

Youth Ballfield Concession Stand **Design Analysis**

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Cover Sheet

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Outline Specifications

Youth Ballfield Concession Stand

Design Narrative

I. General Notes:

- A. **Codes:** The design of this facility must comply with all current applicable National, State, Local, and Military Codes, Standards and Regulations. The design must also comply with Base/ MAJCOM design and environmental standards.
- B. **General:** The intent of these documents is to provide a general description of the designated facility. The documents are not intended to represent specific national, regional, or local conditions. All systems including civil, architectural, structural, mechanical, electrical, and plumbing are to be designed and coordinated for specific national, regional and local conditions.
- C. **Equipment:** Where equipment manufacturer and model number have been designated, they are only provided as a design reference. Equipment selected should be equal in size, shape, and performance to those designated.
- D. **Trade Standards:** Where the design deviates from local or regional trade practices, which are not governed by codes, regulations, or standards and should be implemented in order to provide the most applicable design solution, the design should be modified accordingly. The modifications should not be performed prior to a thorough review of modification affects.

II. Purpose

This prototype is designed to be site adapted to such regional factors as climate, soil conditions, utility access, and the availability of materials. Toward this purpose, the structure of the Ballfield Concessions Stand is easily modified to accept a wide variety of masonry veneers or converted to accept load-bearing masonry, standard steel frame or stick construction. This logic is applied throughout the prototype to account for changes to the exterior finish system, structural slab, roofing options, and partition wall construction.

III. Function

The Ballfield Concessions Stand is designed as a support structure for outdoor play fields. It includes areas for concessions storage and sales, toilet rooms, and play field equipment storage. Because this space is not intended to be climate controlled, the selected finishes succeed both in there formal character and durability. The following *Table 3.1* outlines the program areas of a Ballfield Concessions Stand:

Table 3.1

BALLFIELD CONCESSIONS STAND PROGRAM AREAS	ASSIGNABLE AREA (sq.ft.)
Concessions	265
Concessions Storage	76
Queuing Area (non-assignable)	300
Women’s Toilet Room	176
Men’s Toilet Room	176
Equipment Storage	91
Total Assignable Area	784

IV. Architectural Analysis

A. Finishes

In general the facility is designed with brick veneer walls and a prefinished standing seam metal roof. The interior have sealed concrete floors unless noted otherwise, with painted CMU walls. The exterior brick walls should be sealed.

Where the floors can be potentially slippery, the concrete should be coated with a slip resistant epoxy coating.

B. Concessions

The Concessions area supports the sales and storage of non-perishable food items including fountain drinks, popcorn, and candy. It includes spaces for two modular fountain drink dispensing stations complete with integral ice makers. A location is included for an optional refrigerator or freezer. In addition to the lockable screened entry, two operable sales counter shutters lift to provide access to points of sale.

C. Concessions Storage

The Concessions area is supported by a small storage closet which is used for the storage of non-perishable foods and related supplies.

D. Queuing Area

The exterior queuing pad around the Concessions and Equipment Storage areas is designed to minimize dirt traffic into occupied spaces and to eliminate mud problems often associated with exterior point of sales windows. This slab is slope away from the building. Upon site adaptation, the sidewalks around the facility should be designed for handicap accessibility.

E. Toilet Rooms

The Men’s and Women’s Toilet Rooms are located behind the Concessions area, and are protected by low entry vestibules to diminish sight lines and vapor transmission while still allowing for air circulation at the Toilet Room entries. To further support the natural ventilation of these non-conditioned spaces, the entire roof structure is

designed as opposed shed roofs with clerestory ventilation and higher roof heights at the Toilet Rooms.

F. Equipment Storage

This room is intended for the storage of play equipment and ballfield base lining equipment.

This space is also the location of an optional hot water heater.

V. Structural Analysis

A. References - Substructure

The publications listed below form a part of this section to the extent referenced. The publications are referenced by basic designation only.

American Concrete Institute (ACI)

ACI 318 (1997) Building Code Requirements for Structural Concrete and Commentary

American Society for Testing and Materials (ASTM)

ASTM A305 Reinforcing Steel, A615 GR60

American Society of Civil Engineers (ASCE)

ASCE 7 (1995) Minimum Design Loads for buildings and Other Structures

Uniform Building Code (UBC)

UBC (1997)

B. Foundations - Substructure

Foundations shall be cast-in-place reinforced concrete and shall be soil supported where permitted by soil conditions.

ASCE 7-95 shall be used as a source of criteria for structural design loads and load combinations. The criteria from ASCE 7-95 may be supplemented but not supplanted by applicable criteria contained in other nationally recognized codes, standards, and specifications.

In addition to criteria found in ASCE 7-95, the following minimum uniformly distributed design floor live loads shall be used. Where criteria differ, the more stringent shall govern. These live loads are minimum. If, during the final design process it is determined the actual loading is greater, use the actual loading.

- Storage or Work Areas250 psf Uniform Loading
- Non-Storage/Work Areas100 psf Uniform Loading

As an additional requirement, all concrete foundation members supporting masonry shall be designed such that the sum of the live and dead loads, creep, and shrinkage deflections of a support member shall not exceed $L/600$, where L is the length of a member between supports.

Location of all floor drains, penetrations, slab depressions, or other items affecting the concrete shape or configuration shall be shown on the foundation structural drawings.

Concrete shall have a minimum 28 day compressive strength of 3000 psi.

C. Geotechnical Study - Substructure

The substructure shall be designed by a qualified geotechnical engineer who will, based upon adequate soil borings, provide comprehensive design and construction recommendations for the foundations and the soil preparation for the foundations.

D. Floors - Substructure

The minimum slab thickness for foundations shall be as follows:

Building	Minimum Slab Thickness
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Ball Field Concession	5"
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E. Sealing of Exposed Slabs

The concrete floors on all exposed slabs shall be sealed with a floor hardener to inhibit the formation of concrete dust.

Where applicable, provide raised concrete housekeeping pads for equipment. Minimum thickness shall be 4" unless dictated otherwise by equipment.

If the slab, due to soils conditions, cannot be soil supported with a foundation meeting the deflection criteria noted in 1.3 above, Contractor shall provide a structurally supported system on drilled piers or spread footings, as recommended by the geotechnical engineer.

In seismic zones, seismic design shall be in accordance with UBC.

VI. Mechanical Analysis

Additional ventilation is proposed for the concession, concession storage, women’s, and men’s restroom areas. Two wall mounted exhaust fans shall facilitate ventilation from the restroom areas. A roof mounted exhaust fan shall serve to ventilate the concession and concession storage areas.

VII. Electrical Analysis

Power distribution shall be accomplished by a pole or pad mounted 3N 4 wire 120/208 transformer providing power thru a single main disconnect.

Lighting shall be accomplished with fluorescent sources, non-metallic, gasketed fixtures shall be provided in all damp, wet or corrosive locations. Exterior lighting shall be accomplished by wall mounted high pressure sodium sources. The lighting shall be controlled by a series of switches, time clocks and photocells.

The fire alarm system shall be of the addressable type.

VIII. Plumbing Analysis

Due to the public-use nature of this building, consideration should be given to utilizing high-quality, tamper-resistant plumbing fixtures and piping systems (concealed flushometers, self-closing faucets, tamper-resistant bolts/screws). Also, ADA compliance is a requirement.

In areas of the country susceptible to freezing conditions, the water piping shall be “in-slab” and made drainable. Verify available heating sources and shutdowns of the facility during certain times of the year; design accordingly.

Hot water is required for cleaning and concession activities.

Water-conserving fixtures shall be considered, and sanitary sewers shall be designed accordingly.

Provide exterior hose connections for cleanup and cooler fill up.