

# **BISCAYNE SKATE PARK**

## **Design Criteria Package**

**Construction of Biscayne Skate Park**

**City of Miami Project No. B-30675**

Department of Parks and Recreation

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444 Southwest 2<sup>nd</sup> Avenue / Miami, Florida 33130

**8 June2009**

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**1.1 GENERAL OVERVIEW**  
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## **Biscayne Skate Park Design Criteria Package INTRODUCTION / 1**

### **1.1 GENERAL OVERVIEW**

This Design Criteria Package has been produced for the purpose of establishing the Design Criteria that will apply to and govern the planning, design, and construction of Biscayne Skate Park. The criteria encompassed in this Package are intended to guide the Design Build Firm in the development of progressively more-detailed and comprehensive site design concepts for the development of the Park that will ultimately lead to the preparation of detailed cost estimates and construction documents (plans and specifications) and the complete construction of the Project. This Package has been developed in accordance with Florida Statute 287.005 to communicate aesthetic and functional requirements that form the basis for a Proposer's Response requested by the City. In general, discussion and exploration of the various aspects of the Work within the Package, and the creative and timely prosecution of the Work are intended, not as a prescribed solution, but rather as a guide in establishing a standard of quality. If any modifications or changes proposed by the Design Build Firm are considered in any way to alter the design intent or ultimate expectations for the completed Project, such modifications or changes must be approved in writing by the Project Manager in conjunction with the Design Criteria Professional ("DCP"). It shall further be the sole responsibility of the Design Build Firm to note any such modifications or changes, and to convey such information to the Project Manager in writing in a timely and expeditious manner.

The definition section of the RFP's Agreement are hereby incorporated by reference and made a part of the Design Criteria Package ("Package").

Any specific written directions received by the Design Build Firm from the City's Project Manager or DCP shall be included without exception in its documents and submissions. In all other respects, this Package is promulgated solely as a guide in addressing planning, design, process, reviews, approvals, and permitting considerations and procedures, and defining standards of quality. It is not provided nor is it represented by the City to reflect, identify, or suggest the required levels of research or due diligence investigation, assessment, or analysis necessary to be accomplished by the Design Build Firm in the prosecution of the Work.

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This Design Criteria Package proffers text, sketches, diagrams, plans, and images that seek to communicate desired concepts, spatial relationships, and programmatic elements that are intended to frame the response of the Design Build Firm. However, these written and visual communications shall not be construed or interpreted as establishing the limits of the Project or its objectives.

### 1.2 SCOPE DEFINITION

The general scope of the Biscayne Skate Park Design Build is expected to result in the successful design and construction of a neighborhood skate park (“Park”) – including supporting and integrated ancillary elements and features – of approximately sixteen thousand square feet (16,000SF).

It is anticipated that “fine tuning” of design concepts will occur during both the planning and design phases, and through the review process. These review efforts will be undertaken jointly by the City, including the City’s Department of Parks and Recreation staff, with stakeholder end-users, and the skateboarders of the greater Miami area. While essential details are provided in subsequent sections of this Design Criteria Package, following are general criteria:

- A. Design and construction of a new building, of approximately +/- 3,000 SF including all essential on-site and off-site Work required for permitting of the new structure.
- B. Design and construction of a neighborhood skate park of approximately sixteen thousand square feet (16,000 SF).
- C. Design of ancillary open space elements, including but not limited to sitting areas both shaded and un-shaded; resting and socializing areas for skateboarders and visitors; lockers for storage of personal property; and site furnishings such as drinking fountains; benches; light fixtures; and trash receptacles;
- D. Analysis of existing parking facilities and the introduction of additional parking in compliance with governing zoning codes, including overflow parking for special events;
- E. Rerouting and/or relocation of utilities as may be required;

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- D. Analysis of existing parking facilities and the introduction of additional parking in compliance with governing zoning codes, including overflow parking for special events;
- E. Rerouting and/or relocation of utilities as may be required;
- F. Design of all paving, including paving patterns, scoring, texture, and integral coloration;
- G. All grading and drainage, to insure the efficient, effective function and operation of the elements of the skate park at all times;
- H. All additional programming, review, and presentation meetings; and
- I. Other.

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**SITE OVERVIEW / 2**

- 2.1 DESIGN INTENT**
- 2.2 EXISTING CONDITIONS**
- 2.3 SITE SECURITY**
- 2.4 ZONING**
- 2.5 FACILITY WORK**
- 2.6 ROADWAY, PARKING and HARDSCAPE**

## **2.0 SITE OVERVIEW**

The Biscayne Skate Park is composed of two major components: a skate park and a park building, supported by and integrated with a variety of ancillary elements including sitting areas; resting and socializing areas for skateboarders; site furnishings; parking; landscaping; lighting; and irrigation. The creative design and thorough integration and coordination of all elements of Biscayne Skate Park is essential to ensure its appropriate and safe function as a recreational gathering space, a sports event venue, and as a community-based activity center.

The Design Build Firm shall investigate and determine the extent – if any - to which utilities exist within and beneath the site, and shall determine the extent to which – if any – such utilities exist and shall be relocated. If substantial relocations of subsurface or overhead utilities may be required, the Design Build Firm shall review all options with the City’s Project Manager in conjunction with the DCP, prior to arriving at a final disposition.

## **2.1 DESIGN INTENT**

The design and construction of the Park is considered to be a desirable objective in efforts to both enhance and expand the breadth of recreational opportunities and functioning open space within the City of Miami and, more particularly, within the bounds of the Omi Redevelopment District. In seeking to create a skate park reflecting the most creative and up-to-date design – in both its overall design and contributing components – the Design Build Firm must consider the following:

- A. Protect and preserve the existing physical attributes of Biscayne Park, its surrounding public spaces, and the various and diverse private uses within the area. The design of all Park elements should address appropriateness of scale and geographic context, while presenting the highest quality design solutions.

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**SITE OVERVIEW / 2**

- B. The Project must define a vernacular design language that will appropriately address the unique qualities and characteristics of the site, bounded on the south by the historic City of Miami Cemetery; on the west by a City of Miami Fire Station, on the north by a few single family residences and Temple Israel of Greater Miami and its ancillary facilities; and on the east by surface parking.

Thoughtful consideration in the planning and design process must be directed to the integration of the design of the Park with its surroundings. It is such efforts that will successfully engage the existing urban context, thus enhancing the sense of community and reinforcing community values and desires. In this regard, the means and methods employed by the Design Build Firm in addressing street-frontage context and ceremonial arrival space are critical.

- C. Provide efficient, safe and secure access to, and safe and efficient circulation within the Park. Enhancements for the corridor of Northeast 19<sup>th</sup> Street shall include both broad sidewalks along the south side of Northeast 19<sup>th</sup> Street serving the entry to the Park, and the installation of shade trees along the south side of the street for the entire length of the Park. A “drop-off” plaza shall be provided at this ceremonial arrival space to the Park and shall be appropriately emphasized, and reflecting a unique and celebratory design approach that is in keeping with the surrounding physical context.

D. Ceremonial Arrival Space/Entry

1. The primary pedestrian access point, on Northeast 19<sup>th</sup> Street, shall be defined through the use of appropriate design features: among these may be signage, gates, fencing, portals, arbors, pergolas, trellises, shade structures, lighting, and landscaping.
2. To ensure the appropriate safety and security of the facility and its users, the site shall be enclosed by a well-designed, aesthetically pleasing ornamental fence six (6) feet in height. The use and application of ornamental patterns that will render the fence as an artistic expression are encouraged.

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**SITE OVERVIEW / 2**

**E. Service Access**

1. Provide lockable double gate access to the interior of the Park for access by maintenance vehicles
2. Provide an enclosed secure trash collection station for dumpster storage with unimpeded access by service vehicle.

**F. Site Lighting**

1. Provide sufficient levels of site and landscape lighting to ensure adequate illumination for safety and security, and for evening use of the facility.

**G. Linkages and Connections**

1. Create aesthetically appropriate and well-functioning linkages and connections among all pedestrian spaces including Ceremonial Arrival Space/Entry, plazas, sitting areas, and walks. Provide adequate and safe widths for walks to accommodate common and concurrent use by skateboarders and pedestrians. Finish surfaces of pavements should be smooth and free from skateboard impediments.
2. Ensure that all linkages and connections within the Park are ADA compliant.
3. Provide extension of the Ceremonial Arrival Space/Entry from the Park site, north into the defined parking area parallel to the south side of Northeast 19<sup>th</sup> Street, for the purpose of providing a safe and secure drop-off and pick-up area.

**H. Character and Access**

1. Establish through creative design a facility that enhances community character while ensuring appropriate community access.

2. Provide for the thorough integration and relational functioning of landscape architectural and architectural elements of the Park.
3. Provide a primary sign element and subordinate signs that are adequate and appropriate in identifying the facility as a part of the City of Miami, Department of Parks and Recreation.

## **2.2 EXISTING CONDITIONS**

Representations of the existing conditions of the proposed site of the Park follow, in the form of both an aerial image, and a Municipal Atlas (See “10. Appendix”). These documents are for reference only and are not intended to substitute for the required metes and bounds and topographic survey.

## **2.3 SITE SECURITY**

Design Build Firms submitting a proposal shall ensure that Park security will be maintained, through both passive and active security strategies including – but not limited to – closed circuit television cameras, fencing, lighting, and the maintenance of visibility corridors within and through the Park.

The perimeter of the Park shall be enclosed by a decorative, six foot in height, low maintenance fence with appropriate gates providing both vehicular maintenance and pedestrian/user access: the main entrance – or Ceremonial Arrival Space/Entry – shall be located at the south of and facing Northeast 19<sup>th</sup> Street. The fencing shall enclose and secure the Park and all ancillary and supporting facilities and elements.

## **2.4 ZONING**

The successful Design Build Firm shall perform all necessary zoning research, to ensure that the Project as represented in the submittal complies with all applicable code requirements. Among – but not limited to – the issues that shall be addressed are parking requirements; access to adjacent properties; emergency access; and required setbacks for structures and Park elements.

In addition, the following are required:

- A. Maintenance of all existing uses and functions, and appropriate and safe access to such uses and functions within Biscayne Park, during, planning, design, and construction of Biscayne Skate Park.
- B. Parking to serve daily uses occurring within Biscayne Park.
- C. Information and analysis stipulating specific zoning requirements clearly provided throughout the design phases, and in a legend in the construction drawings.
- D. Maintenance of all required setbacks and easements.
- E. Maintenance of all required sight corridors and view triangles as required by City of Miami Department of Public Works.
- F. Confirmation of requirements for any special exceptions or permits.
- G. The Design Build Firm shall undertake and complete in accordance with the highest professional standards, any other responsibilities germane to the prosecution of the project that are not herein identified but which are essential to the completion of the project in a lawful and timely manner.

## **2.5 FACILITY WORK**

Facility Work proposed in the planning, design, and construction of the Park shall in no way interfere with the function or use of existing facilities. The existing sports fields and attendant activities that occur within Biscayne Park shall remain fully operational at all times, and this requirement must be duly acknowledged in the scheduling of the Work of the Design Build Firm.

## **2.6 ROADWAY, PARKING, and HARDSCAPE**

Limited roadway improvements, parking improvements, and the creation of a drop-off / pick-up area/plaza are anticipated along the south side of Northeast 19<sup>th</sup> Street. The Design Build Firm is encouraged to explore all possible design options for the south side of the Northeast 19<sup>th</sup> Street corridor, and to make appropriate design recommendations that will support the intended functions expected to occur within the Park.

The use of high-albedo paving materials within parking areas to reduce the “heat island effect” shall be thoroughly explored. Pedestrian and other ancillary areas – other than the functioning Park facility – shall be paved in durable, aesthetically pleasing, low maintenance products.

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- 3.1 DESIGN INTENT**
- 3.2 LEED**
- 3.3 CIRCULATION, ACCESS, and SECURITY**
- 3.4 SITE FURNITURE**
- 3.5 SITE LIGHTING**
- 3.6 SITE LAYOUT, GRADING, DRAINAGE and PAVING**
- 3.7 PLANTING and IRRIGATION**
- 3.8 SHADED AREAS**

### **3.1 DESIGN INTENT**

The primary element of the Park shall be the constructed skateboard facility. In support of this facility, and in addition to the proposed Park building, various ancillary open space elements are to be constructed, including:

- A. Open and shaded plazas and sitting, resting, and socializing areas;
- B. Paths and walks;
- C. Site furnishings;
- D. Plantings that provide shade, accents, and that reinforce desirable spatial emphases. These plantings shall also serve as an overarching, unifying concept in complementing both activity areas and circulation within the Park; and
- E. Other features that will make significant contributions to the aesthetic quality and functional efficiency of the Park.

The Park is expected to make a unique contribution to the City and the surrounding neighborhood in enhancing the aesthetic quality of the Park and the Northeast 19<sup>th</sup> Street corridor. The Park has the potential to become a site of social interaction and activity for all segments of the community, and is envisioned as a hub to attract users and visitors of all ages. As the primary element of the Park, the skate park facility ("Facility") must be designed in a manner that will engage all skill levels of skateboarders (see Section 9, Skate Park Facility). The Facility should provide a variety of challenges for both the beginner and most advanced skateboarder, while maintaining the highest standards of creative design and safety. The plazas and sitting/resting/socializing areas that are incorporated into the Park shall be furnished to accommodate both skateboarders and observers, in a manner that does not interfere with or impede use of the facility.

Other design considerations shall address:

- A. Safe access from Northeast 19<sup>th</sup> Street, and from adjacent parking.
- B. An unobstructed view of the Ceremonial Arrival Space/ Entry from east and west approaches along Northeast 19<sup>th</sup> Street.

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**LANDSCAPE ARCHITECTURE / 3**

- C. A prominent and visible location in close proximity to the Ceremonial Arrival Space/Entry for the proposed Biscayne Skate Park building.
- D. Shaded seating throughout the Facility that does not interfere with intended skateboarding activities.
- E. Unobstructed sight lines across and through the Facility, ensuring that there are no “blind” or “hidden” places within the Park.
- F. Identification of opportunities to involve/engage local (Miami-Dade County) artists within the Project, whose endeavors may include the creation of such elements as site sculpture, design of site furniture, signage, or the creation of interactive and/or unique elements such as fencing or paving that seek to incorporate community and cultural traditions.

**3.2 LEED**

The City requires that the Park achieve LEED Silver Certification. The guidelines that follow are compatible with and supportive of LEED certification: however, the Design Build Firm shall ensure that the design of the Park – and its various elements – meets the requirements for each credit. Following are the LEED credits that can be achieved through the appropriate and responsive design of landscape for the Park.

**Sustainable Site Credits**

- Credit 2      Development Density and Community Connectivity*
- Credit 4.1    Alternative Transportation; Public Transportation Access*
- Credit 4.2    Alternative Transportation; Bicycle Storage & Changing Rooms*
- Credit 4.3    Alternative Transportation; Low-Emitting & Fuel Efficient Vehicles*

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*Credit 4.4 Alternative Transportation; Parking Capacity*

Note that the Design Build Firm is responsible both for confirming the final building program and identifying and complying with the zoning requirements for parking.

*Credit 5.1 Site Development; Protect and/or Restore Habitat*

To receive this credit, the Design Build Firm must ensure that 50% of the site area of the Park – excluding the building footprint – is restored with native plant materials. The Design Build Firm may identify additional areas of Biscayne Park immediately adjacent to the Park to receive native plantings, in order to fulfill this requirement. The development and use of a native plant palette for the Park will also ensure that appropriate water management principles are maintained by utilizing plants primarily adapted to and reliant upon regimes of natural rainfall.

*Credit 7.1 Heat Island Effect, Non-Roof*

Concrete pavement and similar options, including heat-reflective light-color pre-cast pavers or paving systems, shall be utilized. The key placement of native shade trees, as well as the use of shade structures (arbors, pergolas, trellises, and the like) will further ameliorate the heat loads typically associated with paved areas.

**Water Efficiency Credits**

*Credit 1.1 Water Efficient Landscaping; Reduce by 50%*

*Credit 1.2 Water Efficient Landscaping, No Potable Use or No Irrigation*

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*Credit 2 Innovative Wastewater Technologies*

The achievement of the Water Efficiency Credits is predicated upon the calculation of a “base case” volume of water usage for a traditional irrigation system design for the square footage of the area proposed to be landscaped, and its comparison with the results calculated from an evaluation of the proposed water-efficient alternative design solution. This alternative design solution should reflect various actions, including – but not limited to – appropriate planting soil preparation for water retention; the reduction of irrigation to a minimum; the use of low-emitting sprinkler heads and low trajectory heads; and the use of a high-efficiency electromechanical controller(s) and pressure-regulating valves.

**NOTE:**

While the governing Miami-Dade County Landscape Ordinance requires irrigation of all landscaped areas, the Design Build Firm is expected to explore alternatives, in light of the required implementation of a native plant palette for the Park.

**Energy and Atmosphere**

*Credit 1 Optimize Energy Performance*

*Credit 2 On-Site Renewable Energy*

The development and implementation of an appropriate native plant palette at the south, east, and west elevations of the park building will aid in reducing the heat load on the building, which can contribute to measurable energy savings. In addition, the integration of shade elements– including vine-covered arbors, trellises, and pergolas – as a part of the architecture of the proposed building will also serve to ameliorate heat load,

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**LANDSCAPE ARCHITECTURE / 3**

while providing pleasant, shaded sitting areas. The Design Build Firm is expected to explore the option of implementing and utilizing solar panels in the energy equation.

**Materials and Resources**

*Credit 4.1 Recycled Content; 10% (post-consumer + ½ pre-consumer)*

*Credit 5.1 &*

*Credit 5.2 Regional Materials; 10% to 20% Extracted, Processed, and Manufactured Regionally*

*Credit 6 Rapidly Renewable Materials*

*Credit 7 Certified Wood*

The implementation of local sources of construction materials, including lime rock for both pavement base course and for concrete; the use of landscape site furnishings having a high content of recycled materials; and the use of mulch manufactured from recycled Melaleuca mulch – along with other recycled products – can increase the percentage of recycled materials utilized in the project. The award of the Certified Wood credit is based on the minimal use of wood products in the project. In those instances where the use of wood is considered essential and thus unavoidable, a LEED-specified percentage of such wood must be derived from sources certified by the Forest Stewardship Council, the US Sustainable Forestry Initiative, or the Canadian Standards Association.

### **3.3 CIRCULATION, ACCESS, and SECURITY**

The design and function of all landscape and hardscape shall compliment the safety and security of the Park. Pedestrian access to the Park shall be provided from Northeast 19<sup>th</sup> Street and shall be defined by creative design elements. These may include – but are not limited to – decorative gates, columns, archways, signed entry features, and special landscape treatments. Security system signage shall be displayed in close proximity to the Ceremonial Arrival Space/Entry.

Plazas, sitting areas, and walks shall be well lighted and shade shall be provided by landscape or by structural elements such as canopies, arbors, trellises, or pergolas: materials for structural elements shall be durable, color-fast, and shall be considered of low maintenance manufacture or construction. Pedestrian paths shall connect to all activity areas of the Park.

Walks intended to serve multiple needs – pedestrians, skateboarders, rollerbladers and similar uses – shall be at least six (6) feet in width, and shall expand to eight (8) feet in width where heavy use is anticipated.

It is essential that the geometry of walks and plazas reflects consideration of the skateboarding activities as the primary intended use within the Park.

All passive and observer-based areas of the Park shall comply with all requirements of the Americans With Disabilities Act, as amended.

The Design Build Firm shall adhere to the strategies of Crime Prevention Through Environmental Design (CPTED) throughout the design process, which addresses natural surveillance, territorial reinforcement, natural access control, and target hardening. (See <http://www.cpted-watch.com>)

Ensure that clear sight lines are maintained and preserved to provide users surveillance of Park elements, other Park users, and activity nodes. Surveillance opportunities shall be complemented by closed-circuit television (CCTV) cameras where direct observation by Park personnel may be restricted or unavailable.

Proposed fencing shall be aesthetically compatible with other designed elements of the Park, and shall reflect a creative approach to what is historically an uninspiring and unattractive element within public spaces. Chain link fencing shall not be used.

### **3.4 SITE FURNITURE**

The provision of a consistent palette of coordinated site furniture and materials throughout the Park will serve as a dominant connective element helping to unify and express the aesthetic context of the Park. The use of benches; trash receptacles; tables; fencing; drinking fountains; bicycle racks; lighting; signage; and shade structures – among a host of site furnishings – provides the opportunity to introduce a colorful, creatively designed coherent motif of unifying elements to the Park. The successful Design Build Firm shall provide an estimate of cost for the implementation of a coherent family of site furnishings within Biscayne Skate Park, as a part of the design process.

A signage feature or information kiosk shall be provided in close proximity to and visible on entry into, the Park for the intended purpose of informing users and visitors of events and programs offered in the Park. This element shall be vandal-resistant, and shall provide the flexible opportunity for periodic modification and change of the information and announcements that are displayed.

### **3.5 SITE LIGHTING**

It is anticipated that the Park will be operational from 7 AM until 7 PM, and until 10PM on weekends and holidays, and thus adequate lighting to insure safety and security during evening operations is essential. Security lighting for the perimeter shall be supplemented by security cameras and monitors, and a digital recorder capable of recording a minimum of five (5), twenty-four (24) hour days of surveillance, and by anticipated patrols. In the latter regard, walks shall be of sufficient width to accommodate both off-road motorized patrol vehicles and larger maintenance vehicles, such as pick-up trucks.

The lighting palette shall consider the use of bollard lights; up-lights for specimen trees; sconce lights for mounting on walls, fence columns, and support elements of shade structures; low-profile walk-edge lights; and post lights. Lighting patterns shall avoid blind spots for observers, as well as blinding glare and deep shadows. Consider the use of low voltage lighting, LED lighting, and low intensity lamps to create a subtle, uniform, and appropriately illuminated facility. The use of LED lighting offers superior uniformity and color rendition, while providing significant levels of energy conservation and generally-lower maintenance costs.

Place light fixtures along walks and in other pedestrian areas, at heights that will illuminate the faces of passers-by. In no instance shall site lighting exceed the threshold 0.5 foot candles constant.

### **3.6 SITE LAYOUT, GRADING, DRAINAGE, and PAVING**

A site map indicating the approximate location of the proposed Park is included in “10. Appendix”. The design and layout of the Park shall be at the option of the Design Build Firm, except that the proposed Park building shall be located in close proximity to the Ceremonial Arrival Space/Entry from Northeast 19<sup>th</sup> Street, in a visible and dominant position as a focal point of the Park.

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Site grading shall address two aspects of the Park's functions: first, the grading shall offer unique and creative skateboard challenges for beginners through the most advanced skateboarders. Secondly, the site grading shall create an aesthetic, the character of which defines the Park as a special and memorable facility to which users and visitors will be repeatedly drawn.

Given the pronounced and multiple grade changes common to the most exceptional skate parks, the positive drainage – particularly of low points within the facility - is critical: the failure to adequately and efficiently remove rainwater runoff from the facility will render its use questionable during the generally intense rains common to south Florida's "rainy season" (April through November). Thoughtful consideration of ground water levels, and the implementation of both drainage structures (for example, drain inlets, trench drains and catch basins) and sub-surface drainage elements (for example, French drains and exfiltration trenches) shall be carefully assessed to insure both the timely removal of water and the safety of skateboarders. Removal of water from low-lying areas of the facility and recovery from anticipated deluges of the "rainy season" shall occur within two (2) hours. The Design Build Firm may wish to consider the use of sump pumps within low areas of the facility to achieve this objective. If sump pumps are to be employed, they shall have the potential to be activated by a back-up diesel generator at times when electrical service may not be available.

Paving for the skateboard facility and immediately surrounding aprons shall be of concrete. Adjacent plazas, sitting areas, and walks that are not intended to function directly as a part of the skateboard facility may be paved in alternative products such as precast concrete pavers, natural stone, or brick.

### **3.7 PLANTING and IRRIGATION**

The selection of a plant palette for the Park shall reflect the exclusive use of native species manifesting low maintenance characteristics, durability, resistance to insect infestation, drought tolerance, and attractive foliage and flower. Select naturalized species may be considered appropriate for use. A mix of trees, palms, shrubs, ground covers, and vines shall be incorporated into the Planting Plan for the Park. The use of tropical and sub-tropical exotic species shall be prohibited.

The principles and objectives of “Florida Friendly Yards and Neighborhoods” ([www.floridayards.org/landscape](http://www.floridayards.org/landscape); Florida Yards & Neighborhoods, current edition; UF/IFAS, Environmental Horticulture Department, University of Florida, PO Box 110675, Gainesville, FL 32611-0675) shall govern the planting proposals for the Park, with particular attention to reduction and limitation of water use for irrigation. (See LEED Rating System, “Water Efficient Landscaping”)

The successful Design Build Firm shall submit at the first project meeting with the Department of Parks and Recreation, a thorough and complete list of all plant species under consideration for implementation in the Project.

If an irrigation system is required, it shall reflect the highest levels of water use efficiency, and shall implement irrigation system components that reflect minimum and efficient use of the water resource.

### **3.8 SHADED AREAS**

A variety of shaded areas dispersed throughout the Park shall be provided. Shading may be accomplished through the selective placement of native canopy trees as well as through the creation of various canopies, trellises, arbors, and pergolas: the planting of flowering native vines as an integral element of these structures to provide

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**LANDSCAPE ARCHITECTURE / 3**

additional shading is desirable. The Design Build Firm should also consider constructed shade elements as an opportunity for the engagement of local (Miami-Dade County) artists.

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**ARCHITECTURE / 4**

- 4.1 DESIGN INTENT**
- 4.2 LEED**
- 4.3 PARK BUILDING**

## **4.1 DESIGN INTENT**

### **Context and Character**

The proposed Park is located within the Overtown/Omni community, and is readily accessible by both private and public transportation. The planning and design of the Park must consider its surrounding neighborhood within the context of contemporary requirements and unique and ever-changing skate park traditions. In the design of the Park building, the successful Design Build Firm shall investigate and assess the appropriateness and desirability of emulating examples of existing architectural expression within the neighborhood, including detailing, textures, form, and color. Whatever vernacular style is ultimately determined to guide the design of the Park building, the Project shall implement modern materials and, as an aesthetic expression, the Project shall not imitate or copy existing styles.

### **Security and Visibility**

- A. Provide unimpeded visibility between the drop-off area, the Ceremonial Arrival Space/Entry, and the interior reception area of the building.
- B. Provide safety and security lighting to adequately illuminate all spaces immediately surrounding the proposed Park building.
- C. Provide ample windows facing areas of the Park, to ensure adequate and unimpeded “eyes-on-the-park” visibility.
- D. The relationship of the proposed Park building and the skateboard facility shall provide the highest level of security for small children using Biscayne Skate Park.
- E. Provide a CCTV system.

### **Orientation**

The proposed Park building shall present as a warm, inviting, and welcoming structure, and shall appear as an activity center, defining by its location and stature that it is a significant element in the Park's hierarchy. The main entrance to the Park building shall establish a creative and inviting design and shall be visible from Northeast 19<sup>th</sup> Street, and the Ceremonial Arrival Space/Entry. A roofed or appropriately shaded entry space to the building – a 'porch' or 'verandah' – shall be incorporated into the building's design. Way-finding within the Park building shall be facilitated through the use of an articulate design vocabulary: color coding, symbols, and other techniques may be considered. Both permanent and temporary event signage shall be placed in prominent locations to inform the public of both upcoming events and ongoing programs.

### **Scale and Planning**

The design of the Park building shall establish a generous scale and proportional height that will promote ease of identification, and ensure a generous and spacious ambiance within the building. If appropriate, provide a variety of roof pitches and parapet heights to aesthetically modulate the mass of the building, creating a more desirable compositional mass. Explore design alternatives for the exterior of the Park building that reflect various qualities: for example, consider the clean, crisp lines and massing of modern, cubist form; the decorative Caribbean style; or other architectural expressions. Seek to integrate the design of roof overhangs and shade structures to provide mitigation of heat loads during the hottest periods of the day.

### **Color, Texture, Detail and Materials**

Color shall be introduced in the design of the Park building to evoke a sense of vigor, passion, fun, and joy. The use of banding, ribbing, and texture striping of stucco walls shall be explored to reflect the proportions and qualities of more traditional materials. The use of shutters, sheet metal, and corrugated products in the overall architectural expression should be explored. Avoid placing blank walls – without windows – in locations facing active pedestrian and skateboard use areas. Glazing shall maximize the use of natural light within the Park building.

The revelation and emphasis of architectural elements such as exposed structural supports, refined construction connections, and the juxtaposed interplay of such features – evoking simple yet high quality craftsmanship - should be celebrated in the architectural expression of the Park building, and in various Park shade structures. The design proposed for the Park building shall thoroughly explore natural cooling and air circulation within the building. Emphasis of elements and components of the Park building – such as glazed areas illuminated at night – shall be considered throughout the design process as a means of emphasizing the evening presence of the Park building, its form, and its character.

#### **4.2 LEED**

##### 4.3

#### **Sustainable Site Credits**

*Credit 7.2 Heat Island Effect, Roof*

All roofing shall meet required Solar Reflectance Index levels, to achieve credit. However, use of reflectance shall not adversely impact Park users or users of adjacent properties by creating increased levels of glare.

**Water Efficiency Credits**

*Credit 3 Water Use Reduction*

A 30% reduction in water use shall be the design objective in the specification of all interior plumbing fixtures.

**Materials and Resources**

*Prerequisite Storage & Collection of Recyclables*

Recycling bins shall be placed, and designated collection areas shall be identified, within Biscayne Skate Park. Appropriate signage and highly visible placement of these elements should encourage their regular use.

*Credit 2 Construction Waste Management*

Efficient planning shall be implemented to reduce to the greatest extent possible demolition and construction debris. Materials suitable to be recycled may be utilized within the project. When available, demolished, crushed and/or pulverized concrete materials shall be incorporated into the construction process.

*Credit 4 Recycled Content*

The careful and thoughtful selection of products for the project shall consider the recycled content in various products. These materials may include – but are not limited to – reinforcing bar, light gauge metal framing, insulation, steel tubes and pipes, drywall, structural steel, laminated glass, and floor and wall tiles.

*Credit 5 Regional Materials*

Care in product selection of locally produced and available items suitable for inclusion in the construction of the project will ensure the highest level of use of such materials and products. An objective shall be the inclusion of a minimum of 20% regional materials.

**Indoor Environmental Quality**

*Credit 3 Construction IAQ Management Plan*

Control measures shall be implemented to ensure a comfortable and healthy environment within the proposed building, both during construction and during subsequent building operations.

*Credit 4 Low Emitting Materials*

Select materials having low emissions rates – such as paints, sealants, floor finishes, grouts and cements, and composite wood products.

*Credit 5 Indoor Chemical & Pollutant Source Control*

In addition to compliance with the basic requirements of this credit, the Design Build Firm shall provide for and locate adequate facilities for the storage and handling of landscape maintenance and other chemicals to insure protection of staff and visitors from any danger.

*Credit 6 Controllability of Systems*

Control of thermal and lighting systems is essential in assisting in the reduction of energy consumption which will reduce operating costs.

*Credit 8.1 Daylight 75% of Spaces*

It is desired that the Design Build Firm meet the objective of illuminating 75% of interior building spaces with sufficient levels of daylight in order contribute to a reduction in the building's energy use. Attention in design shall be directed to reducing glare in office spaces, and in utilizing appropriate shading devices that will reduce heat gain.

*Credit 8.2 Views for 90% of Spaces*

The design of the interior of the proposed building shall address visual connectivity and the spatial quality of adjacent spaces, while providing ample opportunities for "eyes on the park" from interior spaces.

**4.3 PARK BUILDING**

**A. Park Building / +/- 2855 SF**

**1. Men's Restroom / +/- 350 SF**

- a. Two electronically activated sinks, each with soap dispenser; paper towel dispenser; trash container; and mirror.
- b. Two high-efficiency, electronically activated urinals.
- c. One lockable stall with high-efficiency, electronically activated commode.
- d. One ADA lockable stall with high-efficiency, electronically activated commode, electronically activated sink; soap dispenser; paper towel dispenser; trash container; and mirror.
- e. Adequate lighting; floor drains; electrical outlets.
- f. Fifty lockers, with appropriate changing facilities.

**2. Women's Restroom / +/- 350 SF**

- a. Two electronically activated sinks, each with soap dispenser; paper towel dispenser; trash container; and mirror.
- b. Two lockable stalls with a high-efficiency, electronically activated commode.
- d. One ADA lockable stall with high-efficiency, electronically activated commode, electronically activated sink; soap dispenser; paper towel dispenser; trash container; and mirror.
- e. Adequate lighting; floor drains; electrical outlets.
- f. Fifty lockers, with appropriate changing facilities.

**3. Secure Administrative Facilities (A/C) / +/- 1,005 SF**

- a. Office with office equipment (computer, printer, phone, etc.) (+/- 225 SF)
- b. Meeting Room / (+/- 600 SF)
- c. Ticket Booth / (+/- 30 SF)

**4. Secure Supply Storage Room / +/- 200 SF**

- a. Restroom supplies
- b. Miscellaneous supplies

**5. Secure Maintenance Equipment Room / +/- 200 SF**

- a. Equipment and related supplies.

**6. Skateboarder Support / +/- 750 SF**

- a. Skateboard service and rental
- b. Point-of-purchase skateboard paraphernalia (helmets, pads, etc.)

**Biscayne Skate Park Design Criteria Package**  
**CIVIL ENGINEERING / 5**

- 5.1 DRAINAGE and SURFACE WATER MANAGEMENT**
- 5.2 LEED**
- 5.3 SANITARY SEWER**
- 5.4 WATER**

## **5.1 DRAINAGE & SURFACE WATER MANAGEMENT**

### **Background**

The proposed site of the Park is located within the jurisdiction of the Miami-Dade County Department of Environmental Resources Management (DERM), and within the Okeechobee Basin identified and administered by the South Florida Water Management District (SFWMD). Drainage and surface water management issues associated with the Project will be addressed by DERM.

### **Construction Requirements**

The Design Build Firm shall have the option to create a dry water management retention area or areas as design elements within the overall Park design, or to implement other innovative design solutions that shall satisfy both water management issues and LEED requirements. The careful and thoughtful integration and coordination of the Civil Engineer's recommendations shall be thoroughly interfaced with the needs for aesthetic and functional issues of grading and drainage addressed by the Landscape Architect.

Both DERM and SFWMD require that the first one inch (1") of rainfall that is not absorbed into the ground, be retained on site prior to discharge. Site design shall ensure adequate filtration and pollution treatment of runoff, and the proposed drainage system shall be appropriately sized to meet water quality requirements. The final objective shall be retention on site of the full volume of a Five Year Storm Event, although positive discharge may be permitted after application for and approval of a Class II permit.

## 5.2 LEED

### Sustainable Sites

To achieve Sustainable Sites credits, the prerequisites of the “Construction Activity Pollution Prevention” requirement must be satisfied.

*Credit 1 Site Selection*

To achieve this credit, it is suggested that the Design Build Firm consult a LEED-Accredited Professional in the preparation of A Credit Interpretation Request (CIR).

*Credit 2 Development Density & Community Connectivity*

*Credit 4.1 Alternative Transportation – Public Transportation Access*

*Credit 5.2 Site development – Maximize Open Space*

*Credit 6.1 Stormwater Design – Quality Control*

In seeking this credit, the Design Build Firm shall adopt the objective in site design of impervious areas within the project’s boundaries equating to less than 50% of the entire area of the Park.

Implement a stormwater management plan that prevents the post- development peak discharge rate and quantity from exceeding the pre-development peak discharge rate and quantity for the one year and the two year, 24 hours design storms.

*Credit 6.2 Stormwater Design – Quality Control*

Limit disruption and pollution of natural water flows by managing stormwater runoff, primarily through the use of porous pavements.

*Credit 7.1 Heat Island Effect – Non-Roof*

Reduce heat islands to minimize impact on microclimates and wildlife habitats, by implementing various strategies including – but not limited to – providing shade of passive hardscape areas within five (5) years of project completion; and use of paving materials with a Solar Reflectance Index of 29 (such as an open grid paver system).

### **5.3 SANITARY SEWER**

The new sanitary sewer service shall be connected to facilities located within a utility easement running east/west adjacent to the south property line of the site of the proposed Park. It is essential that service to adjacent properties supported by the existing sanitary sewer main is maintained and preserved at all times.

### **5.4 WATER**

It is essential that service to adjacent properties supported by the existing water main is maintained and preserved at all times

Much of the available information related to water service is of a low degree of reliability. It is thus recommended that extensive Subsurface Utility Engineering (SUE) be considered as an essential component for the design and implementation of proposed water service. Existing water service to adjacent users shall not be interrupted.

**Biscayne Skate Park Design Criteria Package**  
**STRUCTURAL ENGINEERING / 6**

**6.1 GENERAL REQUIREMENTS**  
**6.2 LEED**  
**6.3 DESIGN METHODOLOGY**  
**6.4 DRAWING REQUIREMENTS**  
**6.5 DESIGN CRITERIA**

## 6.1 GENERAL REQUIREMENTS

### Codes

- A. Florida Building Code, 2007 Edition.
- B. ASCE 7-05
- C. All codes and standards, with the associated edition incorporated by reference into any of the above codes and standards.
- D. Additional Reference Standards, as may be applicable to the scope of the work:
  - 1. American Concrete Institute (ACI).
  - 2. American Institute of Steel Construction (AISC).
  - 3. American Iron and Steel Institute (AISI).
  - 4. American Society for Testing and Materials (ASTM).
  - 5. American Welding Society (AWS).
  - 6. Applied Technology Council (ATC).
  - 7. Concrete Reinforcing Steel Institute (CRSI).
  - 8. Portland Cement Association (PCA).
  - 9. Prestressed Concrete Institute (PCI).
  - 10. Steel Deck Institute (SDI).
  - 11. Steel Joist Institute (SJI).

## Loads

The structural design for wind forces must comply with requirements of ASCE-7-05. Basic wind criteria as established by the Florida Building Code shall be three-second-gust velocity of 146 MPH, with an Importance Factor of 1.0, and an Exposure Category of "C". All buildings and portions of buildings shall be designed as "Enclosed", and the building envelope shall be designed and protected to maintain its integrity.

The minimum design live load for canopy roofs and other roof structures having a slope greater than 1 ½" per foot, and draining to the perimeter of the roof with no restrictions in the flow of water from the roof, shall be 30 pounds per square foot (PSF). All other roofs shall be designed for a live load of 30 pounds per square foot (PSF). Where applicable, the design of the roof system shall consider the potential of ponding water in live load calculations.

Superimposed design dead loads on roofs shall be the actual calculated dead loads of systems; roofing; MEP allowance; collateral load; and similar factors plus five (5) pounds per square foot (allowance for re-roofing), or twenty-five (25) pounds per square foot for steel framed roofs, whichever is greater. For concentrated roof assemblies, superimposed design dead loads on roofs shall be the actual dead loads of systems; roofing; MEP allowance; collateral load; and similar factors plus five pounds per square foot (allowance for re-roofing), but not less than fifteen (15) pounds per square foot (PSF).

Roof uplift designs and assemblies shall comply with the design loads as determined by the American Society of Civil Engineers (ASCE) 7-05, using the criteria previously listed above.

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**STRUCTURAL ENGINEERING / 6**

Interior partitions shall be designed for a minimum of five (5) pounds per square foot (PSF) lateral load.

Stairs (steel or concrete) shall be designed for a one hundred (100) pounds per square foot (PSF) minimum live load.

Railings and guardrails shall be designed in compliance with Chapter 16 of the Florida Building Code, applicable to both General and High Velocity Hurricane Zone Special Load Considerations. The system shall be designed for each of the identified loads, and members shall be sized based on maximum stresses that may occur in those members.

All exterior soffits and their supports shall be designed for the appropriate wind pressures and suctions that result from wind loads in conjunction with gravity loads.

**General Design Criteria**

Structural drawings and applicable sections of the Project Manual indicating structural aspects of the work shall be submitted in accordance with accepted professional standards.

Poured concrete floor slabs on grade shall have their contraction, isolation, construction and expansion joints shown on the floor plan. Placement and spacing of joints shall be in accordance with acceptable engineering practice, and in compliance with ACI guidelines. Concrete sawing shall commence when “tearing” of the slab will not occur. Provide diagonal reinforcing at all re-entrant corners where contraction joints do not intersect at the corner.

**Biscayne Skate Park Design Criteria Package**  
**STRUCTURAL ENGINEERING / 6**

The proposed structures of the Biscayne Skate Park project shall not bear on organic or other deleterious material. Exterior walls shall be masonry or concrete. Non-bearing walls shall be braced or reinforced to act as a cantilever. Do not use gypsum board or plywood behind stucco on the exterior of buildings.

Cementitious grout shall be non-metallic, non-corrosive, non-shrink, and non-staining. Grout shall be non-reactive with surrounding metals and substrates. Use High-Strength non-shrink grout for the setting of base plates and railing posts. Provide inserts, anchors, bolts, hangers, or other means to support equipment, piping, ceilings, or other items suspended from the structure. Design roofs to resist ponding.

The exterior building skin / envelope shall be constructed of concrete masonry units or of concrete systems with the exterior face thereof constructed of concrete. Finishes shall be applied directly to the CMU or concrete substrate without intermediate cavities, separators, or furr-outs, such as gypsum board or plywood. Soffits may be framed using light gauge metal framing of either steel shapes or metal studs of adequate structural capacity to resist all gravity loads and wind loads.

When specifically requested from the City's Project Manager, calculations shall conform with the following:

- A. Provide clear, legible, organized, indexed, and collated calculations showing all of the load conditions considered and engineering assumptions made, including load reductions, units, and code basis.
- B. Calculations generated by a computer program shall include both the input and analysis /design as part of the output.

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**STRUCTURAL ENGINEERING / 6**

- C. Calculations shall be signed and sealed by a Florida Registered Professional Engineer.
- D. All items to be designed by a Delegated Specialty Engineer shall state “By Specialty Engineer”, and design intent and scope shall be clearly identified on the drawings. Specification sections shall be coordinated to reflect the submittal requirements for the Specialty Engineer. All pertinent dimensions; layout; connections; material types; design loads used; and assumptions made, shall be shown on the submittal. Applicable drawings and calculations shall be signed and sealed. Although the Specialty Engineer shall produce the final design, the Engineer of Record (EOR)/Architect of Record (AOR) shall perform sufficient preliminary investigation during development of the construction documents to ensure that the engineered system proposed by the Specialty Engineer will fit into the dimensional and other constraints established by the EOR/AOR.

**6.2 LEED**

The Project will be submitted for LEED certification and, as such, sustainability goals shall be an objective throughout the design process (see “4. Architecture” for detail). Following are examples of possible Structural contributions to the LEED process:

- A. Certified sustainably harvested wood products.
- B. Recycled content of materials, such as fly ash in concrete, and structural steel.
- C. Locally produced materials, such as concrete aggregate.
- D. Management of construction waste.

### **6.3 DESIGN METHODOLOGY**

Investigate structural systems and methods for ease and speed of erection; cost efficiency; long life; minimal maintenance; implementation of local materials; and maximum flexibility.

Ensure that the Geotechnical Engineer receives and has access to the following information:

- A. Locations for Park building and other structures.
- B. Type of construction.
- C. Typical column and wall loads.
- D. Other information pertinent to the foundation design for Park elements.

Determine and design the foundation system and ground floor slab based on the geotechnical Engineer's recommendations and test results. The design Build team shall arrange and pay for soil borings and such other soils data as may be required, and the geotechnical report shall be included in the Project Manual, within Section 00200.

If the Geotechnical Engineer recommends a special soil preparation procedure and the Design Build team desires to have these recommendations executed, they shall be included in the specifications, in Section 00220, Earthwork.

Design floors to minimize vibration effects.

Design and provide expansion joints; control joints; construction joints; and isolation joints to prevent uncontrolled stress cracks in the structure and site work, in accordance with the latest engineering standards. Use components designed for applicable locations and install according to the manufacturer's requirements. Details for expansion joints shall be shown on Landscape Architectural, Architectural, and Structural Engineering drawings and documents.

## 6.4 DRAWING REQUIREMENTS

Provide the following minimum information on the Construction Drawings:

- A. The allowable design soil pressure for footings or allowable pile loads, as applicable.
- B. Dead and live floor load and roof design loads. Show any additional dead; live, wind; or concentrated loads applied to any system.
- C. Clearly specify the sequence of construction where overall stability of the finished structure is dependent on special jointing or sequencing.
- D. Use plan notes.
- E. On each sheet of Construction Drawings, provide key plan, north arrow, graphic, and written scales. Orientation and layout of structures and column grids shall be consistent with architectural drawings. Plans, Sections, and Details shall be appropriately sized and at a scale to ensure legibility.
- F. Provide adequate Sections and Details, especially of bearing conditions for structural members.
- G. Indicate and locate all joints (expansion; isolation; construction; and contraction) on the drawings.
- H. Identify all material to be used, and coordinate with the appropriate sections of the technical specifications.
  - 1. Clearly designate masonry prism strength; unit masonry strength; mortar strength; and grout strength.
  - 2. Clearly designate concrete strength required for each type of component, including minimum/maximum water/cement ratio or cement content, as applicable.
  - 3. Clearly designate steel strength for reinforcing steel; structural steel; miscellaneous steel; and other metals for each type of component, as applicable.
- I. Identify the holding face(s) of columns, or provide centerlines in two directions. Use column grid lines.
- J. Appropriately dimension all drawings and locations relative to a fixed point of construction (POB).

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**STRUCTURAL ENGINEERING / 6**

- K. Provide component and cladding diagrams and drawings for all building materials that will be exposed to winds, including joists; facades; soffit framing; windows; doors; and roofing components. Diagrams shall clearly identify design wind pressures based on tributary area. Note if calculations represent gross or net uplift values.
- L. All directions in the specifications shall be addressed to the Design Build Firm and not to any sub-contractor.
- M. Coordinate with Landscape Architectural, Architectural, and Engineering drawings, and Project Specifications.

Provide the following minimum information in the foundation plans:

- A. All foundations; columns; slabs; walls; pile caps; grade beams; and similar structural elements shall be listed and identified in appropriate schedules.
- B. Provide size and location for concrete or solid masonry piers and all columns.
- C. Show size and spacing of bars, the lap required, and length of dowels into beams or foundations, for reinforced walls and columns. Other walls and columns types shall be anchored to foundations as structurally required and detailed appropriately.
- D. Indicate and locate all wall footings; slabs; pile caps; grade beams; top elevations; and steps.
- E. Show extent of structural bearing and non-bearing walls.
- F. Provide grade slab (or structural ground floor slab) information. On-grade slabs shall be a minimum of 4" thick.
  - 1. Indicate and dimension all depressions; slopes; recesses; and raised slab conditions, for slabs-on-grade.
  - 2. Indicate slab on-grade joints and the construction sequence for placement.
  - 3. Increase slab thickness for structural or other considerations, as required.

- J. Identify and locate steel studs, and number type, size, and spacing.
- K. Designate steel decking type; size; gauge; and direction of span.
- L. Note shoring for members or decking, if required during construction.
- M. Indicate cantilevers.
- N. Note support for stair framing, if any.
- O. Note any required camber for all steel and concrete members, to minimize or eliminate deflection due to design loads.
- P. For Steel Joists and Steel Framing, provide:
  - 1. Size, spacing, and direction of span;
  - 2. Bridging, and its type, size, and location;
  - 3. Location for headers and support for decking in any location where deck direction changes;
  - 4. All loads and locations for Specialty Engineering components, special joints, extended chords, etc.;
  - 5. Provide design requirements for wind loads, including net uplift, bridging, bracing, etc.

## **6.5 Design Criteria**

### **Division 3 / Concrete**

- A. For foundations, miscellaneous flatwork, and slabs on-grade, use f'c 3000 PSI concrete. For all other concrete must use f'c 3000 PSI minimum.
- B. Lightweight insulating concrete shall be at least two (2) inches thick.
- C. All surfaces to receive concrete shall be formed. Earth forming of foundation work is not permitted for foundations or slabs on-grade.

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**STRUCTURAL ENGINEERING / 6**

- D. Lintels abutting cast-in-place columns shall also be cast-in-place.
- E. Provide corner reinforcing at tie beam and footing intersections as required by the Florida Building Code. Structural beams shall be detailed per ACI standards and requirements.
- F. The maximum water/cement ratio for 3000 PSI concrete shall be 0.6, and for 4000 PSI concrete, shall be 0.54.
- G. Floor slabs constructed of poured concrete on grade shall have their contraction, isolation, construction, and expansion joints shown on the floor plan. Saw cutting shall commence as soon after concrete placement as may occur without tearing during cutting.
- H. For Pre-Stressed Concrete Joists with a Composition Slab Construction, the following shall apply:
  - 1. Composite slabs shall be thick enough to allow for any in-slab conduit or similar items, to have the proper coverage without displacing reinforcing steel;
  - 2. Provide reinforcing in composite slab in both directions in accordance with ACI requirements;
  - 3. Maximum tensile stress at service loads shall not exceed  $6\sqrt{f'_c}$  in pre-compressed tensile zone.
  - 4. Shop drawings for pre-stressed concrete joists shall be signed and sealed by the delegated Engineer.

**Division 4 / Masonry**

- A. The tie-beam/tie-column construction method as defined in the Florida Building Code is acceptable. Tie-beam and tie-column detailing must satisfy all design loads imposed upon them by gravity and/or wind loads. Tie-beam and tie-column construction and reinforced masonry construction shall not be mixed within the same building.
- B. Concrete masonry units within a fire-resistant assembly shall not be cut or channeled in a way that will reduce the fire resistance rating of the assembly.

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**STRUCTURAL ENGINEERING / 6**

- C. Structures designed using reinforced masonry shall conform to the Florida Building Code and SCI 530/530.1. This pertains to structurally designed masonry construction that is reinforced, partially reinforced, or non-reinforced.
- D. The maximum spacing of vertical reinforcing in masonry walls that support axial loads, in addition to their own weight, shall be 48" on center.
- E. Do not use reinforced masonry columns for point loads in excess of 20,000 pounds: use a poured concrete column.
- F. Masonry walls eight (8) inches in width with two layers of reinforcing in a single cell, are prohibited. In such instances, use a thicker wall, stagger the reinforcing, or provide another acceptable method to limit the number of bars in a single cell of an eight (8) inch wall.
- G. Provide lateral support for block walls in either/both vertical and horizontal planes. The vertical heights of masonry between horizontal supports shall not exceed sixteen (16) inch maximum.
- H. All eight (8) inch block walls – including parapets 6'0" or greater – shall be capped with a minimum 8" x 12" concrete beam reinforced with two (2) #5 bars, at both the top and at bottom of the beam. All other walls may be capped with an 8"x8" concrete cap with two (2) #4 bars, at both top and at bottom of the beam. As an alternative to the 8"x8" concrete cap, an 8"x8" bond beam with two (2) #4 bars, or one (1) #6 bar, may be used: this is a design choice and not a contractor option. Beam sizes may require increases to conform with structural requirements.
- I. Stem wall footings shall be used in those instances supporting more than ten (10) feet of bearing block wall.
- J. Provide detailed contraction joints in masonry walls at a maximum spacing of twenty-five (25) feet.

**Division 5 / Metals**

- A. Specify isolation coatings where dissimilar metals are in contact, or where aluminum is in contact with concrete or lime surfaces.
- B. The use of lead-based paints or primers is prohibited.
- C. A coat of rust preventative touch-up paint shall be applied to all surface-damaged areas of steel members, joists, and metal decking. In areas not subject to visual exposure, the touch-up coats shall be of a different color or shade, from the shop coat. A zinc-rich galvanizing touch-up paint shall be used for galvanized members and connections.
- D. The Specialty Engineer shall detail and design structural steel connections, and provide the design loads (shears and moments).
- E. All structural or miscellaneous steel exposed to earth or weather shall be hot dipped galvanized. All other steel shall receive a coat of primer.
- F. The structural drawings shall clearly detail the entire component or assembly – including all members and connections – for metal framed components or assemblies. In lieu of showing the complete design, the consultant shall modify the appropriate specification section and place the Engineering and Shop Drawings requirements in those sections. All areas to be delegated to the Design Build Firm’s Engineer shall be clearly designated on the drawings as requiring a Specialty Engineer. The consultant shall be expected to review and approve the Shop Drawings in accordance with the Florida Statutes governing the use of a Delegated Engineer. In either case, these assemblies shall be completely detailed and shall be designed to conform with this and other Design Criteria and Material Standards.

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**STRUCTURAL ENGINEERING / 6**

1. Steel joists shall bear on steel bearing plates embedded in masonry/concrete construction.
2. Steel joists shall bear on the top flange of steel beams or girders, in steel construction.

**Structural Steel and Other Metals**

- A. Provide camber where applicable to eliminate or minimize deflection due to design loads. Do not exceed allowable deflections as stated in the Florida Building Code, and the following:
  1. Camber for structural steel members shall not exceed  $L/240$ , and two (2) inches maximum.
  2. For members supporting plaster or stucco, the deflection limit shall be  $L/360$ .
- B. Structural steel shall be fire-protected. UL steel ratings shall comply with applicable fire-resistive requirements.

**Steel Joists**

- A. Provide notation in the drawings, that electrical resistance welding shall not be used in fabrication of joists.
- B. Shop Drawings for steel joists shall be signed and sealed by a State of Florida Registered Engineer when submitted, certifying that the joists are adequate for the gravity loads listed in SJI Specifications and the load tables and the design uplift loads noted.
  1. Indicate typical joist connection per SJI standards, but not less than the minimum required to resist all combined shear and uplift loads, whichever is greater. Indicate the minimum length of bearing, and bearing condition of joist.
  2. Where joists are subject to uplift, add continuous bottom bridging at the first interior bottom panel point.
  3. Supports shall provide an anchored stabilizer plate for joist girders and tie joists, as required. Do not

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**STRUCTURAL ENGINEERING / 6**

rigidly attach joist or joist girder bottom chords to supports, unless the live load and wind moments are specifically shown on the drawings.

4. Provide cambers to eliminate or minimize deflection due to design loads.

**Metal Deck**

- A. Provide an angle or other structural element, both around the perimeter of the building and where the deck changes direction, to connect the deck to both parallel and perpendicular joists. Connections of the metal deck at its perimeter shall be as required to create the required diaphragm and uplift loads, but in no instance shall such connections be more than twelve (12) inches apart.
- B. Connections of metal decking twenty-four (24) gauge in thickness or less, shall be made through a weld washer. If the Engineer requires weld washers for any thickness of metal deck, it shall be noted on the drawings.
- C. Identify and call out connectors and connection spacing of metal deck, to support framing.
- D. Vented metal deck shall not be used beneath a “dry system” roof deck.
- E. All metal deck shall be galvanized G-90.
- F. The metal deck supporting roof loads shall not be less than twenty-two (22) gauge, and not less than what is needed to meet structural requirements.

**Biscayne Skate Park Design Criteria Package**  
**MECHANICAL ENGINEERING / 7**

- 2.1 HVAC DESIGN**
- 2.2 PLUMBING DESIGN**
- 2.3 FIRE PROTECTION DESIGN**
- 2.4 LEED**

## 7.1 HVAC SYSTEM DESIGN

All areas of the proposed Park building shall be air conditioned, with the exception of storage room, mechanical room, restrooms, and locker rooms. Restrooms and locker shall be exhausted/ventilated.

1. HVAC systems shall be designed and constructed in accordance with the Florida Building Code-2007, and the Florida Building Code-Mechanical 2007. All local amendments to these Codes shall be included. (It is understood that this Code was to take effect January 2009).
2. The design Build Firm shall include the design analysis and necessary equipment options and/or materials (sound reduction panels, sound deadening) to reduce equipment noise levels to Code compliant levels at all adjacent property lines.
3. All air conditioning systems shall be designed and function to maintain space temperature and relative humidity that meet the following conditions:

**INSIDE DESIGN    OUTSIDE DESIGN**

75 db, 50% RH – Occupied    92 db, 80 wb

80 db, 60% RH – Unoccupied

4. All ductwork shall be G90 galvanized steel except for locker room exhaust ducts. Use Pittsburg lock seam duct work where either the height or width dimension is more than ten (10) inches.
5. If a food preparation area/kitchen is provided, exhaust duct shall be Code-compliant stainless steel.
6. All locker room exhaust duct shall be aluminum with all seams and joints either welded or sealed watertight.
7. Outside air fans and exhaust fans shall be of all aluminum construction. All dampers located in outside air ducts shall be all aluminum, airfoil parallel blade type, with edge seals.

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8. All supply and return air ductwork shall be externally insulated (except for double-wall duct) with two (2) inch thick, one and one half (1 ½) pound density fiberglass blanket insulation with FSK jacket. Single wall duct inside (exposed) in mechanical rooms shall be one and one half (1 ½) inch thick rigid board. Double wall duct and outside air duct do not require insulation.
9. Medium pressure, high pressure, or primary duct on VAV systems shall be spiral lockseam oval or round duct with seams sealed airtight to ten (10) inch w.g. The first twenty feet of supply and return duct entering and leaving the air handling unit shall be double walled, one (1) inch duct liner, with mylar separation and a perforated galvanized metal inner wall.
10. Only double wall duct specified in #9 (above) shall be used: no internally lined ductwork shall be used.
11. No fiberglass ductboard shall be used.
12. All air distribution devices shall be aluminum.
13. Air filters in ALL air handling units shall be 80% to 85% efficient, MERV 13, four (4) inch thick or deeper, pleated, media type. Use only clean filters during "Test and Balance" procedures. Use only MERV 8 filters if units are operating prior to delivery of the project to the Department of Parks and Recreation. Provide clean filters at occupancy.
14. The Design Build Firm shall retain the services of an independent "Test and Balance" company, approved by the Project Manager to perform "Test and Balance" for both water and air-side systems.

## **7.2 PLUMBING SYSTEM DESIGN**

1. The building's plumbing systems shall be designed and constructed in accordance with the Florida Building Code – 2007, and the Florida Building Code – Plumbing, 2007. All local amendments to these Codes shall be included. (It is understood that this Code was to take effect in January 2009).
2. The domestic water, sanitary sewer, and storm systems shall exit the building and connect to the site utilities, and shall be coordinated with the Civil drawings.
3. Commodes, sinks, and urinals are to be of vitreous china. Commodes shall be floor mounted, with low-gallons-per-flush flush-o-meters. Fixtures throughout the building shall be handicap accessible, as required by ADA, and reflected in Architectural drawings.
4. Water heaters for the food preparation area – if provided – and the showers shall be gas fired. All smaller water heaters throughout the building shall be electric.
5. All underground water piping shall be Type “K” copper. Above ground water piping shall be Type “L” copper.
6. All hot water and return piping shall be insulated with one (1) inch fiberglass insulation with all-service jacket.
7. Each separate space shall have its own, individual two-piece ball valve, up to two (2) inches, and a gate valve for anything greater than two (2) inches.
8. Wall hydrants shall be located at one hundred (100) foot intervals on the exterior of the building.
9. All waste, vent, and storm systems shall be piped with PVC Schedule 40 pipe and fittings.
10. All above-ground horizontal storm lines shall be insulated with one (1) inch fiberglass insulation.
11. Provide trap primers for all floor drains. Primer shall be connected to the discharge pipe of a flush valve on a commode. Where flush valve is not available, connect to the tail piece of a sink. Floor drains located in the kitchen area are not required to have trap primers.

### **7.3 FIRE PROTECTION SYSTEM DESIGN**

1. The building shall be equipped with an automatic wet-pipe fire sprinkler system.
2. The Design Build Firm shall arrange with the City of Miami Department of Fire Rescue to have a Fire Flow Test conducted to establish flow rates and residual pressures to facilitate the design of a fire sprinkler system.
3. It is not anticipated that a fire pump will be required.
4. The Design Build Firm shall provide the services of a Fire Protection Engineer to complete hydraulic calculations and full fire sprinkler drawings for submission for permit. The Fire Protection Engineer shall determine the requirements based on the intended use of the building.
5. In locations where sprinkler heads are installed in finished ceilings, they shall be concealed head type.
6. All fire sprinkler piping within the building shall be steel.
7. The design and installation of the entire fire protection system shall be in accordance with the requirements of NFPA-13, 2002.
8. Fire protection service to the site and the building shall include all Code-required valves, PIV, detector checks, hydrants, Siamese connections, and other required components as required by Code and the City of Miami Department of Fire Rescue.

## **7.4 LEED**

The City requires that the Park achieve Silver LEED certification. The guidelines that follow are compatible with and supportive of LEED certification: however, the Design Build Firm shall ensure that the various individual credits sought in the design of the Park and its various elements, meet the requirements for each credit. Following are the LEED credits that can be achieved through the appropriate and responsive design of mechanical systems for the Park.

The size of the building and its intended use dictate the baseline system that shall be used in the modeling analysis of the proposed building: refer to ASHRAE, 90.1, 2004 Edition.

There must be a two and one half (2.5) percent reduction in building electrical energy consumption compared to the baseline model. Energy consumption may be reduced by employing solar energy, energy-efficient lighting, and lighting controls. Provide individual lighting controls for ninety (90) percent of occupied areas of the building.

In order to receive LEED credit for “light pollution reduction”, site lighting fixtures must be full cut-off type, and spill lighting must be within limits at the boundary lines of the site.

A prerequisite in achieving LEED Certification is an energy reduction of fourteen (14) percent over the baseline system.

The following address specific design modifications that shall be considered for implementation by the Design Build Firm:

- A. Investigate the use of solar panels for domestic hot water heating.

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- B. Note that LEED Certification points are awarded for saving twenty (20) percent, and thirty (30) percent water use.
- C. Investigate the use of dual-flush commodes, metered or sensor-type faucets, waterless urinals, and low flow shower heads

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**ELECTRICAL ENGINEERING / 8**

**8.1 ELECTRICAL DESIGN**

## **8.1 ELECTRICAL SYSTEM DESIGN**

The building electrical system shall be designed and constructed in accordance with the 2007 Florida Building Code, including all local amendments and ordinances.

Electrical service to the site shall be provided by a pad-mounted transformer strategically located near the existing utility services, to serve the area. Primary power to the transformer shall be underground in concrete-encased ducts from the nearest overhead line. Secondary service entrance conductors shall also be routed in PVC ducts underground into the main service entrance for the site.

Electrical service to the facility shall be 480/277 volt, 3-phase 4-wire. All service entrance conductors shall be copper. The service entrance equipment shall be configured into a switchboard construction to be located in the main electrical room of the proposed Park building. The room shall provide for adequate working clearance at the front and sides of the switchboard, and be provided with two (2) separate means of ingress and egress in accordance with the National Electric Code. The room shall be appropriately sized to accommodate its intended functions.

The switchboard shall have a main circuit breaker sized at 1600 amps. This device shall be thermal-magnetic, molded case construction, with long-time/short-time/instantaneous, and ground fault trip settings. The unit shall be fixed-mount one-hundred (100) percent rated.

Feeder or branch devices in the switchboard shall be thermal-magnetic molded case devices, group mounted in a distribution section of the switchboard.

It is the intention that all large motor and power loads, and duct heaters, be served at 480 volt, 3-phase. All lighting

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shall be served at 277-volt. Site lighting maybe served at 480-volt, single phase. All general power outlets and small motors such as fractional horsepower fans, shall be served at 120-volt, or 208 single phase as may be required.

All feeder conductors shall be contained in rigid galvanized steel conduit above the slab throughout the building, or Schedule 40 PVC below the slab or outside the building line. All branch circuits routed throughout the building shall be contained in EMT or PVC below the slab. Connection to all motors shall be with liquid-tight flexible metallic conduit. Connection to lay-in fluorescent troffer-type lighting fixtures or other lighting fixtures hall be with aluminum flexible metallic conduit.

All conductors shall be copper, 600-volt, THWN (wet locations) or THHN (dry locations) insulation.

All panelboards shall be provided with copper bus neutral and ground busses. Bus and circuit breakers shall be located behind a deadfront panel located inside the cover of the panelboard. Covers shall have a hinged, locating door.

Dry-type transformers shall have copper windings and be rated at 115C above rise. All transformers shall be set on neoprene vibration isolation pads on four (4) inch concrete housekeeping pads.

Electrical equipment enclosures shall be rated NEMA 1 for indoor locations, and NEMA 3R for outdoor locations.

All lighting fixtures shall be of a discharge type source. No incandescent lamps shall be permitted. Fluorescent lighting fixtures hall utilize solid-state electronic ballasts with T-8 or T-5 type lamps. Recessed down lights shall use compact fluorescent PL type lamps, and shall be dimmable.

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All offices or single-occupant rooms shall be provided with occupancy sensors, and larger areas shall be provided with a form of automatic or timed lighting control.

Lighting for exterior areas and parking shall utilize metal halide, pole mounted, full cut-off type fixtures. Fixtures shall be controlled by photocell for –dusk-to-dawn operation. Fixtures that are not required for security purposes, shall be switched to the “on” position by photocell, and switched “off” by a time clock or programmed source.

Provide a public address system. Speakers shall be weatherproof horns to be appropriately located/mounted to ensure message delivery throughout the facility.

The proposed building shall be provided with a complete, fully addressable, automatic fire alarm and detection system. All wiring for the system shall be in conduit and all devices shall be located in accordance with the NFPA 72 and ADA requirements. In “assembly occupancy” spaces within the proposed building, provide a voice notification evacuation system.

The proposed building shall be provided with a complete security system consisting of access control, intrusion detection, and video surveillance. Coordinate with the Department of Parks and Recreation for locations of all devices. Access control shall be via key pads at select entry(ies). Intrusion detection shall be achieved through the use of contacts on all doors and windows, and through the use of motion detectors placed in selected interior locations. Video surveillance shall be provided using video cameras located at the direction of the Department of Parks and Recreation . Provide for a digital video recorder with capability of recording a minimum of five (5) 24-hour-days of surveillance.

Provide an empty raceway system with pull lines, for telecommunications to serve all facilities. Coordinate with the local utility representative for the service access location of the existing utility in proximity to the project. Provide

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Schedule 80 PVC ducts underground as directed by the utility's representative, from the service point into a main telecommunication entrance facility in the proposed building. Provide in the telecommunications entrance facility a grounding bus on stand-off insulators with a grounding electrode conductor to the building's main electrical ground. Provide cable runway directly above the proposed location for the user's telecommunication equipment racks. Ground all cable runways, punchdown fields, and equipment racks within the space with a #6 copper conductor. From the entrance facility, route one (1) inch conduits to each telecommunications outlet location. Provide each outlet location with a four and eleven-sixteenths (4 11/16) inch square by two and one eighth (2 1/8) inch deep backbox with a single gang trim ring mounted vertically. Provide blank plates on all outlets. Use underground ducts to a telecommunications room to create connectivity. Provide computer outlets within office spaces and skate shop spaces. All cabling, testing, termination, and outlet device provisions and installation will be provided by the City.

Provide a completed, integrated system of Transient Voltage Surge Suppression (TVSS) on the entire power distribution system for the facility. The main device shall be rated for a minimum of 240,000 amps. All devices shall be products of the same manufacturer, and shall be UL approved. Connect all devices by a dedicated circuit breaker in the panelboard it is intended to protect. Devices shall be installed in strict accordance with the manufacturer's recommendations.

Provide complete lightning protection on all structures, including arbors, trellises, and shade structures. The system shall be based on copper terminals and conductors, unless installed on aluminum, in which case the terminals and conductors shall be aluminum. Route conductors in PVC sleeves down the walls of the structure to ground rods driven below grade. The system shall be designed, provided, and installed by a licensed lightning protection installer in strict accordance with NFPA 780. The installer shall provide a UL Master Label for the installed system.

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**SKATE PARK FACILITY/ 9**

- 9.1 DESIGN**
- 9.2 PROFESSIONAL EXPERTISE**
- 9.3 FIELD MODIFICATIONS**
- 9.4 MATERIALS**

## **9.1 DESIGN**

1. All elements and features of the proposed Facility shall be constructed of shotcrete and/or poured concrete over a steel reinforcing frame.
2. The facility shall have an area for “beginner” skateboarders, encompassing a space allocation of approximately 7,500 square feet, with slow sloping areas with small hips, moguls, banks, curbs, and rail slides that range in height from eight (8) inches to forty-eight (48) inches.
3. The facility shall have a series of street elements constituting a “street course” including ledges, stairs, and rails, as well as multiple events including – but not limited to – integrated transitions, vert walls, large banks and flat bank surfaces that have ledges, stairs, rails, and curbs.
4. The design of the facility shall reflect simplicity; surface smoothness; an absence of kinks; a minimum of ten (10) feet of flatbottom between obstacles; pushing room; and blocks and ledges at a maximum height of +/- 36”.
5. All edges shall be grindable. Steel pipe coping for grindable edges shall be a minimum of two (2) inches in diameter, and shall project slightly from and protect adjacent shotcrete surfaces.
6. Curbs, blocks, and steps shall be incorporated judiciously into the facility and should be integrated with other elements, located away from bowls and banks: these features may be incorporated in areas surrounding the facility.

## **9.2 FIELD MODIFICATIONS**

1. It is understood that field changes may be required during the process of construction, to ensure the most creative and challenging facility. However, the Design Build Firm shall thoroughly explore all design and construction options, reflecting the most appropriate, desirable, creative, and aesthetically and functionally appropriate design proposals that will lead to the construction of a successful Park.

## **9.3 MATERIALS**

### Concrete, Shotcrete, and Steel

1. All concrete and shotcrete used in construction of the facility shall be rated four thousand (4,000) PSI (pounds per square inch) material, placed to a minimum thickness of four (4) inches. Material shall have a maximum three-quarter (3/4) inch diameter aggregate. With a maximum two (2) inch slump. No curing accelerators shall be used.
2. Concrete shall be cured for a minimum of 28 days after completion of all concrete/shotcrete placement, and before any activities occur on finished surfaces. Provide appropriate means to facilitate curing process.
3. Using mechanical plate compactor or roller, compact sub-base to receive base course to 95% Standard Proctor Density, (ASTM D698).
4. Place base course – with material measuring a maximum of three-quarter (3/4) of an inch in diameter - to minimum depth of four (4) inches in areas to receive concrete/shotcrete

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**SKATE PARK FACILITY/ 9**

5. Minimum steel reinforcing shall be Number 3 reinforcing bar (3/8" diameter) placed in two perpendicular directions at twelve (12) inches on center. Overlap ends of spliced bars by a minimum of 16".
6. Minimize number of expansion joints within riding surfaces.
7. Place galvanized expansion steel as forming material/screed guide.

**Grading and Drainage**

1. Use PVC Schedule 40 for all sub-surface drainage piping.
2. Use drain inlets with maximum grate dimensions of twelve (12) inches by twelve (12) inches. Grates shall be one-quarter (1/4) inch thick sheet stainless, with one half (1/2) inch drilled holes for drainage. Secure grates with four tamper-proof stainless machine screws. DO NOT use slotted drain covers.
3. Design of drainage shall consider ground water elevation; use of fill to elevate portions of the facility; use of French drains; exfiltration trenches; detention and retention basins; and similar components of site drainage systems.

**Coping**

1. Band all bowls and similar transitional elements with coping.
2. Coping shall be constructed from Schedule 40 cold rolled tubular steel pipe.
3. Provide a sufficient number of rebar or angle anchors welded to each section of tubular steel coping to securely anchor the coping in place.

**10.1 ACRONYMS**  
**10.2 SOURCES**  
**10.3 ASTM F 2480-06**  
**10.4 MAPS and AERIALS**

**10.1 ACRONYMS**

ACI      American Concrete Institute

ADA	Americans With Disabilities Act
AOR	Architect of Record
ASCE	American Society of Civil Engineers
ASHRAE	American Society of Heating, Refrigeration, and Air Conditioning Engineers
ASTM	American Society for Testing and Materials
CCTV	Closed Circuit Television
CPTED	Crime Prevention Through Environmental Design
DERM	Department of Environmental Resource Management, Miami-Dade County, Florida
EMT	Metal Conduit
EOR	Engineer of Record
FSK	Foil-Scrim Kraft
HVAC	Heating,
K	Kip
LED	Light Emitting Diode
LEED	Leadership in Energy and Design
MEP	Mechanical, Electrical, and Plumbing
MERV	Minimum Efficiency Reporting Value
MPH	Miles Per Hour
NEMA	National Electrical Manufacturer's Association
NFPA	National Fire Protection Association
PIV	Particle Image Velocimetry
POB	Point-of-Beginning
PSF	Pounds Per Square Foot
PSI	Pounds Per Square Inch
PVC	Polyvinyl Chloride Conduit
RH	Relative Humidity
SFWMD	South Florida Water Management District
SJI	Steel Joist Institute
SUE	Subsurface Utility Engineering
THHN	Thermoplastic High Heat-Resistant Nylon-Coated
THWN	Thermoplastic High Water-Resistant Nylon-Coated
TVSS	Transient Voltage Surge Suppression

UL Underwriters Laboratory  
VAV Variable Air Volume  
WASA Water and Sewer Authority, Miami-Dade County, Florida

## **10.2 SOURCES**

ASTM / Standard Guide for In-Ground Concrete Skate Park / F-2480-0674  
SkatePark Association USA / recommended Concrete Specifications 2004  
[Skateparkguide.com/design.htm](http://Skateparkguide.com/design.htm)  
Skateboarding: Instruction, Programming, and Park Design (Ben Wixon, 2009)  
Public Skatepark Development Guide (Peter Whitley)  
The Complete Step-by-Step Guide to Concrete Skatepark Construction (Tony Gembeck, 2004)

## **10.3 ASTM F 2480-06 IN-GROUND CONCRETE SKATE PARK**

Following is the ASTM F 2480-06 specification for an In-Ground Concrete Skate Park, constituting four pages.

## **10.4 MAPS and AERIALS**

Following are an aerial photograph; context photographs, and maps indicating the location of the proposed Biscayne Skate Park.