 20 cu. ft., with drain, 120V – 1
e. Bakery display case, 24 cu. ft., 120V – 1
f. Under counter size high temp sanitizing dishwasher, 208/240 single phase with necessary plumbing, recommend internal temperature boost for dishwasher, or else external water heater – 1
g. Under counter refrigerator, 3 door, 19 cu. ft., 120V – 1

2. In addition to the equipment listed above, provide above counter receptacles for portable concession style pizza warmers and pizza displays which will be supplied by the Using Agency. Provide a minimum of 4 quadruplex receptacles with 4 dedicated circuits.

3. Provide complete electrical system design per the following:
   a. Coordinate with the existing Satellite TV System vendor to add additional equipment and cabling to accommodate the new Boatel as described in Appendix G above. If cable TV is present at the time of the design, coordinate with the Rend Lake Resort operators to determine if cable TV vs. Satellite TV is required. Currently cable is not available at Rend Lake.

APPENDIX J

NEW OUTDOOR LOUNGE AND DINING AREA

A. BASIC FUNCTION

1. Provide an outdoor dining area to accommodate up to 30 people seated on tables and chairs with food service from the adjacent restaurant. Area to be located as indicated on improvement location plan.

B. COMPONENTS

1. Concrete Pad

    a. Dining area shall be placed on a concrete pad with a landscape border.

    b. Tables and chairs for the desired number of occupants shall be accommodated on the concrete pad. All furnishings to be permanently anchored as the conditions at the proposed location are very windy.

2. Additional Features

    a. Area shall accommodate a small propane fireplace, if feasible, given the existing windy conditions.

3. Site Improvements

    a. Provide a reasonably level, stable, and well drained site for the new outdoor lounge dining area. Conduct any geotechnical and/or environmental testing and analysis necessary for the design of the facility.

    b. Provide water and electrical utility lines to serve the new outdoor lounge dining area. See Section C – Mechanical, Plumbing, and Fire Protection Systems for additional utility requirements.

    c. Obtain all required permits and signoffs from agencies having jurisdiction over the construction of the project. These shall include, but are not limited to, the Illinois Environmental Protection Agency (IEPA), the Illinois Department of Natural Resources (IDNR), the Illinois Historic Preservation Agency (IHPA), the U.S. Army Corps of Engineers (USACOE), the Illinois Department of Public Health (IDPH), and all city, county, state, and federal agencies.

4. Provide stormwater collection and treatment facilities and erosion control measures in accordance with the requirements of the National Pollution Discharge Elimination System (NPDES) requirements during construction and for the long term operation of the facility.

C. MECHANICAL & PLUMBING SYSTEMS

1. Provide complete mechanical and plumbing system design per the following:

    a. Provide a liquid propane (LP) gas tank adjacent to the new facility to serve the fuel requirements of the fireplace. Provide LP gas piping, piping accessories, final terminations to fireplace and other components for a complete functional system. The LP gas tank shall be sized to accommodate the fuel consumption requirements of the contractor furnished fireplace as well as to satisfy the tank capacity requirements of the Using Agency.

    b. If the contractor wishes to route LP gas piping from another LP gas tank (new or existing) in lieu of providing a tank dedicated to serve the new fireplace, this method would be considered acceptable. However, Using Agency's concurrence is required if this option is exercised.

D. ELECTRICAL SYSTEMS

1. Provide complete electrical system design per the following:

    a. Provide power from the existing Reilly's Lounge to accommodate the new Lounge / Smokers Area.

    b. Provide minimal lighting 5 Footcandles (FC) with either Metal Halide or LED outdoor lighting. Utilize pole mounted architectural area lighting.

    c. Provide a single 20A receptacle, GFI and weatherproof for cleaning equipment.

    d. Provide power to the new gas fireplace.

APPENDIX K

NEW SIGNAGE

A. BASIC FUNCTION

a. Provide new signage to identify new facilities added with this project. Upgrade the existing large signage and add general informational signage. Existing wayfinding signage is adequate and does not require any work.

B. COMPONENTS

1. New Identification Signage

   a. Provide new signage to adequately identify all new facilities. Signage to complement existing resort theme and signage.

2. Existing Large Scale Signage

   a. Upgrade existing large scale entrance sign to more appropriately identify the resort, the new improvements and all of the amenities.

3. New Information Signage

   a. Provide informational signage to inform visitors of the new resort improvements and all of the amenities. New signage can be flags that are added to the existing poles and continue the existing nautical theme.

C. MECHANICAL, PLUMBING & FIRE PROTECTION SYSTEMS

1. No work anticipated.

D. ELECTRICAL SYSTEMS

1. No work anticipated, unless existing lighting is to be replaced with new lighting to accent the new entrance sign.

APPENDIX L

INTERNET TOWER UPGRADE

A. BASIC FUNCTION

a. Provide a new internet tower if required to accommodate all new facilities. New tower shall be included as an alternate.

B. COMPONENTS

1. Internet Tower

   a. Provide new tower as an alternate if cable is not available at the site, at the time of construction.

C. MECHANICAL, PLUMBING & FIRE PROTECTION SYSTEMS

1. No work anticipated.

D. ELECTRICAL SYSTEMS

1. Provide complete electrical system design per the following:

a. This item shall be the lowest priority item within the project and should only be pursued if the budget allows.

b. There is an existing wireless transceiver system installed at Rend Lake. This provides a microwave line connection to allow internet access for the resort. Currently the reliability of the system is poor. It is the intent of this alternate bid to provide a solution to Rend Lake that will boost bandwidth and the reliability of the system. Attached to this document in **Appendix N** is the available information on the system.

c. During design, coordinate with an RF systems vendor to perform an RF study for the site and recommend a new wireless technology to provide a secure, reliable wireless system that will boost bandwidth to the different facilities currently being served by the existing wireless system. The cost for the study and a fully implemented wireless system will be included in the Alternate Bid.

d. If cable becomes available during the progress of this project, coordinate with the Rend Lake Resort operators to determine if adding cable internet services to each facility is preferred over upgrading the wireless services. Currently no cable internet service providers are available to the Resort.

APPENDIX M

IMRPOVEMENT LOCATION PLAN

A. BASIC FUNCTION

1. Reference attached document.

REND LAKE RESORT - IMPROVEMENTS LOCATION PLAN
SCALE: NTS

APPENDIX N

EXISTING INTERNET SYSTEM

A. BASIC FUNCTION

1. Reference attached document.

Rend Lake Resort

Hotel and Conference Center
800-633-3341 618-629-2211

Updated on: 08/10/06
Last Printed on: 05/22/06

Office PBX Room

Equipment	I.P.Address	MASK
DW7700 Satellite	192.168.0.1	255.255.255.252
	72.169.154.61	
	Currently on Sat 89° - Almost due south	
Linksys Office Router I	172.16.46.1	255.255.255.0
Linksys Campus Router	10.0.0.4	255.255.255.0
Linksys Office Router II	72.169.154.62	255.255.255.252

RB-11 10.0.0.12 Main Chimney
RB-11 is referenced as RendLake for all CB-11 SSID communications
http://10.0.0.12:2000 to talk to RB-11

AP's are fed from 24 port Switch below the "Campus Wide" Linksys
Power for the 1st 6 AP's are supplied from Injectors mounted below the 24 port switch

Linksys Access Point 10.0.0.14 Hall1
Linksys Access Point 10.0.0.15 Hall2
Linksys Access Point 10.0.0.16 Hall3

Linksys Access Point 10.0.0.17 Board Room
In ceiling back side of room above 1st conf table seat, straight in from door
Linksys Access Point 10.0.0.19 Conference Room C
In door, between 2nd row of lights
Linksys Access Point 10.0.0.35 Great Room
In ceiling 1st tile outside of Maintenance room access door. Across hallway from women's rest room
Channel A of Dual Coupler

Linksys & Kitchen Dual coupler are in ceiling of conference "B", Other Dual Coupler is at the 24 port switch in PBX Room
A Spare line runs from here to Great Room AP and dead ends.

Linksys Access Point 10.0.0.38/windylane Conference Room A
North side of room above 220v plug, Panel rail is marked with dot and an Antenna symbol
Kitchen
Channel B of Dual Coupler

The RB11/CB54E is the main Access Point Antenna for communication across the Campus. The data feed line is from the 24 port switch below the "Campus Wide" Linksys and is labeled AirEther.

AirEther CAT5 cable leaves PBX room to connect to the RB11/CB54E Power Injector located in the Maintenance room to the East of the Board Room. It is mounted to a rail below a ceiling duct. 120 VAC Power supplies this Injector and is mounted with it.

A CAT5 cable leaves the Injector and goes up to the antenna mounted on the main chimney. There is 48V on this line to power the RB11/CB54E on the chimney. The Power LED and Active LED should be lit during normal use.

DO NOT plug a laptop into the data out line

RB11/CB54E http://10.0.0.12:2000 Main Chimney
The 18db Sector Antenna is plugged into the bottom of the RB11/CB54E. It looks like a shop light. There is also a Serial port on the bottom of the RB11/CB54E for programming and setup purposes. There is a special cable for this. Do not loose this cable

RB11/CB54E is referenced as **RendLake** for all CB11 SSID communications

Note: The skipping of IP Addresses in the following number plans.
The use of even numbers on the 192.168.x.x is irrelevant. Installer stated while on phone he does this by his own preference.

RB-11 has been replaced by AB54E
AP-11 has been replaced by AB11
CB-11 has been replaced by CB54E

Rend Lake Resort
Hotel and Conference Center
800-633-3341 618-629-2211

Updated on: 08/10/06
Last Printed on: 05/22/06

Cabins

Location	CB-11 Address	Access Point	Type
501-502 – Cubby Hole	192.168.2.48	10.0.0.18	Linksys
503-504 – Cubby Hole	192.168.2.6	10.0.0.20	Linksys
505-506 – Cubby Hole	192.168.2.28	10.0.0.21	Linksys
507-508 – Cubby Hole	192.168.2.18	10.0.0.22	Linksys
509-510 – Cubby Hole	192.168.2.22	10.0.0.23	Linksys
511-512 – Cubby Hole	192.168.2.30	10.0.0.24	Linksys

SSID: RendCabin for link to Cabin 519-520 AP-11

513-514 – Cubby Hole	192.168.2.20	10.0.0.33	Linksys
515-516 – Cubby Hole	192.168.2.14	10.0.0.32	Linksys
517-518 – Cubby Hole	192.168.2.8	10.0.0.30	Linksys
519-520 – Cubby Hole	192.168.2.36	10.0.0.29	AP-11
519-520		10.0.0.25	Linksys
521-522 – Cubby Hole	192.168.2.16	10.0.0.31	Linksys

SSID: RendLake for link to following buildings

Windjammer

Location	CB-11 Address	Access Point	Type
Room 203	192.168.2.38	10.0.0.26	AP-11

Schooner ..... Note Name Difference - 2 lower case O

Location	CB-11 Address	Access Point	Type
Mechanical Room	192.168.2.34	10.0.0.27	Linksys

Sch00ner..... Note Name Difference - 2 Numeral 0

Location	CB-11 Address	Access Point	Type
Mechanical Room	192.168.2.32	10.0.0.28	Linksys

The Flagship

Location	CB-11 Address	Access Point	Type
Heat Duct Room 613	192.168.2.2	10.0.0.34	AP-11

Blue Heron

Location	CB-11 Address	Access Point	Type
Equipment Room	192.168.2.50	10.0.0.36	Linksys

Linksys mounted by backdoor

Rend Lake Resort

Hotel and Conference Center
800-633-3341 618-629-2211

Updated on: 08/10/06
Last Printed on: 05/22/06

Current Equipment at Rend Lake:

1: Direcway system (.98 dish with 7700 modem) SN: 03502608
1: RB-11 3: AP-11 14: CB-11
1: SA1821 - 18db Sector Antenna
Attached to RB-11 on chimney, looks like a Shop Light
1: 24 port Linksys switch 2: 4 port Linksys routers
20: Linksys Access Points 6: Power Injector
13: long DTV masts 2200:ft.of CAT5 Network Cable

Mobile Satellite Technologies
1500 Technology Drive Suite 102
Chesapeake, VA 23320

mobilesat.com
757-312-8300 ph
757-548-5993 fax

Date of Sale: Apr 20, 2006
Customer #: RLR0306 **Sales ID: KW05**

Teck Supp	Robert Bower	Ext:310 757-389-5799
		robert.bower@mobilsat.com
	Richard	Ext: 304
	Patrick	Ext: 314
Installer:	Wayne Judy	wejudy@cox.net
	Kirk Williams	Sales

Direcway DW7700 & Dish Mfg ..... hughesnet.com.com

Inscape AirEther Mfg ..... www.inscapedata.com
..... 888-267-4507/408-935-8900
Richard, Tech Support .....Ext 15 (08/08/2006)

Linksys AP and Injector mfg ..... Linksys.com

Linksys AP WAP54G — Note SSID's

Static IP

IP:	10.0.0.12
Mask:	255.255.255.0
Gateway:	10.0.0.4
AP Mode:	AP

Wireless

Mixed:	
SSID:	**Cabin 519-520**
SSID:	Broadcast

Adv Wireless

Beacon:	
DTIM:	3
Frag:	2346
RTS	2346

CB-11Inscape Configuration

System Page
Wireless Client Bridge

Host Name:	AirEther
DHCP:	Disabled
IP:	192.168.2.xx
Mask	255.255.255.0
Gateway:	192.168.2.254
DNS 1:	192.168.2.254
DNS 2:	blank

Wireless Page

RTS:	1600
Frag:	1600
SSID:	**RendLake**
Station:	CB
WEP:	Disabled

SSID:	RendLake for link to Chimney
SSID:	RendCabin for link to Cabin 519-520 AP-11
SSID:	for link to Cabin 519-520 AP-11

Additional Notes:

RB-11 and AP-11 Power Injectors are interchangeable.

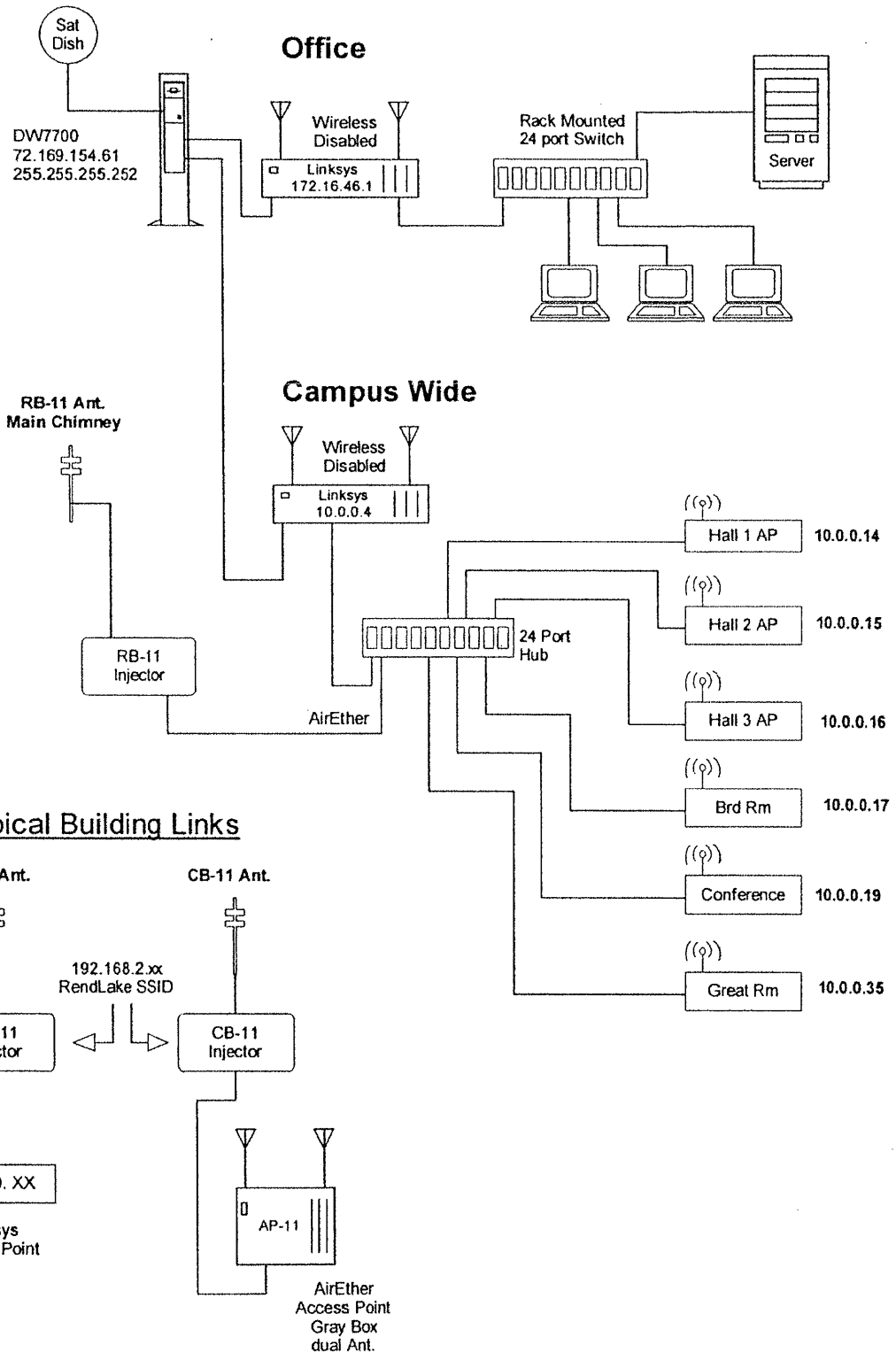
To connect to a RB-11 access via RS-232
Works for AP-11 also

Attach cable to laptop. USB to Serial adapter does work but you will need to know COM Port number (com2, com5 ...)
Start Hyperterm and create a session on COM port.
Set communications at:
115200, 8, n, 1 with flow control = None
Press "S" to show status of RB11
Note IP Address and other info
This is the info needed to access device via Web Browser

To connect to a CB-11via Ethernet
Change Wired NIC on laptop/desktop to 192.168.2.250
Connect Crossover cable to Dataport
Bring up Browser
Change Address to 192.168.2.XX (i.e. 50 for Blue Heron)
Login: root
Password: root

Note: AP, CB and RP Units
All saving is done on the "ADMINISTATION" page
The "FINISH" on each page is a completion only

RB-11 has been replaced by AB54E @ $299
AP-11 has been replaced by AB11 @ $
CB-11 has been replaced by CB54E @ $176.52



Drawn by John R Tucker
Tucker Consulting
05/10/2006

APPENDIX N

EXISTING INTERNET SYSTEM

A. BASIC FUNCTION

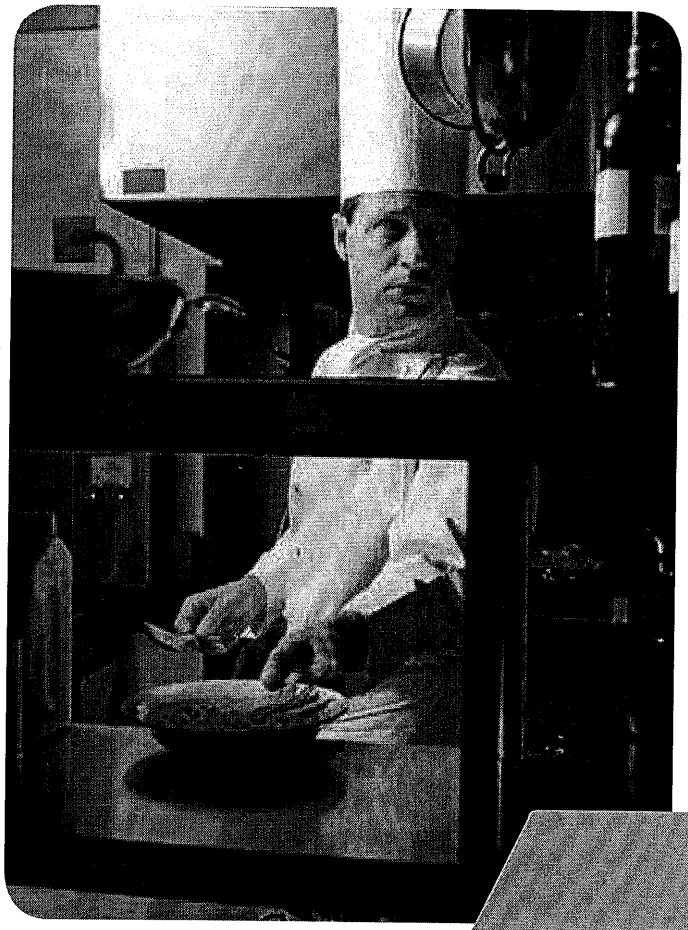
1. Reference attached document.

APPENDIX O

FOOD SERVICE EQUIPMENT CUT SHEETS

A. BASIC FUNCTION

1. Reference attached document.



Commercial Microwave Oven

NE-1257/1258

This Commercial Microwave Oven by Panasonic is ideal for full and quick service restaurants, banquets, supermarkets, catering, and institutional applications.

—1200* Watts of Cooking Power

—Capacity: 0.6 Cubic Feet only 16-5/8" Wide

—"Grab & Go" Door Handle

—Top and Bottom Energy Feed

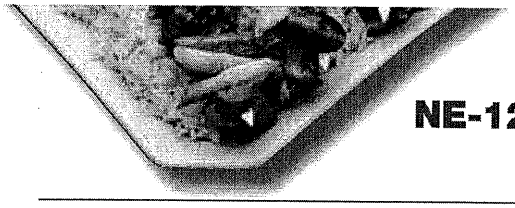
—Fits One 6" Tall, Half-Size Steam Table Pan with Cover

ProI
Heavy Duty

Panasonic ideas for life

NSF c UL us

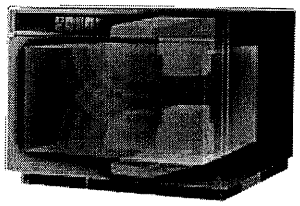
Central Restaurant Products



NE-1257/1258 Commercial Microwave Oven

Additional Features:

- Stainless Steel Cabinet and Cavity
- Compact Size, Heavy-duty Performance
- 2 Magnetrons (Heating Sources)
- "One Touch" Start Feature
- 60 Memory Capability
- 3 Power Levels
- 3-Stage Cooking
- Enhanced Diagnostics
- Cycle Counter
- Programmable Lock
- Easy to Clean Air Filter with Reminder
- Patented Safety Door Seal System
- See-Through Oven Door
- Removable Ceiling Splatter Shield
- Digital Display
- Stackable
- Chef Technical Support
- Will Ship via UPS
- NSF & UL Commercial Approved



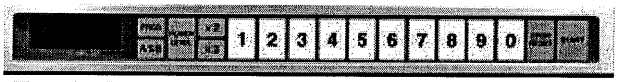
Top & Bottom Energy Feed

"Grab & Go" Door Handle

Without the hassle of moving parts like those found in push button doors or trigger-activated handles, the "Grab & Go" Door Handle is fast and durable.

Stainless Steel Cabinet and Cavity

The stainless steel cabinet and cavity makes for easy cleaning.



Touch-Control Keypad

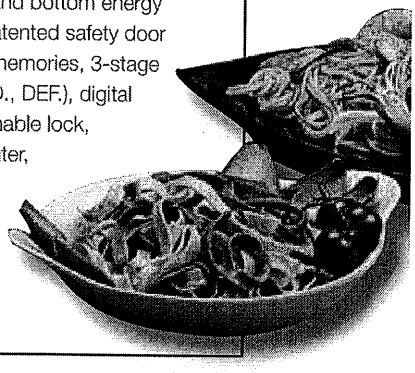
Featuring an electronic keypad with 60-memory capability, the NE-1257/1258 cooks with speed and precision with its 3 power levels and 3-stage cooking.

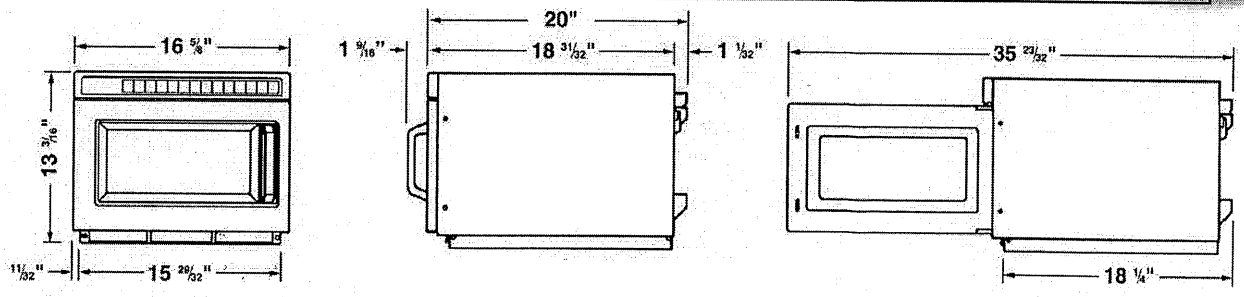
Specifications

NE-1257/1258	
Power Source	120V, 60Hz, Single Phase
Receptacle Required	NEMA 5-20 R
Frequency	2,450MHz
Required Power	17.7A
Output	1200 Watts*
Outer Dimensions (wxdxh)	16⅝" x 20" x 13³⁄₁₆"
Cavity Dimensions (wxdxh)	13" x 12" x 6⅞"
Net Weight	59 lbs.
Shipping Weight	64 lbs.
Shipping Box Size (wxdxh)	19¹⁵⁄₁₆ x 24⅛ x 16⅞, 4.7 cu. ft.
Timer	Maximum Times for Each Stage of Cooking – Hi & Med. Power=15 Min. – Defrost=30 Min.

To Specify a Panasonic Commercial Microwave Oven

The NE-1257/1258 Commercial Microwave Oven meets or exceeds all safety performance and sanitation standards set for commercial food service microwave ovens by UL, DHHS, FCC and NSF. Plus, oven has 1200 Watts* output power, top and bottom energy feed, Grab & Go door handle, patented safety door seal system, 60 programmable memories, 3-stage cooking, 3 power levels (HI, MED., DEF.), digital display w/countdown, programmable lock, self diagnostics, oven cycle counter, stackable, Video Training and Chef/Test Kitchen technical support. NE-1258 - 3 years warranty. NE-1257 - 3 years limited warranty. 1 Year parts & Labor. 3 years magnetron.





I.E.C. 60705-88 Test Procedure. Specifications subject to change without notice.

Panasonic ideas for life

Panasonic Home & Commercial Appliance Group
Panasonic Corporation of North America
Executives Offices: One Panasonic Way, Panazip 1H-2
Secaucus, NJ 07094

Toll-free: **877-CMO-OVEN (266-6836)**
Sales Support, Recipes and Training at: **www.panasonic.com/cmo**

For a Panasonic Distributor/Services nearest you, 1-800-350-9590

TRUE FOOD SERVICE EQUIPMENT, INC.
2001 East Terra Lane • O'Fallon, Missouri 63366
(636)240-2400 • Fax (636)272-2408 • (800)325-6152 • Intl Fax# (001)636-272-7546
Parts Dept. (800)424-TRUE • Parts Dept. Fax# (636)272-9471 • www.truemfg.com

Project Name: _____ *AIA #*

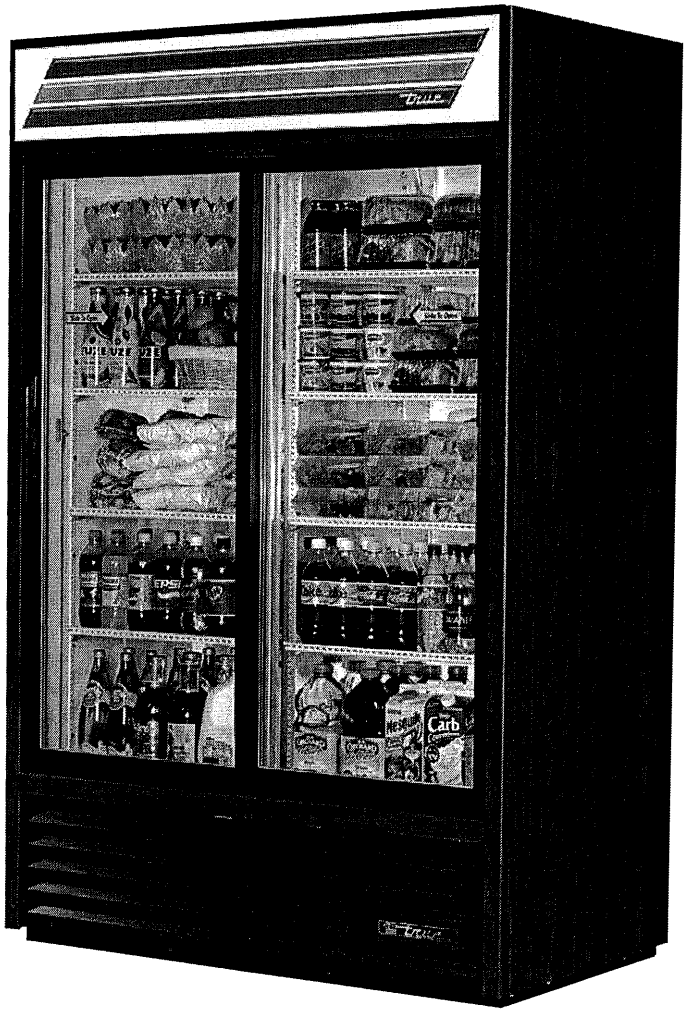
Location: _____

Item #: _____ *Qty:* _____ *SIS #*

Model #: _____

Model:
GDM-45

Glass Door Merchandiser:
Slide Door Refrigerator



GDM-45

- The world's #1 manufacturer of glass door merchandisers.
- Oversized, factory balanced, refrigeration system holds 33°F to 38°F (.5°C to 3.3°C).
- Exterior - non-peel or chip white laminated vinyl; durable and permanent.
- Interior - attractive, NSF approved, white aluminum interior liner with 300 series stainless steel floor.
- Self closing doors. Counter-balanced weight system for smooth, even, positive closing.
- "Low-E", double pane thermal insulated glass door assemblies with mitered plastic channel frames. The latest in energy efficient technology.
- Entire cabinet structure is foamed-in-place using Ecomate. A new, innovative, high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

Bottom mounted units feature

- "No stoop" lower shelf to maximize product visibility.
- Storage on top of cabinet.
- Easily accessible condenser coil for cleaning.

ROUGH-IN DATA

Specifications subject to change without notice.
Chart dimensions rounded up to the nearest ⅛" (millimeters rounded up to next whole number).

Model	Doors	Shelves	Cabinet Dimensions (inches) (mm) L	D†	H	HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.) (total m)	Crated Weight (lbs.) (kg)
GDM-45	2	8	51⅛	29⅝	78⅝	½	115/60/1	10.2	5-15P	9	465
			1299	753	1998	½	230-240/50/1	5.4	▲	2.74	211

† Depth does not include ⅜" (10 mm) for door handles.

▲Plug type varies by country.

3/11 Printed in U.S.A.

APPROVALS:

AVAILABLE AT:

Model:
GDM-45

Glass Door Merchandiser:
Slide Door Refrigerator

STANDARD FEATURES

DESIGN
- True's commitment to using the highest quality materials and oversized refrigeration systems provides the user with colder product temperatures, and lower utility costs in an attractive merchandiser that brilliantly displays packaged food and beverages.

REFRIGERATION SYSTEM
- Factory engineered, self-contained, capillary tube system using environmentally friendly (CFC free) 134A refrigerant.
- Extra large evaporator coil balanced with higher horsepower compressor and large condenser; maintains cabinet temperatures of 33°F to 38°F (.5°C to 3.3°C).
- Sealed, cast iron, self-lubricating evaporator fan motor(s) and larger fan blades give True merchandisers a more efficient low velocity, high volume airflow design. This unique design ensures faster temperature pull down of warm product, colder holding temperatures and faster recovery in high use situations.
- Bottom mounted condensing unit positioned for easy maintenance. "No stoop" lower shelf maximizes visibility by raising merchandised product to higher level.

CABINET CONSTRUCTION
- Exterior - non-peel or chip cherry laminated vinyl; durable and permanent.
- Interior - attractive, NSF approved, white aluminum liner with 300 series stainless steel floor.
- Insulation - entire cabinet structure is foamed-in-place using Ecomate. A high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
- Welded, heavy duty steel frame rail, black powder coated for corrosion protection.
- Frame rail fitted with leg levelers.
- Illuminated exterior sign panel. Variety of sign options available.

DOORS
- "Low-E", double pane thermal insulated glass door assemblies with mitered plastic channel frames. The latest in energy efficient technology.
- Each door fitted with 12" (305 mm) long handle.
- Self closing doors. Counter-balanced weight system for smooth, even, positive closing.

SHELVING
- Eight (8) adjustable, heavy duty PVC coated wire shelves 22 1⅝"L x 20 9⅛"D (583 mm x 523 mm). Four (4) chrome plated shelf clips included per shelf.
- Shelf support pilasters made of same material as cabinet interior; shelves are adjustable on ½" (13 mm) increments.

LIGHTING
- Safety shielded fluorescent interior lighting.
- Cabinet lighting utilizes electronic ballast and T-8 bulbs for brighter illumination, longer bulb life and increased energy efficiency.

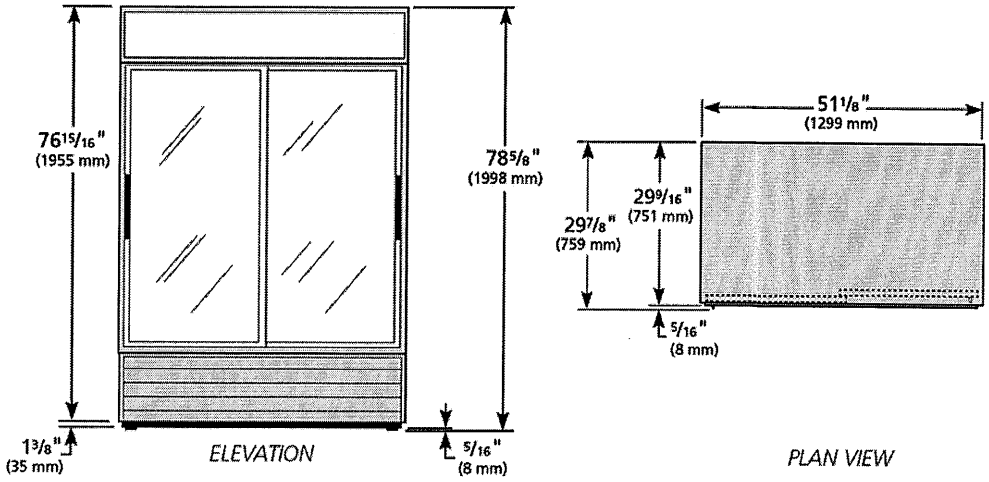
MODEL FEATURES
- Evaporator is epoxy coated to eliminate the potential of corrosion.
- See our website www.truemfg.com for latest color and sign offerings.
- Convenient clean-out drain built in cabinet floor.
- Listed under NSF-7 for the storage and/or display of packaged or bottled product.

ELECTRICAL
- Unit completely pre-wired at factory and ready for final connection to a 115/60/1 phase, 15 amp dedicated outlet. Cord and plug set included.

115/60/1
NEMA-5-15R

OPTIONAL FEATURES/ACCESSORIES
Upcharge and lead times may apply.
- ❑ 230 - 240V / 50 Hz.
- ❑ Black exterior.
- ❑ White exterior.
- ❑ Stainless steel exterior.
- ❑ Black aluminum interior liner with black shelving.
- ❑ Stainless steel interior liner.
- ❑ 6" (153 mm) standard legs.
- ❑ 6" (153 mm) seismic/flanged legs.
- ❑ 2½" (64 mm) diameter castors.
- ❑ 4" (102 mm) diameter castors.
- ❑ LED Lighting.
- ❑ Red wine thermostat.
- ❑ White wine thermostat.
- ❑ Chocolate thermostat.
- ❑ Barrel lock (factory installed).
- ❑ Ratchet locks.
- ❑ Wine racks.
- ❑ Additional shelves.
- ❑ TrueFlex/TrueTrac gravity feed organizers.
- ❑ Remote cabinets (condensing unit supplied by others; system comes standard with 404A expansion valve and requires R404A refrigerant). Consult factory technical service department for BTU information. All remote units must be hard wired during installation.

PLAN VIEW



WARRANTY
One year warranty on all parts and labor and an additional 4 year warranty on compressor. (U.S.A. only)

METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Model	Elevation	Right	Plan	3D	Back
GDM-45	TFAY05E	TFAY07S	TFAY05P	TFAY063	

TRUE FOOD SERVICE EQUIPMENT
2001 East Terra Lane • O'Fallon, Missouri 63366 • (636)240-2400 • Fax (636)272-2408 • (800)325-6152 • Intl. Fax# (001)636-272-7546 • www.truemfg.com

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(636)240-2400 • Fax (636)272-2408 • (800)325-6152 • Intl Fax# (001)636-272-7546
Parts Dept. (800)424-TRUE • Parts Dept. Fax# (636)272-9471 • www.truemfg.com

Project Name: _____ *AIA #*

Location: _____

Item #: _____ *Qty:* _____ *SIS #*

Model #: _____

Model:
TSSU-60-16

Food Prep Table:
Solid Door Sandwich/Salad Unit

TSSU-60-16

- True's salad/sandwich units are designed with enduring quality that protects your long term investment.
- Oversized, environmentally friendly (134A), patented forced-air refrigeration system holds 33°F to 41°F (.5°C to 5°C).
- Complies with and listed under ANSI/NSF-7-1997-6.3.
- All stainless steel front, top and ends. Matching aluminum finished back.
- Stainless steel, patented, foam insulated lid(s) and hood keep pan temperatures colder, lock in freshness and minimize condensation. Removable for easy cleaning.
- 11¾" (299 mm) deep, ½" (13 mm) thick, full length removable cutting board included. Sanitary, high density, NSF approved white polyethylene provides tough preparation surface.
- Heavy duty PVC coated wire shelves.
- Foamed-in-place using Ecomate. A high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).

ROUGH-IN DATA

Specifications subject to change without notice.
Chart dimensions rounded up to the nearest ⅛" (millimeters rounded up to next whole number).

Model	Doors	Shelves	Pans (top)	Cabinet Dimensions (inches) (mm) L	D†	H*	HP	Voltage	Amps	NEMA Config.	Cord Length (total ft.) (total m)	Crated Weight (lbs.) (kg)
TSSU-60-16	2	4	16	60⅜ 1534	30⅛ 766	36¾ 934	⅓ ⅓	115/60/1 230-240/50/1	7.8 4.2	5-15P ▲	7 2.13	340 155

† Depth does not include 1" (26 mm) for rear bumpers.
* Height does not include 6¼" (159 mm) for castors or 6" (153 mm) for optional legs.

▲Plug type varies by country.

MADE IN THE USA SINCE 1945 · 5 YEAR COMPRESSOR WARRANTY USA · c UL us · NSF · CE

5/10 Printed in U.S.A.

APPROVALS:

AVAILABLE AT:

Model:
TSSU-60-16

Food Prep Table:
Solid Door Sandwich/Salad Unit

STANDARD FEATURES

DESIGN
- True's commitment to using the highest quality materials and oversized refrigeration systems provides the user with colder product temperatures, lower utility costs, exceptional food safety and the best value in today's food service marketplace.

REFRIGERATION SYSTEM
- Factory engineered, self-contained, capillary tube system using environmentally friendly (CFC free) 134A refrigerant.
- Oversized, factory balanced refrigeration system with guided airflow to provide uniform temperature in food pans and cabinet interior.
- Patented forced-air design holds 33°F to 41°F (.5°C to 5°C) product temperature in food pans and cabinet interior. Complies with and listed under ANSI/NSF-7-1997-6.3.
- Sealed, cast iron, self-lubricating evaporator fan motor(s) and larger fan blades give True sandwich/salad units a more efficient, low velocity, high volume airflow design.
- Condensing unit access in back of cabinet, slides out for easy maintenance.

CABINET CONSTRUCTION
- Exterior - stainless steel front, top and ends. Matching aluminum finished back.
- Interior - attractive, NSF approved, white aluminum liner. 300 series stainless steel floor with coved corners.
- Insulation - entire cabinet structure and solid doors are foamed-in-place using Ecomate. A high density, polyurethane insulation that has zero ozone depletion potential (ODP) and zero global warming potential (GWP).
- 5" (127 mm) diameter stem castors - locks provided on front set. 36" (915 mm) work surface height.

DOORS
- Stainless steel exterior with white aluminum liner to match cabinet interior.
- Each door fitted with 12" (305 mm) long recessed handle that is foamed-in-place with a sheet metal interlock to ensure permanent attachment.
- Positive seal self-closing doors with 90° stay open feature. Doors swing within cabinet dimensions.
- Magnetic door gaskets of one piece construction, removable without tools for ease of cleaning.

SHELVING
- Four (4) adjustable, heavy duty PVC coated wire shelves 27½"L x 16"D (699 mm x 407 mm). Four (4) chrome plated shelf clips included per shelf.
- Shelf support pilasters made of same material as cabinet interior; shelves are adjustable on ½" (13 mm) increments.

MODEL FEATURES
- Evaporator is epoxy coated to eliminate the potential of corrosion.
- 11¾" (299 mm) deep,½" (13 mm) thick, full length removable cutting board. Sanitary, high-density, NSF approved white polyethylene provides tough preparation surface.
- Stainless steel, patented, foam insulated lids and hood keep pan temperatures colder, lock in freshness and minimize condensation. Removable for easy cleaning.
- Comes standard with 16 (⅙size) 6⅞"L x 6¼"W x 4"D (175 mm x 159 mm x 102 mm) clear polycarbonate, NSF approved, food pans in countertop prep area. Also accommodates 6" (153 mm) and 8" (204 mm) deep food pans (supplied by others).
- Countertop pan opening designed to fit varying size pan configurations with available pan divider bars. Varying size pans supplied by others.
- NSF-7 compliant for open food product.

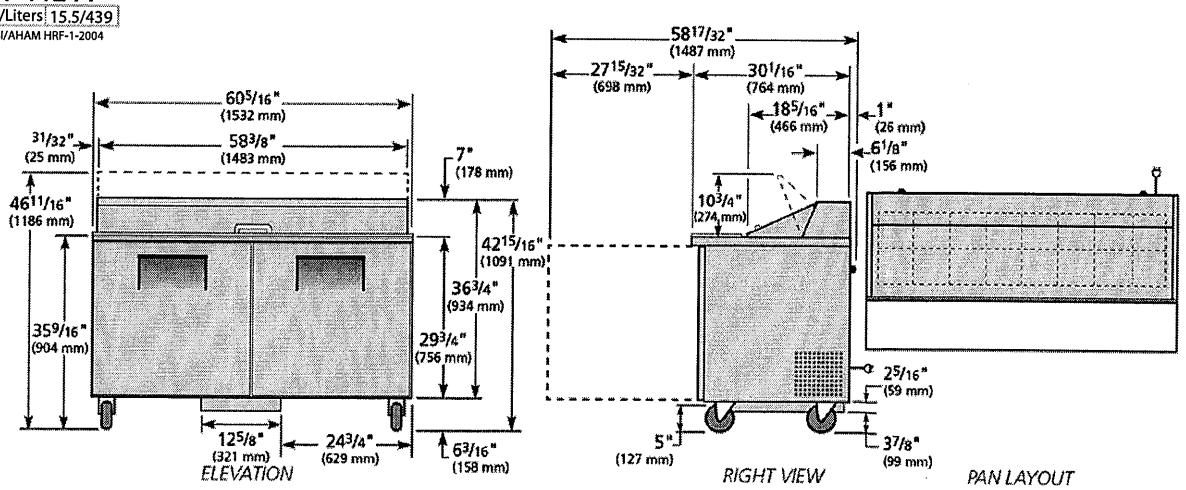
ELECTRICAL
- Unit completely pre-wired at factory and ready for final connection to a 115/60/1 phase, 15 amp dedicated outlet. Cord and plug set included.

115/60/1
NEMA-5-15R

OPTIONAL FEATURES/ACCESSORIES
Upcharge and lead times may apply.
- ❑ 230 - 240V / 50 Hz.
- ❑ 6" (153 mm) standard legs.
- ❑ 6" (153 mm) seismic/flanged legs.
- ❑ 2½" (64 mm) diameter castors.
- ❑ Barrel locks (factory installed). Requires one per door.
- ❑ Additional shelves.
- ❑ Single overshelf.
- ❑ Double overshelf.
- ❑ Flat lids.
- ❑ Sneezeguard.
- ❑ 19" (483 mm) deep,½" (13 mm) thick, white polyethylene cutting board. Requires "L" brackets.
- ❑ 19" (483 mm) deep,¾" (20 mm) thick, white polyethylene cutting board. Requires "L" brackets.
- ❑ 11¾" (299 mm) deep,½" (13 mm) thick, composite cutting board. Requires "L" brackets.
- ❑ 19" (483 mm) deep,½" (13 mm) thick, composite cutting board. Requires "L" brackets.
- ❑ Crumb catcher. Requires crumb catcher cutting board for proper installation.
- ❑ Pan dividers.
- ❑ Exterior rectangular digital temperature display (factory installed).
- ❑ ADA compliant model with 34" (864 mm) work surface height.
- ❑ Remote cabinets (condensing unit supplied by others; system comes standard with 404A expansion valve and requires R404A refrigerant). Consult factory technical service department for BTU information. All remote units must be hard wired during installation.

PLAN VIEW

Cubic Feet/Liters 15.5/439
* Based on ANSI/AHAM HRF-1-2004



WARRANTY
One year warranty on all parts and labor and an additional 4 year warranty on compressor. (U.S.A. only)

METRIC DIMENSIONS ROUNDED UP TO THE NEAREST WHOLE MILLIMETER

SPECIFICATIONS SUBJECT TO CHANGE WITHOUT NOTICE

Model	Elevation	Right	Plan	3D	Back
TSSU-60-16	TFNY08E	TFNY05S	TFNY08P	TFNY083	

TRUE FOOD SERVICE EQUIPMENT
2001 East Terra Lane • O'Fallon, Missouri 63366 • (636)240-2400 • Fax (636)272-2408 • (800)325-6152 • Intl. Fax# (001)636-272-7546 • www.truemfg.com

CONVECTION OVEN

SILVERSTAR

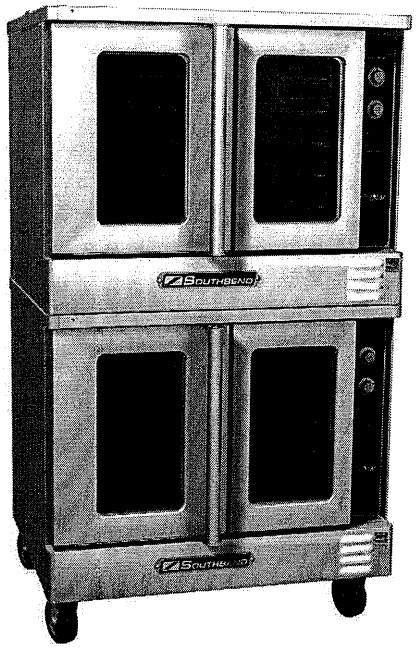
GAS, DOUBLE DECK

SLGS/22SC, SLGS/22CCH
SLGB/22SC, SLGB/22CCH

Job _____ Item# _____

Standard Features

- ENERGY STAR® qualified (standard depth only)
- Patented, high efficiency, non-clog Jet Stream burners
- 72,000 BTU (NAT or LP) per oven cavity
- Available standard and bakery depths
- Double deck convection oven is 66-1/2" in height
- Patented "plug-in, plug-out" control panel - easy to service
- Stainless Steel front, top and sides
- Oven interior light
- Dependent doors with windows
- Coved, fastener-free, porcelain interior
- Heavy duty, cool touch, stainless steel door handle
- Soft Air, two speed, 1/2 hp, fan motor
- 11-position rack guides and 5 plated oven racks
- Electronic ignition with solid state temperature controls
- Forced cool down fan mode
- Oven "ready" light



(SLGS/22SC shown with optional casters)

Available Controls

SC-Standard Controls
140°F to 500°F solid state thermostat and 60 minute mechanical cook timer.

CCH-Cycle / Cook & Hold Control
150°F to 500°F temperature controller with 140°F to 200°F "Hold" thermostat Dual digital display shows time and temperature. A fan cycle timer pulses the fan.

STANDARD CONSTRUCTION SPECIFICATIONS

Exterior Finish: Stainless steel front, top and sides. Aluminized steel back.

Doors: Dependent doors with windows. Stainless steel construction, heavy-duty welded steel frame and 5/8" diameter full-length hinge pin.

Oven Interior: Porcelain enamel finish, coved, fastener free.

Rack and Rack Guides: Heavy-duty removable wire rack guides spaced on 1-5/8" centers offer 11 different rack positions. 5 wire racks provided with each oven.

Blower Fan and Motor: 1/2hp, 2-speed motor, 1725/1140 r.p.m

Oven Heating: 72,000 BTU NAT or LP). Oven heating is regulated by an adjustable solid state thermostat control. Blower fan circulates air within the cavity "scrubbing" heat to the oven interior for even heat distribution within the cavity.

Electronic Ignition: Hot surface ignitor with flame safety device.

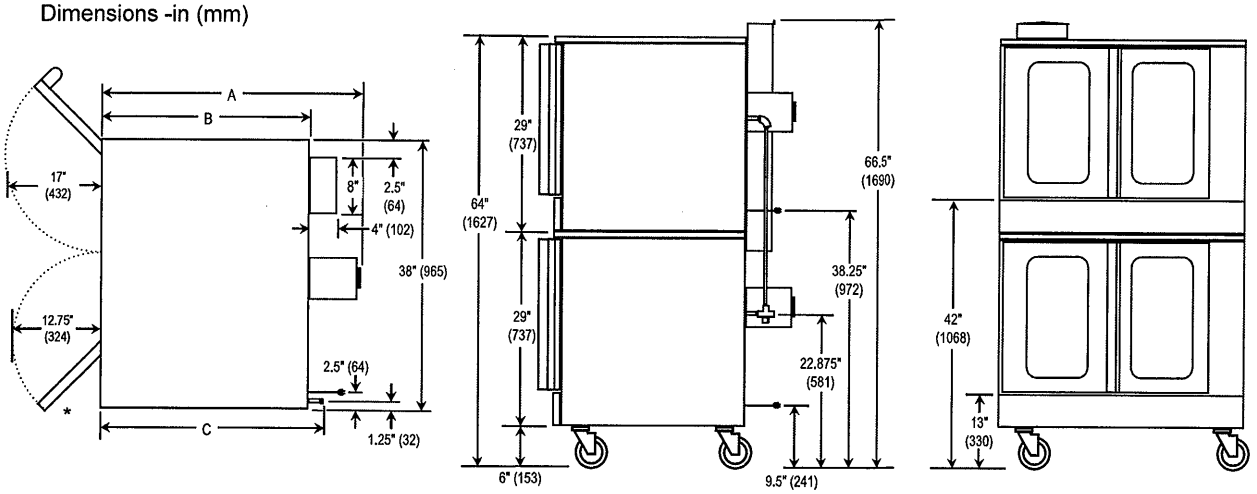
Control Panel: Located of front, at right side of oven, away from heat zone. Removable panel opens downward for easy servicing.

Legs: 6" stainless steel legs standard.

Note: Oven cannot be operated without fan in operation.

Models: ☐SLGS/22SC ☐SLGS/22CCH ☐SLGB/22SC ☐SLGB/22CCH

Dimensions -in (mm)



MODEL	DEPTH			OVEN INTERIOR			RACK CLEARANCE		SHIPPING CRATE				
	A	B	C	WIDTH	DEPTH	HEIGHT	WIDTH	DEPTH	WIDTH	DEPTH	HEIGHT	VOLUME	WEIGHT
SLGS/22	39.75" (1010)	30" (763)	34.38" (873)	29" (737)	22.5" (572)	20" (508)	28.25" (718)	22" (559)	48" (1220)	57" (1448)	69" (1753)	118 cu. ft. (3.34 cu. m.)	1040 lbs (471.7 kg.)
SLGB/22	46.75" (1187)	36.38" (924)	40.75" (1035)	29" (737)	28" (711)	20" (508)	28.25" (718)	27.25" (692)	48" (1220)	57" (1448)	69" (1753)	118 cu. ft. (3.34 cu. m.)	1180 lbs (523.2 kg.)

UTILITY INFORMATION

GAS:
- Standard and Bakery Depth: 72,000 BTU (NAT or LP) per oven cavity
- One 3/4" male connection
- Required minimum inlet pressure:
  - Natural gas 7" W.C.
  - Propane gas 11" W.C.

ELECTRIC: Standard: 120/60/1 phase, furnished with 6' cord w/3-prong plug (1 plug/deck). NEMA #5-15p. Total maximum amps 7.9.

Optional: 208/60/1 (190-219 volts). Supply must be wired to junction box with terminal block located at rear. Total maximum amps 4.3 per deck.

Optional: 240/60/1 (220-240 volts). Supply must be wired to junction box with terminal block located at rear. Total maximum amps 3.8 per deck.

Optional: 240/50/1 (208-240 volts). Supply must be wired to junction box with terminal block located at rear. Total maximum amps 6.0 per deck

MISCELLANEOUS

- If using flex hose connector, the I.D should not be smaller than 3/4" and must comply with ANSI Z 21.69.
- If casters are used with flex hose, a restraining device should be used to eliminate undue strain on the flex hose.
- Clearances from combustibles: Top-0", bottom-0", right side-0" and left-3"
- Recommend - install under vented hood
- Check local codes for fire and sanitary regulations
- If the unit is connected directly to the outside flue, an A.G.A approved down draft diverter must be installed at the flue outlet of the oven
- Oven cannot be operated without fan in operation

Notice: Southbend reserves the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions, or replacements for previously purchased equipment.

OPTIONS AND ACCESSORIES

- ❑ Stainless Steel rear jacket
- ❑ Stainless Steel oven interior
- ❑ Stainless Steel exterior bottom
- ❑ 208/240V 50/60 cycle (for use on single phase only)
- ❑ Bolt-down flanged legs
- ❑ Swivel Caster - front with locks
- ❑ Knocked down packaging
- ❑ Export Crating
- ❑ Extra oven racks
- ❑ Down draft diverter for direct flue
- ❑ 3/4" quick disconnect with flexible hose (specify length: 3ft, 4ft, or 5ft)
- ❑ 2" air insulation panel (stainless steel only)

INTENDED FOR COMMERCIAL USE ONLY.
NOT FOR HOUSEHOLD USE.

SOUTHBEND

1100 Old Honeycutt Road, Fuquay-Varina, NC 27526
(919) 762-1000 www.southbendnc.com

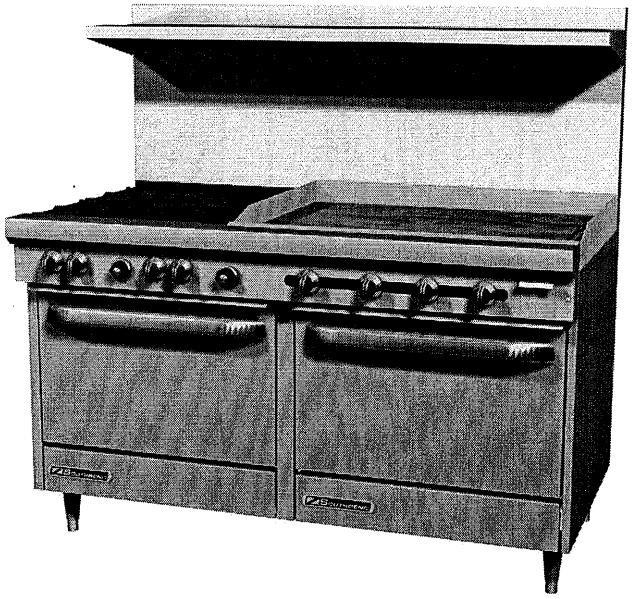
Project: _____ Item #: _____ Date: _____

S-Series Restaurant Range

S60DD-2G/T - 6 Burners, 24" Griddle, 2 Standard Ovens
S60AA-2G/T - 6 Burners, 24" Griddle, 2 Convection Ovens
S60AD-2G/T - 6 Burners, 24" Griddle, 1 Convection Oven, 1 Standard Oven
S60DC-2G/T - 6 Burners, 24" Griddle, 1 Standard Oven, 1 Cabinet
S60AC-2G/T - 6 Burners, 24" Griddle, 1 Convection Oven, 1 Cabinet
S60CC-2G/T - 6 Burners, 24" Griddle, 2 Cabinets

S60DD-3G/T - 4 Burners, 36" Griddle, 2 Standard Ovens
S60AA-3G/T - 4 Burners, 36" Griddle, 2 Convection Ovens
S60AD-3G/T - 4 Burners, 36" Griddle, 1 Convection Oven, 1 Standard Oven
S60DC-3G/T - 4 Burners, 36" Griddle, 1 Standard Oven, 1 Cabinet
S60AC-3G/T - 4 Burners, 36" Griddle, 1 Convection Oven, 1 Cabinet
S60CC-3G/T - 4 Burners, 36" Griddle, 2 Cabinets

S60DD-4G/T - 2 Burners, 48" Griddle, 2 Standard Ovens
S60AA-4G/T - 2 Burners, 48" Griddle, 2 Convection Ovens
S60AD-4G/T - 2 Burners, 48" Griddle, 1 Convection Oven, 1 Standard Oven
S60DC-4G/T - 2 Burners, 48" Griddle, 1 Standard Oven, 1 Cabinet
S60AC-4G/T - 2 Burners, 48" Griddle, 1 Convection Oven, 1 Cabinet
S60CC-4G/T - 2 Burners, 48" Griddle, 2 Cabinets



(S60DD-3GR shown)

Southbend is a leader in the commercial cooking industry. Since 1898 Southbend has been dedicated to providing the highest quality and most innovative cooking equipment to customers in all facets of the food service industry. Customers choose Southbend due to the reliable performance, endless versatility and pricing value of their equipment. Southbend products are engineered to perform and built to last.

STANDARD EXTERIOR FEATURES

- 60-3/4" wide open top with stainless steel front, sides and removable shelf.
- 28,000 BTU NAT (24,000 BTU LP) **PATENTED**, one-piece cast iron, non-clog burners with Lifetime Warranty.
- Smooth, polished 1/2" steel griddle plate with raised sides available in 24", 36" or 48" [available manual or thermostatic, on the left (L) or right (R)].
- 4" Stainless steel front rail with closed, welded end caps.
- Individual, removable cast iron grate tops (rear holds up to 14" stock pot).
- Two (2) removable, one-piece crumb drawers under burners.
- Metal knobs w/ red stripe.
- Hinged, lower valve panel.
- Quadrant spring doors with heat resistant, ergonomic, chrome handle.
- 6" stainless steel, adjustable legs.
- Factory installed pressure regulator.

STANDARD OVEN FEATURES (D)

- 35,000 BTU standard oven with snap action thermostat adjustable for 175°F to 550°F.
- U-shaped heavy duty oven burner.
- Equipped with flame failure safety device.
- Large 26" wide X 26-1/2" deep oven with all oven cavity parts enameled.
- Four sides and top of oven insulated with heavy, self-supporting block type rock wool with oven baffle assembly.
- 2-position rack guides with one removable rack.

CONVECTION OVEN FEATURES (A)

- 35,000 BTU standard oven with snap action thermostat adjustable for 175°F to 550°F.
- U-shaped heavy duty oven burner.
- Equipped with flame failure safety device.
- Large 26" wide X 26-1/2" deep oven with all oven cavity parts enameled.
- Four sides and top of oven insulated with heavy, self-supporting block type rock wool with oven baffle assembly.
- 1/2 hp, 1725 rpm, 60 cycle, 115V AC high efficiency, permanent split phase motor.
- On/Off switch to allow CO base to operate as a standard oven.
- 5-position rack guides with two removable racks.

CABINET BASE FEATURES (C)

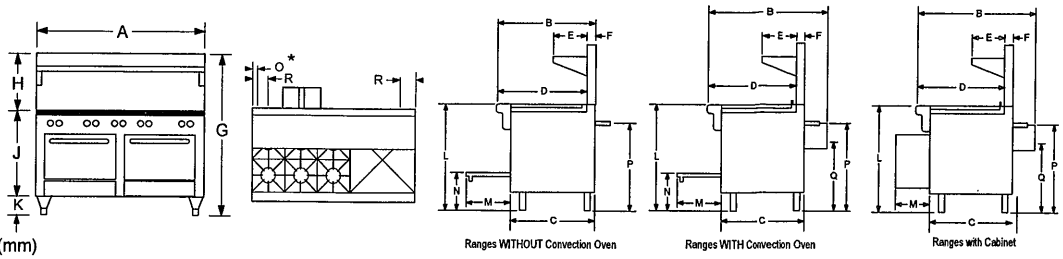
- Aluminized cabinet base. Optional no-charge doors that open from the center available.

1100 Old Honeycutt Road, Fuquay-Varina, NC 27526
Phone: (919)-762-1000 • Fax: (800)-910-9915 • URL: www.southbendnc.com

Form S60G Rev 4 (November/2010)

Printed in U.S.A.

Models: ☐S60DD-2G/T ☐S60AA-2G/T ☐S60AD-2G/T ☐S60DC-2G/T ☐S60AC-2G/T ☐S60CC-2G/T
☐S60DD-3G/T ☐S60AA-3G/T ☐S60AD-3G/T ☐S60DC-3G/T ☐S60AC-3G/T ☐S60CC-3G/T
☐S60DD-4G/T ☐S60AA-4G/T ☐S60AD-4G/T ☐S60DC-4G/T ☐S60AC-4G/T ☐S60CC-4G/T



Dimensions - in(mm)

Model	Exterior																
	Width A	Depth B	C	D	E	F	G	H	J	K	Cook Top L	Door Opening M	Oven Bottom N	3/4" Gas Conn. O*	P	Electric Q	R
S60DD - 2G/T, 3G/T, 4G/T	60.75" (1543)	34.00" (864)	29.75" (756)	31.00" (787)	12.00" (305)	2.75" (70)	59.50" (1511)	22.50" (572)	31.00" (787)	6.00" (152)	37.00" (940)	15.50" (394)	13.00" (330)	3.25" (83)	30.25" (768)	-	-
S60AA - 2G/T, 3G/T, 4G/T	60.75" (1543)	44.50" (1130)	29.75" (756)	31.00" (787)	12.00" (305)	2.75" (70)	59.50" (1511)	22.50" (572)	31.00" (787)	6.00" (152)	37.00" (940)	15.50" (394)	13.00" (330)	3.25" (83)	30.25" (768)	24.00" (610)	6.00" (152)
S60CC - 2G/T, 3G/T, 4G/T	60.75" (1543)	34.00" (864)	29.75" (756)	31.00" (787)	12.00" (305)	2.75" (70)	59.50" (1511)	22.50" (572)	31.00" (787)	6.00" (152)	37.00" (940)	13.50" (343)	-	3.25" (83)	30.25" (768)	-	-

Model	Oven Interior			Crate Size			Cubic Volume	Crated Weight
	Width	Depth	Height	Width	Depth	Height		
S60DD - 2G/T, 3G/T, 4G/T	26.00" (660)	26.50" (673)	14.00" (356)	67.00" (1702)	45.50" (1158)	75.00" (1905)	132.3 cu. ft 3.75 cu.m.	860 lbs. 390 kg.
S60AA - 2G/T, 3G/T, 4G/T	26.00" (660)	24.00" (610)	14.00" (356)	67.00" (1702)	45.50" (1158)	75.00" (1905)	132.3 cu. ft 3.75 cu.m.	860 lbs. 390 kg.
S60CC - 2G/T, 3G/T, 4G/T	-	-	-	67.00" (1702)	45.50" (1158)	75.00" (1905)	132.3 cu. ft 3.75 cu.m.	860 lbs. 390 kg.

NOTES:
Optional hot plate in lieu of 2 open top burners at 12,000 BTU/burner. (24,000 BTU total NAT or LP)
*Gas Connection will be located on opposite side of griddle location (if griddle is located on the left the gas connection will be moved to the right side).

UTILITY INFORMATION

Gas Type	Burners (BTU/each)						
	Open Top Burner	Standard Oven	Convection Oven	Griddle 24"	Griddle 36"	Griddle 48"	Hot Plate 12"
Natural	28K	35K	35K	3 @ 16K	4 @ 16K	5 @ 16K	2 @ 12K
LP	24K	35K	35K	3 @ 16K	4 @ 16K	5 @ 16K	2 @ 12K

- Each unit has a 3/4", male, rear gas connection.
- Minimum inlet pressure - Natural Gas is 4" W.C
  - Propane Gas is 11" W.C.
- Each convection oven is standard 115/60/1 furnished with 6' cord with 3-prong plug. Total max amps is 3.8.
- Optional - 208/60/1, 50/60/1 phase. Supply must be wired to junction box with terminal block located at rear. Total max amps is 2.6.
- Check local codes for fire, installation and sanitary regulations.
- For installation on combustible floors and adjacent to combustible walls, allow 6" clearance.
- If using Flex-Hose, the I.D. should not be smaller than the I.D. of the manifold of the unit to which it is being connected.
- If casters are used, a restraining device should be used to eliminate undue strain on the flex hose.
- Install under vented hood.
- If the unit is connected directly to the outside flue, an A.G.A approved down draft diverter must be installed at the flue outlet of the oven.

BIDDING SPECIFICATIONS

The unit shall be a 60-3/4" wide, S-Series Restaurant Range with the exterior constructed of stainless steel and shall have a 4" stainless steel front rail with closed, welded end caps. The unit shall have 6" stainless steel, adjustable legs. The unit shall come with a 22.5" high stainless steel flue riser with single shelf. The unit shall come with a factory installed regulator.

OPEN TOP - The unit shall have 28,000 BTU NAT (24,000 BTU LP) open top burners with individual, removable cast iron grate tops.

2G/T - The unit shall have a 24", smooth, polished 1/2" thick steel griddle plate with raised sides, to include three (3) 16,000 BTU burners. [specify left (L) or right (R) side]

3G/T - The unit shall have a 36", smooth, polished 1/2" thick steel griddle plate with raised sides, to include four (4) 16,000 BTU burners. [specify left (L) or right (R) side]

4G/T - The unit shall have a 48", smooth, polished 1/2" thick steel griddle plate with raised sides, to include five (5) 16,000 BTU burners.

D - The unit shall have a 35,000 BTU standard oven with snap action thermostat, adjustable from 175°F to 550° F. The interior shall be enameled and measure 26" wide X 26.5" deep X 14" high, and includes 2-position rack guides with one removable rack.

A - The unit shall have a 35,000 BTU convection oven with snap action thermostat, adjustable from 175°F to 550° F. The unit shall include a 1/2 hp split phase motor with on/off switch to allow CO base to operate as a standard oven. The interior shall be enameled and measure 26" wide X 26.5" deep X 14" high, and includes 5-position rack guides with two removable racks.

C - The unit shall have an aluminized cabinet base without doors. Optional, no-charge doors that open from the center available.

OPTIONS AND ACCESSORIES

- ☐ Casters - all swivel - front with locks
- ☐ 10" flue riser
- ☐ 3/4" quick disconnect with flexible hose - complies with ANSI Z 21.69 (Specify 3ft, 4ft or 5ft)
- ☐ Restraining device
- ☐ Extra oven racks
- ☐ Auxiliary griddle plates
- ☐ Cabinet base doors (No Charge)
- ☐ Various salamander & cheesemelter mounts available (Please contact factory)

NOTICE:
Southbend has a policy of continuous product research and improvement. We reserve the right to change specifications and product design without notice. Such revisions do not entitle the buyer to corresponding changes, improvements, additions or replacements for previously purchased equipment.

INTENDED FOR COMMERCIAL USE ONLY. NOT FOR HOUSEHOLD USE.

SOUTHBEND

1100 Old Honeycutt Road, Fuquay-Varina, NC 27526
Phone: (919)-762-1000 • Fax: (800)-910-9915 • URL: www.southbendnc.com

Manitowoc

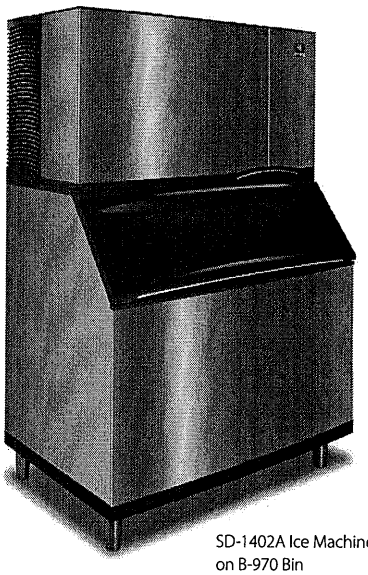
S-Series 1400 Ice Cube Machine

S-Series 1400 Ice Cube Machine

Models

- ☐ SD-1402A
- ☐ SD-1403W
- ☐ SD-1492N
- ☐ SY-1404A
- ☐ SY-1405W
- ☐ SY-1494N

ENERGY STAR



SD-1402A Ice Machine on B-970 Bin

Standard Features

- Up to 1,460 lbs. (662 kgs.) daily ice production
- Removeable water distribution tube requires no tools to remove
- Food zone designed with soft rounded corners
- Patented cleaning and sanitizing technology
- Select components compounded with AlphaSan® antimicrobial
- Patented ice harvest technology reduces energy requirements
- Hinged front door for easy access
- R-404A CFC-free refrigerant

COMMERCIAL WARRANTY

ICE MAKER	EVAPORATOR	COMPRESSOR
3 YEAR	5 YEAR	5 YEAR PARTS
PARTS AND LABOR		3 YEAR LABOR

Specifications

BTU Per Hour:
23,500 (average) 27,000 (peak)

Compressor:
Nominal rating: 2 HP

Cupra-Nickel Condenser:
(Water-cooled models)
Adds protection from corrosive water elements.

Operating Limits:

- Ambient Temperature Range:
  Air and water-cooled:
  35° to 110°F (1.67° to 43.3°C)
  Remote: -20° to 120°F (-29° to 49°C)
- Water Temperature Range:
  35° to 90°F (1.67° to 32.2°C)
- Water Pressure Ice Maker Water In:
  Min. 20 psi (137.9 kPA)
  Max. 80 psi (551.1 kPA)
- Condenser Inlet Water In:
  (Water-cooled only)
  Min. 20 psi (137.9 kPA)
  Max. 150 psi (1,034.2 kPA)

Ice Machine Electric

208-230/60/1 standard. (208-230/60/3 and 230/50/1 also available.)

Min. circuit ampacity:		
Air-cooled:	18.3 1ph	13.2 3ph
Water-cooled:	16.9 1ph	11.8 3ph
Remote:	17.9 1ph	12.8 3ph
Max. fuse size:		
Air-cooled, Water-cooled, Remote:	30 amps 1ph	
	20 amps 3ph	

HACR-type circuit breakers can be used in place of fuses.

Ice Shape

Half Dice
⅜" x 1⅛" x ⅞"
(.95 x 2.86 x 2.22 cm)

Dice
⅞" x ⅞" x ⅞"
(2.22 x 2.22 x 2.22 cm)

ANSI CERTIFIED NSF c UL US LISTED AutoQuotes QUALITY MANAGEMENT SYSTEM CERTIFIED BY DNV ISO 9001:2008

2110 South 26th Street
PO Box 1720
Manitowoc, WI 54221-1720 USA

Tel: 1.920.682.0161
Fax: 1.920.683.7589

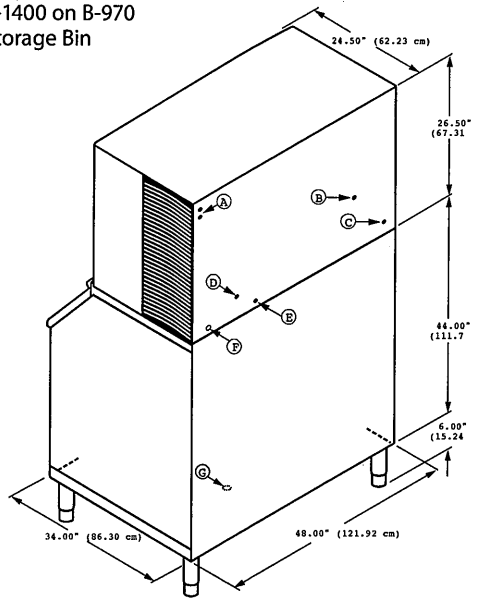
www.manitowocice.com

Manitowoc

Manitowoc

S-Series 1400 Ice Cube Machine

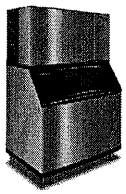
S-1400 on B-970 Storage Bin



Ⓐ Electrical Entrance (2 Options)
Ⓑ 1/2" (1.27 cm) FPT Water Condenser Outlet (water-cooled units)
Ⓒ 3/8" (0.95 cm) FPT Water Condenser Inlet (water-cooled units)
Ⓓ 3/8" (0.95) FPT Ice Making Water Inlet
Ⓔ 1/2" (1.27) FPT Ice Making Water Drain
Ⓕ 1/2" (1.27) Auxiliary Base Drain Socket
Ⓖ 3/4" (1.91) Bin Drain

Installation Note - Minimum installation clearance:
Water and remote units — Top/sides: 8" (20.32 cm), back: 5" (12.7 cm).
Air-cooled units — Top/sides: 24" (60.96 cm), back: 12" (30.48 cm).

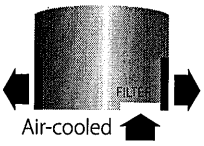
Space Saving Designs



	S-1400 B-970
Height	76.50" 194.31 cm
Width	48.00" 121.92 cm
Depth	34.00" 86.30 cm
Bin Storage	710 lbs. 322.2 kgs.

Height includes adjustable bin legs 6.00" to 7.00" (15.24 to 17.78 cm) set at 6.00" (15.24 cm).

Air Flow Top View



AuCS®SI Accessory

Automatic Cleaning System purchased factory installed in the machine or as an option for field retrofit.

Specifications

	Model	Ice Shape	Ice Production 24 Hours 70°Air/ 50°F Water	Ice Production 24 Hours 90°Air/ 70°F Water	Power Usage kWh/100 lbs.@90°Air/70°F 1 Ph	Power Usage kWh/100 lbs.@90°Air/70°F 3 Ph	Water Usage/100 lbs. 45.4 kgs. of Ice Potable Water	ENERGY STAR®
AIR-COOLED	SD-1402A	dice	1440 lbs. / 653 kgs.	1112 lbs. / 504 kgs.	5.08	5.07	22.5 gal. / 85.2 L	★
AIR-COOLED	SY-1404A	half-dice	1450 lbs. / 658 kgs.	1140 lbs. / 517 kgs.	5.05	5.05	22.5 gal. / 85.2 L	★
WATER-COOLED	SD-1403W	dice	1430 lbs. / 649 kgs.	1180 lbs. / 535 kgs.	4.01	3.94	22.5 gal. / 85.2 L	NA
WATER-COOLED	SY-1405W	half-dice	1460 lbs. / 662 kgs.	1245 lbs. / 565 kgs.	3.97	3.94	22.5 gal. / 85.2 L	NA
	Water-cooled Condenser Water Usage /100 lbs./45.4 kgs. of Ice: 150 gal/568 L							
REMOTE-COOLED	SD-1492N	dice	1380 lbs. / 626 kgs.	1150 lbs. / 522 kgs.	4.63	4.63	22.5 gal. / 85.2 L	★
REMOTE-COOLED	SY-1494N	half-dice	1430 lbs. / 649 kgs.	1169 lbs. / 530 kgs.	4.63	4.63	22.5 gal. / 85.2 L	★

Order ice storage bin separately. Ice storage bin and JC-1395A remote condenser must be ordered separately.
Consult remote condenser specification sheet for details. To order 3 phase add "3" sufix to model # (SD-1402A3).

2110 South 26th Street
PO Box 1720
Manitowoc, WI 54221-1720 USA

Tel: 1.920.682.0161
Fax: 1.920.683.7589
www.manitowocice.com

Manitowoc

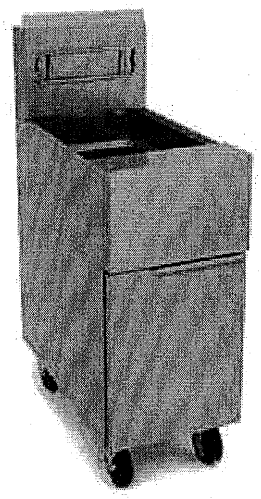
Frymaster

Standard Gas Fryers

Project _____
Item _____
Quantity _____
CSI Section 11400 _____
Approval _____
Date _____

Models

☐ GF14 ☐ GF40



GF40 Shown with optional casters

Standard Features

- Open-pot design is easy to clean
- Millivolt temperature controls, no electric connection required
- Snap-action thermostat
- Deep cold zone, 1-1/4 in. (3.2 cm) IPS ball-type drain valve
- Master Jet burner heat-transfer system
- Stainless steel frypot and door, enamel cabinet
- Two twin baskets or 1 full basket
- 6" adjustable legs

GF14
-- 40 lb. (20 liter*) oil capacity
-- 100,000 Btu/hr. input (25,189 kcal) (29.3 kw)
-- Frying area 12" x 15" (30.5 x 38.1 cm)
-- Produces 65 lbs. of french fries per hour

GF40
-- 50-lb. (25 liter*) oil capacity
-- 122,000 Btu/hr. input (30,730 kcal) (35.8 kW)
-- Frying area 14" x 15" (35.6 x 38.1 cm)
-- Produces 80 lbs. of french fries per hour

Options & Accessories

☐ Frypot cover
☐ Sediment Tray
☐ Fryer's friend clean-out rod
☐ Piezo igniter kit
☐ Screen-type basket support
☐ Fishplate
☐ 6" (15.2 cm) casters
☐ Full size basket 5-1/4" x 12-3/8" x 12-7/8" (13.3 x 31.4 x 32.7 cm)
☐ Twin size basket 5-1/2" x 6" x 12-7/8" (14.0 x 15.2 x 32.7 cm)
☐ 3/4 x 48 in. (2 x 122 cm) quick connect with gas line
☐ 3/4 x 36 in. (2 x 91.4 cm) quick connect with gas line

Specifications

Designed for versatile frying production and solid performance

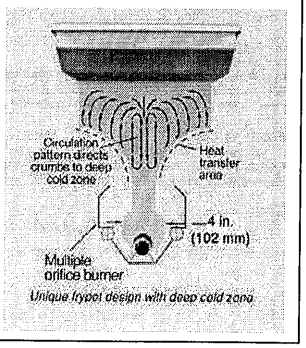
The Master Jet burner system's durable metal targets create a large heat-transfer area for reliable, even heat distribution. Snap-action thermostat senses temperature changes and activates burner response.

The open frypot has a large heat-transfer area and every inch of the frypot and cold zone can be cleaned and wiped down by hand.

The deep cold zone and forward sloping bottom help collect and remove sediment from the frypot to safeguard oil quality and support routine frypot cleaning. These particles are trapped in the cold zone where they do not carbonize, contaminate oil or cling to fried products.

The fryers carry a one-year warranty -- parts and labor with a five-year limited warranty on the stainless-steel frypot.

*Liter conversions are for solid shortening @70°F.



Unique frypot design with deep cold zone

8700 Line Avenue
Shreveport, LA 71106-6814
USA

Tel: 318-865-1711
Tel: 1-800-221-4583
Fax: 318-868-5987
E-mail: info@frymaster.com

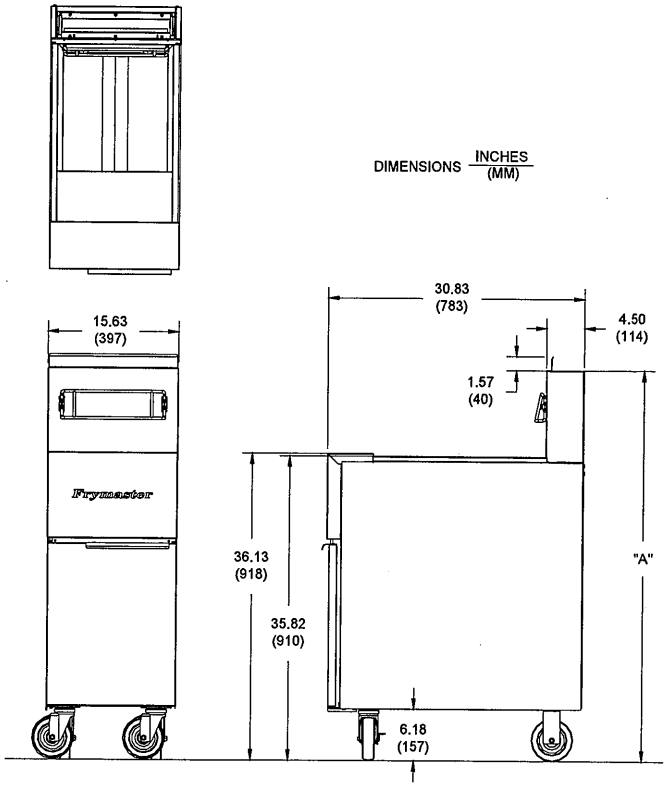
www.frymaster.com
Bulletin No. 818-0592
Printed 11/08
Revised 4/10

Manitowoc

Frymaster

Standard Gas Fryers

Model # _____
CSI Section 11400



DIMENSIONS

MODEL NO.	OIL CAPACITY	OVERALL SIZE (cm)			DRAIN HEIGHT with Drain Pipe	NET WEIGHT	SHIPPING INFORMATION					
		HEIGHT (A)	WIDTH	LENGTH			WEIGHT	CLASS	CU. FT.	DIMENSIONS (cm)		
										H	W	L
GF14	30-40 lb (15-20 liter)	41-1/8" (104.4 cm)	15-5/8" (39.7 cm)	30-7/8" (78.4 cm)	13" (33.0 cm)	115 lbs. (52 kg)	152 lbs. (69 kg)	85	19	46-1/2" (118.1 cm)	22" (55.9 cm)	36" (91.4 cm)
GF40	40-50 lb. (20-25 liter)	46-1/8" (117.2 cm)	15-5/8" (39.7 cm)	30-7/8" (78.4 cm)	13" (33.0 cm)	131 lbs. (59 kg)	176 lbs. (80 kg)	85	21	46-1/2" (118.1 cm)	22" (55.9 cm)	36" (91.4 cm)

POWER REQUIREMENTS

MODEL	NAT/LP GAS	ELECTRICAL
GF14	100,000 Btu/hr. (25,189 kcal) (29.3 kw)	none required for millivolt system
GF40	122,000 Btu/hr. (30,730 kcal) (35.8 kW)	

NOTES

- 1/2" (1.27 cm) (NPT) gas inlet size
- Check plumbing codes for proper supply line sizing. Recommended minimum store manifold pressure to be 6" W.C. for natural gas and 11" W.C. for LP gas. Check plumbing codes for proper supply line sizing to attain burner manifold pressure of 3-1/2"W.C. natural or 8-1/4"W.C. LP

HOW TO SPECIFY

The following descriptions will assist with ordering the features desired for this equipment:

SD	Stainless steel frypot and door, enamel cabinet
Nat	Natural gas
LP	Liquid propane gas

CLEARANCE INFORMATION

A minimum of 24" (61.0 cm) should be provided at the front of the unit for servicing and proper operation, and 6" (15.2 cm) between the sides and rear of the fryer to any combustible material. A minimum of 18" (45.7 cm) should be maintained between the flue outlet and the lower edge of the exhaust hood filters.

8700 Line Avenue
Shreveport, LA 71106-6814
USA

Tel: 318-865-1711
Tel: 1-800-221-4583
Fax: 318-868-5987
E-mail: info@frymaster.com

www.frymaster.com
Bulletin No. 818-0592
Printed 11/08
Revised 4/10

Quality at an affordable price

RANKIN-DELUX®

COMMERCIAL COOKING EQUIPMENT

TURBO BROILER by RANKIN-DELUX

CHAR BROILER

INFRARED TYPE
MODEL TB-8 SERIES
Gas Operated

TURBO BROILER by RANKIN-DELUX

FLOOR MODEL

Patented

Model TB-836-C

COUNTER MODEL

Patent #2,556,216 and #5,368,009

NSF

TURBO BROILER by RANKIN-DELUX

Model TB-836-F-C

Pictured With Optional Stainless Steel Base w/Doors and Casters

This infrared ***Turbo Broiler®*** is the ultimate combination of intense searing heat and superheated air produced by means of the unique radiant and baffle design patented by Rankin-Delux.

The ***Turbo Broiler®*** is the result of years of experimentation by Rankin-Delux, Inc., to develop a high efficiency radiant broiler with the intense searing heat that is necessary for the finest gourmet char broiling.

This broiler uses specially designed top grates which can be used in a raised or lowered position. The grates have a sloping trough cast on both sides of each blade to facilitate fast grease runoff even when used in the lowered position.

A wide sloping grease trough across the front catches the runoff from the grates and drains it into a separate grease pan for safety and easier cleaning.

Quality at an affordable price.

Designed for Commercial Use Only

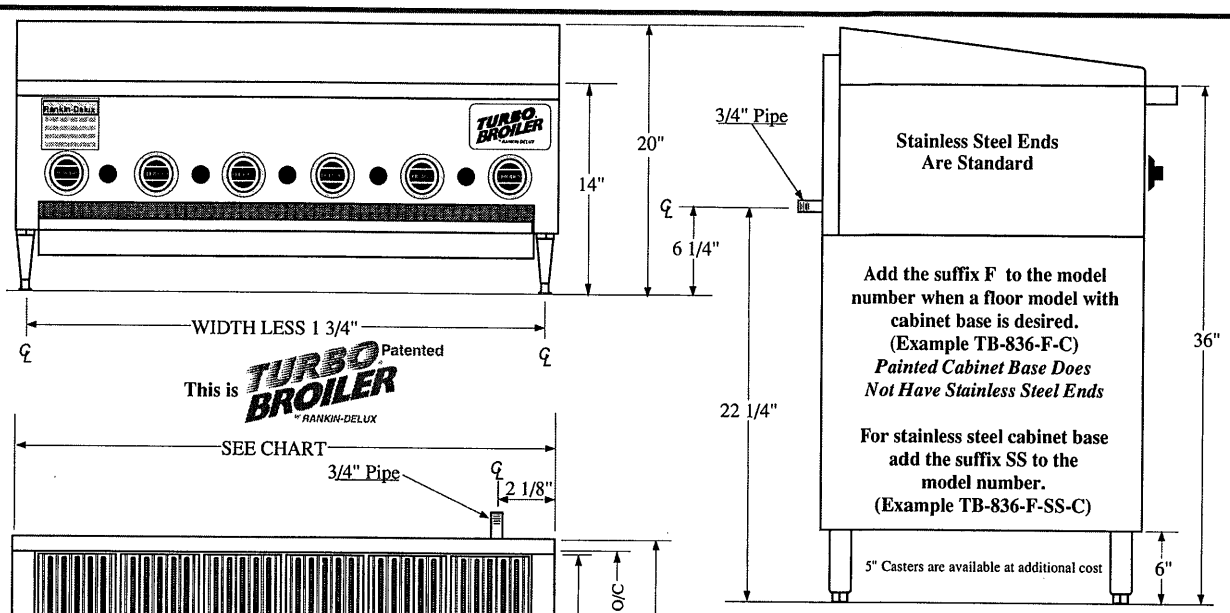
EASTERN REGIONAL OFFICE
P.O. Box 270417
St. Louis, Missouri 63126
Phone: 314/843-3858 Fax: 636/296-2539

RANKIN-DELUX, INC.

P.O. BOX 4488
WHITTIER, CA 90607-4488

FACTORY
12862 East Florence Avenue
Santa Fe Springs, CA 90670
Phone: 562/944-7076 Fax: 562/941-7858

INFRARED TYPE CHAR BROILER — TB-8 SERIES



All Models Are Available With Cabinet Base, Except Models TB-815-C & TB-821-C

Broiler top grates are 5.3125" wide each, and may be individually elevated at the rear, by means of a cast-in foot at the rear bottom of the grate.

Note: Lift-Off Griddles are available for this series

MODEL	WIDTH	B.T.U.	SHIP WT COUNTER	SHIP WT FLOOR
TB-815-C	14 1/2"	29,000	128	NA
TB-821-C	21"	43,500	163	NA
TB-825-C	25"	58,000	184	246
TB-830-C	30 3/8"	72,500	224	290
TB-836-C	35 3/4"	87,000	272	348
TB-841-C	41 1/8"	101,500	322	406
TB-846-C	46 1/2"	116,000	362	452
TB-860-C	60"	145,000	424	538
TB-872-C	71"	174,000	468	610
TB-884-C	84"	217,500	668	824

FURNISHED WITH PRESSURE REGULATOR

CLEARANCES TO:	SIDES	BACK
COMBUSTIBLES:	12"	8"
NONCOMBUSTIBLES:	0"	0"

NOTE: These broilers can be furnished with grates that are suitable for fish or other delicate foods where a closer spacing of the grate blade is desirable (not self draining).

Specifications are subject to change without notice.

FINISH: Stainless steel top, back & side splash, ends, and front panel. Balance is finished in aluminized steel.

CONSTRUCTION: All welded aluminized steel body with 14 gauge removable radiant pan.

INSULATION: Body is insulated with mineral wool (withstands 800° temperatures).

BURNERS: Heavy cast iron burners, equipped with constant pilots, and controlled by a smooth action burner valve. Each burner is protected by it's own radiant and is easily removable for servicing.

RADIANTS: Heavy gauge stainless steel alloy, designed to produce maximum infrared rays. Stainless steel baffles are located between each radiant causing the air to be superheated by directing it over the hot radiants. The ***TURBO BROILER***® produces more heat w/less BTU's.

GRATES: The cast iron grates are approximately 5.3125" wide each, and may be individually elevated at the rear, by means of a cast-in foot at the rear bottom of the grate. A pitched grease trough is cast on both sides of each blade to facilitate runoff and help reduce flare-up.

DRIP PAN: Furnished with a full width drip pan made of heavy gauge aluminized steel with a stainless steel handle.

GREASE TROUGH: Full width, sloping grease trough carries grease runoff from the grates to the grease receptacle located in the front of the drip pan.

VALVES: Each burner is equipped with a smooth action valve for maximum heat control.

GAS INLET: 3/4" gas pipe is located on the right rear.

VENTING: Ventilation fans should have a minimum capacity of 200 to 300 CFM per square foot of broiling surface. Consult local codes for exact requirements.

LEGS: 4" chrome adjustable legs on counter model. 6" adjustable legs finished in *Deluxtone Electro Finish furnished on floor model. 6" stainless steel legs are standard on stainless steel base. Stainless steel legs are available as an optional extra on Deluxtone base.

CASTERS: 5" swivel casters are optional at additional cost.

DESIGNED FOR COMMERCIAL USE ONLY

RANKIN-DELUX, INC.
P.O. BOX 4488
WHITTIER, CA 90607-4488

EASTERN REGIONAL OFFICE
P.O. Box 270417
St. Louis, Missouri 63126
Phone: 314/843-3858 Fax: 636/296-2539

FACTORY
12862 East Florence Avenue
Santa Fe Springs, CA 90670
Phone: 562/944-7076 Fax: 562/941-7858

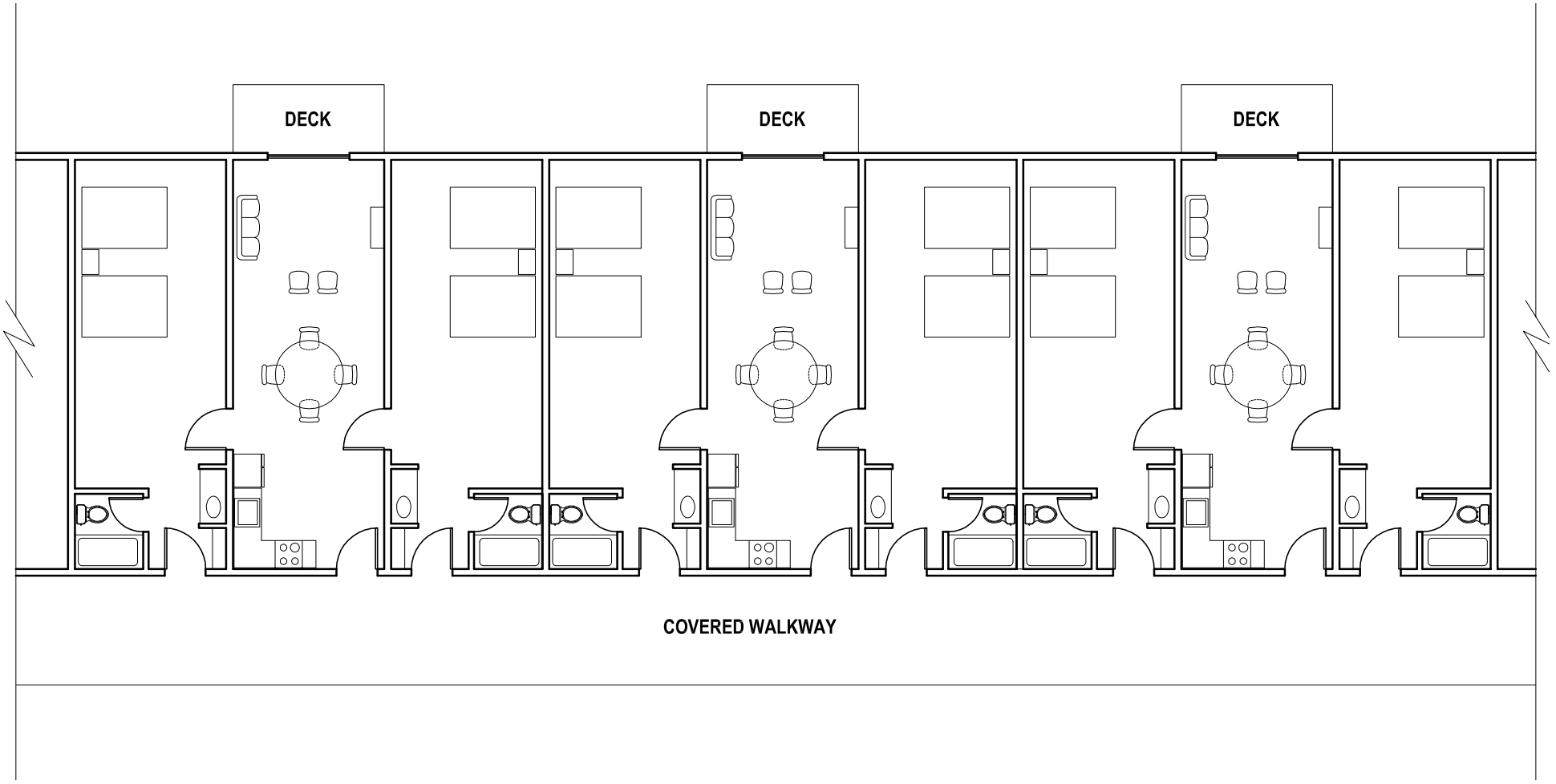
FORM RDTB8492-5M

APPENDIX P

BOATEL BUILDING DIAGRAMMATIC PLAN

A. BASIC FUNCTION

1. Reference attached document.



BOATEL BUILDING DIAGRAMATIC PLAN

SCALE: NTS

APPENDIX Q

CAMPGROUND LIFT STATION

A. DESCRIPTION OF EQUIPMENT

1. This job includes the following Peabody Barnes Equipment

   - Quantity of two (2) Model 4SEH1002 Submersible Sewage Ejector 15 HP, 208 volt, 3 phase, 1750 RPM with 30 ft. cords and 9.88" diameter oversized impeller rated for 150 GPM at 94 feet.
   - Quantity of two (2) Model BAF-4 Break Away Fitting P/N 72638
   - Quantity of four (4) Mercury Level Controls P/N 73612
   - Quantity of two (2) Sets of stainless steel guide rails and top brackets.
   - Quantity of one (1) Stainless steel float bracket
   - Quantity of two (2) Schedule 80 PVC discharge pipes (connect to existing as required)
   - Quantity of one (1) Schedule 40 PVC vent pipe
   - Quantity of two (2) 125 lb. Cast iron body flanged check valves with lever and weight

Billing Date	Meter #	KWH	Total charge
1/4/2011	1	14640	$1,114.56
1/4/2011	2	32497	$1,054.20
1/4/2011	3	18640	$1,412.90
1/4/2011	4	4763	$423.48
1/4/2011	5	12320	$939.73
1/4/2011	6	18000	$1,878.31
1/4/2011	7	7103	$746.05
1/4/2011	8	24480	$2,285.45
1/4/2011	9	22800	$2,256.87
1/4/2011	10	23320	$2,036.13
2/3/2011	1	13840	$1,106.48
2/3/2011	2	13600	$1,084.22
2/3/2011	3	16800	$1,332.91
2/3/2011	4	4584	$414.57
2/3/2011	5	13760	$1,086.77
2/3/2011	6	16320	$1,610.04
2/3/2011	7	6588	$716.57
2/3/2011	8	24160	$2,176.23
2/3/2011	9	23840	$2,249.27
2/3/2011	10	21080	$1,973.94
3/2/2011	1	10240	$801.79
3/2/2011	2	9040	$719.42
3/2/2011	3	11440	$890.21
3/2/2011	4	3740	$337.95
3/2/2011	5	9120	$725.23
3/2/2011	6	13920	$1,371.68
3/2/2011	7	5637	$628.86
3/2/2011	8	16640	$1,584.04
3/2/2011	9	18400	$1,748.12
3/2/2011	10	16280	$1,575.31
4/4/2011	1	4429	$682.72
4/4/2011	2	4589	$580.58
4/4/2011	3	7440	$740.39
4/4/2011	4	3303	$338.18
4/4/2011	5	5120	$550.47
4/4/2011	6	17040	$1,775.87
4/4/2011	7	4992	$635.25
4/4/2011	8	12720	$1,469.81
4/4/2011	9	17200	$1,854.48
4/4/2011	10	11040	$1,294.13
5/3/2011	1	4000	$365.04
5/3/2011	2	3600	$334.35
5/3/2011	3	5600	$475.75
5/3/2011	4	3423	$315.53
5/3/2011	5	2720	$272.74
5/3/2011	6	20240	$1,873.27

Meter #	
1	Botel
2	Cabins
3	Cabins
4	Gift Shop
5	Botel
6	Restaurant
7	Facilities Building
8	Hotel
9	Confernece Center
10	Botel

5/3/2011	7	2930	$443.08
5/3/2011	8	9280	$970.52
5/3/2011	9	19360	$1,829.30
5/3/2011	10	6880	$790.94
6/2/2011	1	4320	$397.80
6/2/2011	2	5840	$498.42
6/2/2011	3	7840	$650.06
6/2/2011	4	4923	$434.53
6/2/2011	5	3040	$300.76
6/2/2011	6	28400	$2,630.47
6/2/2011	7	3132	$448.25
6/2/2011	8	14240	$1,424.95
6/2/2011	9	24000	$2,307.52
6/2/2011	10	8840	$953.19
7/2/2011	1	5440	$502.51
7/2/2011	2	6640	$603.86
7/2/2011	3	8320	$744.68
7/2/2011	4	6182	$560.76
7/2/2011	5	5280	$474.80
7/2/2011	6	37120	$3,453.61
7/2/2011	7	4892	$617.98
7/2/2011	8	19760	$1,917.01
7/2/2011	9	38160	$3,647.92
7/2/2011	10	11280	$1,214.11
8/2/2011	1	7440	$632.28
8/2/2011	2	9520	$785.64
8/2/2011	3	11440	$932.70
8/2/2011	4	7367	$634.42
8/2/2011	5	7440	$630.75
8/2/2011	6	46800	$4,071.90
8/2/2011	7	5053	$626.03
8/2/2011	8	27040	$2,436.22
8/2/2011	9	48880	$4,561.14
8/2/2011	10	15000	$1,441.26
9/2/2011	1	6160	$533.13
9/2/2011	2	7680	$648.08
9/2/2011	3	9680	$794.88
9/2/2011	4	6219	$536.77
9/2/2011	5	6560	$560.41
9/2/2011	6	37920	$3,352.06
9/2/2011	7	5298	$623.10
9/2/2011	8	22720	$2,085.60
9/2/2011	9	48960	$4,369.89
9/2/2011	10	11520	$1,173.06
10/4/2011	1	3600	$366.70
10/4/2011	2	4560	$444.13
10/4/2011	3	5840	$547.17

10/4/2011	4	4570	$433.31
10/4/2011	5	3600	$369.85
10/4/2011	6	26640	$2,572.91
10/4/2011	7	5552	$653.51
10/4/2011	8	11360	$1,304.86
10/4/2011	9	24000	$2,545.32
10/4/2011	10	4760	$676.83
11/2/2011	1	3680	$388.98
11/2/2011	2	3440	$390.03
11/2/2011	3	5440	$549.65
11/2/2011	4	3885	$420.56
11/2/2011	5	3360	$367.15
11/2/2011	6	2720	$2,529.81
11/2/2011	7	4183	$620.43
11/2/2011	8	10800	$1,286.31
11/2/2011	9	24800	$2,660.80
11/2/2011	10	4240	$629.98
12/2/2011	1	5600	$465.66
12/2/2011	2	5120	$432.20
12/2/2011	3	7040	$569.15
12/2/2011	4	2970	$286.91
12/2/2011	5	4400	$382.86
12/2/2011	6	19040	$1,774.72
12/2/2011	7	5197	$600.95
12/2/2011	8	9360	$968.64
12/2/2011	9	19360	$1,854.85
12/2/2011	10	6960	$778.85

Propane is purchased as needed. There are the amounts in gallons purchased so far this year.

Date	Tank Site	Gallons
1/5	Conference Center	1100
1/13	Conference Center	1300
1/25	Conference Center	1700
2/7	Conference Center	1300
2/21	Conference Center	980
3/8	Conference Center	1000
3/28	Conference Center	1100
4/26	Conference Center	1121
6/20	Conference Center	1000
7/8	Conference Center	1140
8/10	Conference Center	800
9/22	Conference Center	660
10/19	Conference Center	600
11/3	Conference Center	1150
1/13	Flagship	500
2/21	Flagship	170
3/8	Flagship	200
3/28	Flagship	300
4/26	Flagship	415
6/1	Flagship	320.5
6/20	Flagship	201
7/20	Flagship	302
8/31	Flagship	295
10/19	Flagship	500
1/13	Hotel	300
2/7	Hotel	300
3/8	Hotel	400
3/28	Hotel	300
4/12	Hotel	768
5/11	Hotel	735
6/1	Hotel	504
6/20	Hotel	800
7/20	Hotel	919
8/10	Hotel	616
8/31	Hotel	460
9/22	Hotel	600
10/19	Hotel	400
11/3	Hotel	700
6/1	Pool	107
1/13	Restaurant	900
1/25	Restaurant	800
2/7	Restaurant	700
2/21	Restaurant	590
3/8	Restaurant	700
3/28	Restaurant	1000

4/12	Restaurant	808
4/26	Restaurant	573
5/11	Restaurant	643
6/1	Restaurant	990
6/20	Restaurant	901
7/20	Restaurant	300
8/10	Restaurant	836
8/31	Restaurant	750
9/22	Restaurant	810
10/19	Restaurant	851
11/3	Restaurant	550
3/28	Schooner	100
6/1	Schooner	77
8/10	Schooner	150
11/3	Schooner	100