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July 30, 2021

VIA HAND DELIVERY

Chair and Members of the Planning Board City of Miami Beach 1700 Convention Center Drive Miami Beach, FL 33139

RE: 5333 Collins – Conditional Use Permit for Mechanical Parking (PB21-0455)

Dear Mr. Mooney:

On behalf of 5333 Collins Acquisitions LP, a Delaware limited Partnership ("**Applicant**"), please accept this letter of intent and application for a Conditional Use Permit for mechanical parking for 5333 Collins Avenue, in the City of Miami Beach (the "**Property**"). Applicant is simultaneously seeking approval from the Design Review Board ("DRB")¹ to demolish the existing improvements and construct a new multifamily project (the "**Proposed Project**"). The Proposed Project consists of 100 residential units contained in a 19-story tower, with approximately 317,918 square feet of floor area, 183 parking spaces and 2 loading spaces. Applicant designed the Proposed Project to meet all requirements under the City of Miami Beach's ("**City**") Land Development Regulations ("**LDRs**" or "**Code**"), and thus no variances are required.

The mechanical parking systems are the only reason the Proposed Project requires a conditional use permit. As part of the Proposed Project, Applicant proposes a parking structure which is partially below grade containing a total of 183 parking spaces, where 183 parking spaces are required. The on-site parking garage consists of 68 mechanical-lift parking spaces (i.e. 34 stackers), 32 tandem parking spaces, 73 conventional parking spaces, six (6) ADA parking spaces, and four (4) electrical charging spaces.²

The alternative would require two levels of a parking structure to accommodate 100% traditional parking spaces, which would result in deeper excavation. By pursuing the one-level of mechanical parking, as shown in the Proposed Plans, not excavating as deep for the subterranean garage will result in less native soil disturbance during the construction of the Project. Reduced excavation will also translate to a shorter duration of subterranean construction, resulting in minimization of associated temporary noise and other minor impacts to the neighborhood.

The enclosed traffic assessment shows that the Proposed Project is expected to result in a reduction of six (6) net new vehicle trips during the weekday A.M. peak hour and a reduction of five (5) net new vehicle

¹ DRB21-0694.

² As required, see also for reference, the traditional parking plan to comply with Section 130-38(3)(c)(i)(1) of the City Code.

trips during the weekday P.M. peak hour. The traffic assessment also shows that there is sufficient maneuverability for loading and trash pick-up functions.

A. Conditional Use Review Criteria

Section 118-192(a) of the City's Land Development Regulations establishes seven (7) criteria by which all conditional use applications are measured against. These criteria are listed below in bold and underline text, with our response following each criteria in plain text.

(1) The use is consistent with the comprehensive plan or neighborhood plan if one exists for the area in which the property is located.

The proposed Project is a residential condominium, which is permitted in the RM-3 future land use category and consistent with established uses in the neighborhood.

(2) The intended use or construction will not result in an impact that will exceed the thresholds for the levels of service as set forth in the comprehensive plan.

The current level of service will be maintained as the project results in a reduction in traffic.

(3) Structures and uses associated with the request are consistent with these land development regulations.

Multifamily residential is a permitted use in the RM-3 zoning district. In addition a small 220 square foot retail space will be located in the lobby, and other private amenities for residents are proposed. The proposed structure and uses are consistent with the land development regulations and no variances are required.

(4) The public health, safety, morals, and general welfare will not be adversely affected.

Nothing in the Project will negatively affect the public health, safety, morals and general welfare of the City of Miami Beach.

(5) Adequate off-street parking facilities will be provided.

The Project will provide adequate parking facilities as required by the Land Development Regulations. 183 parking spaces³ and 2 loading spaces are required and 183 spaces and 2 loading spaces are provided.

(6) Necessary safeguards will be provided for the protection of surrounding property, persons, and neighborhood values.

The reason the Project is subject to a conditional use review is because of the incorporation of mechanical parking devices. The parking will be partially below grade and fully enclosed; and therefore will not negatively impact the surrounding properties, persons or neighborhood values. As detailed below, the Project meets all of the conditional use review criteria that are specific to mechanical parking.

³ 183 parking spaces are required after the 15% parking reduction based on the number of long term bicycle parking spaces provided, pursuant to section 130-40(a) of the City Code.

(7) The concentration of similar types of uses will not create a negative impact on the surrounding neighborhood. Geographic concentration of similar types of conditional uses should be discouraged.

The use of the Project as a multifamily residential condominium is a permitted use in the RM-3 zoning district – it is only the proposal of mechanical parking that triggers the conditional use review. Although there may be other instances of mechanical parking in the area, the mechanical parking will be fully enclosed and will not impact the surrounding area. In addition, mechanical parking is not a "use" for which such a limitation would apply.

B. <u>Conditional Use Review Criteria for Mechanical Parking Systems</u>

Section 130-38(5) of the City's Zoning Code establishes eleven (11) specific review criteria for the Planning Board to consider in its review of an application to use mechanical parking systems. These criteria are listed below in bold and underline text, with our response following each criteria in plain text.

(a) Whether the scale of the proposed structure is compatible with the existing urban character of the surrounding neighborhood;

The proposed project is sensitive to and compatible with the environment and adjacent structures, and enhances the appearance of the surrounding community. The Proposed Project has an orientation and massing which is sensitive to the surrounding area. The tower is rotated to orient views away from neighbors towards the Atlantic Ocean and Biscayne Bay. The massing is also compatible with the contrast of material, shape and color. The proposed architecture contains a rhythm and contrast of material, shape and color which pays homage to the Miami Beach art deco and midcentury modern past, while creating something new, drawing from the unique qualities of its context.

(b) Whether the proposed use of mechanical parking results in an improvement of design characteristics and compatibility with the surrounding neighborhood and has demonstrated how the scale, mass, volume, and height of the building are reduced by the use of mechanical parking;

The use of mechanical parking results in a "footprint" for the proposed parking structure that results in one story less than what would otherwise be required without the use of mechanical parking systems. Therefore, this results in an improved design and compatibility with the surrounding neighborhood.

(c) Whether the proposed use of mechanical parking does not result in an increase in density or intensity over what could be constructed with conventional parking;

As shown on the submitted schematic parking plans, the proposed development program could be achieved through the use of a traditional, non-mechanical parking garage. Therefore the use of mechanical parking does not result in an increase in the density or intensity.

(d) Whether parking lifts or mechanisms are located inside, within a fully enclosed building, and not visible from exterior view;

The parking lifts and mechanisms for the parking structure are located in the cellar level, are fully enclosed, and are not visible from exterior view.

(e) In cases where mechanical parking lifts are used for self-parking in multifamily residential buildings; whether approval is conditioned upon the proper restrictive covenant being provided limiting the use of each lift to the same unit owner;

Units that are assigned to parking spaces with mechanical lifts will not be able to self-park. All mechanical parking lifts will be operated by the valet.

(f) In cases where mechanical parking lifts are used for valet parking, whether approval is conditioned upon the proper restrictive covenant being provided stipulating that a valet service or operator must be provided for such parking for so long as the use continues;

Valet service will be required for the mechanical parking lifts.

(g) Whether a traffic study has been provided that details the ingress, egress, and circulation within the mechanical parking facility, and the technical and staffing requirements necessary to ensure that the proposed mechanical parking system does not cause excessive stacking, waiting, or backups onto the public right-of-way;

A traffic assessment which shows the required information has been provided by Kimley Horn.

(h) Whether a proposed operations plan, including hours of operation, number of employees, maintenance requirements, noise specifications, and emergency procedures, has been provided;

An operational plan is provided herein, enclosed as Exhibit 1.

(i) In cases where the proposed facility includes accessory uses in addition to the parking garage, whether the accessory uses are in proportion to the facility as a whole, and delivery of merchandise and removal of refuse, and any additional impacts upon the surrounding neighborhood created by the scale and intensity of the proposed accessory uses, are adequately addressed;

Accessory uses include: a small 220 square foot retail space located in the lobby, which will generate 1 parking space, a private club house at the rear of the property which is a private amenity for residents only, and other amenities that are typical to high-end residential buildings such as a spa and gym for use by residents only. All delivery and trash will be accommodated within the loading spaces onsite. There will be appropriate delivery and removal of refuse for the entire Proposed Project, and the scale and uses are appropriate in connection with the Proposed Project and match the scale of the surrounding area.

(j) Whether the proximity of the proposed facility to similar size structures and to residential uses creates adverse impacts and how such impacts are mitigated; and

Although there may be other instances of mechanical parking in the area, the mechanical parking will be fully enclosed and will not impact the surrounding area. There will be no adverse impacts, e.g. noise externalities, from the proposed mechanical parking facilities because the parking garage is enclosed and partially below grade.

(k) Whether a cumulative effect from the proposed facility with adjacent and nearby structures arises, and how such cumulative effect will be addressed;

There are no cumulative effects even if there are nearby mechanical parking facilities because there are no adverse impacts from the proposed mechanical parking at the Proposed Project given that the parking garaged is fully enclosed and not visible from the right-of-way.

Section 130-38(3)(c)(i) of the City Code requires that projects with mechanical parking prepare schematic floor plans that show that a project of the same intensity could be achieved without mechanical parking using traditional ramping and parking systems and without variances, in order to show that the proposed mechanical parking systems are not being used to increase the achievable intensity on the property and that the resulting physical form using mechanical parking is preferable when compared to the non-mechanical parking schematic plans. The alternative schematic is enclosed as part of the architectural plans and would require two levels of a parking structure to accommodate 100% traditional parking spaces. By pursuing the one-level of mechanical parking, as shown in the Proposed Plans, not excavating as deep for the subterranean garage will result in less native soil disturbance during the construction of the Project. Reduced excavation will also translate to a shorter duration of subterranean construction, resulting in minimization of associated temporary noise and other minor impacts to the neighborhood. Further, the mechanical parking does not increase the achievable intensity or density on the property; rather the alternate plans prove that the same level of intensity could be achieved through non-mechanical parking systems.

C. Additional mechanical parking criteria

Section 130-38(6) of the City's Zoning Code establishes seven (7) specific criteria for mechanical parking systems. These criteria are listed below in bold and underline text, with our response following each criteria in plain text.

(a) The noise or vibration from the operation of mechanical parking lifts, car elevators, or robotic parking systems shall not be plainly audible to or felt by any individual standing outside an apartment or hotel unit at any adjacent or nearby property. In addition, noise and vibration barriers shall be utilized to ensure that surrounding walls decrease sound and vibration emissions outside of the parking garage;

The parking garage is partially below grade and completely enclosed; thus noise generated by the mechanical parking systems will generally not be audible on adjacent properties.

(b) For mechanical lifts, the parking lift platform must be fully load-bearing, and must be sealed and of a sufficient width and length to prevent dripping liquids or debris onto the vehicle below;

The parking lift platforms meet this standard.

(c) All freestanding mechanical parking lifts must be designed so that power is required to lift the car, but that no power is required to lower the car, in order to ensure that the lift can be lowered and the top vehicle can be accessed in the event of a power outage; robotic garages and vehicle elevators must have backup generators sufficient to power the system;

The mechanical parking lifts are able to be operated by hand in the event of a loss of power.

(d) All mechanical lifts must be designed to prevent lowering of the lift when a vehicle is parked below the lift;

The parking lifts meet this standard.

(e) The ceiling heights of any parking level with parking lifts within the parking garage shall be a minimum of 11 feet by six inches;

The proposed plans meet this standard.

(f) All mechanical parking systems, including lifts, elevators and robotic systems, must be inspected and certified as safe and in good working order by a licensed engineer or the elevator authority having jurisdiction at least once per year and the findings of the inspection shall be summarized in a report signed by the same licensed engineer or firm, or the elevator authority having jurisdiction. Such report shall be furnished to the planning director and the building official;

The parking lifts will meet this standard.

(g) All parking lifts shall be maintained and kept in good working order;

The Owner agrees to maintain the parking lifts in good working order.

D. Sea Level Rise Criteria

In order to ensure that the Project is resilient in light of the effects of sea level rise, the sea level rise and resiliency review criteria from Section 133-50 of the LDRs is addressed below:

1) <u>A recycling or salvage plan for partial or total demolition shall be provided.</u>

Applicant will work with Staff to ensure that an adequate recycling plan is provided as part of the submittal for a demolition permit to the building department.

2) <u>Windows that are proposed to be replaced shall be hurricane proof impact windows.</u>

All windows in the proposed building will be hurricane proof impact windows.

3) Where feasible and appropriate, passive cooling systems, such as operable windows, shall be provided.

The windows for residential units will be operable.

4) <u>Whether resilient landscaping (salt tolerant, highly water-absorbent, native or Florida friendly plants)</u> <u>will be provided.</u>

All new landscaping will consist of Florida friendly plants.

5) <u>Whether adopted sea level rise projections in the Southeast Florida Regional Climate Action Plan, as may</u> <u>be revised from time-to-time by the Southeast Florida Regional Climate Change Compact, including a</u> <u>study of land elevation and elevation of surrounding properties were considered.</u>

The Southeast Florida Regional Climate Action Plan projects that sea level will rise 6 to 10 inches by 2030, 14 to 26 inches by 2060, and 31 to 61 inches by 2100 above the 1992 mean sea level. This represents NGVD elevations of 1.10' to 1.43' by 2030, 1.77' to 2.77' by 2060, and 3.18' to 5.68' by 2100 at Mean Sea Level. At Mean High Water this represents NGVD elevations of 2.31' to 2.64' by 2030, 2.98' to 3.98' by 2060, and 4.39' to 6.89' by 2100.

According to the survey, the ground varies in elevation from approximately 4.5' NGVD to approximately 11.8 NGVD. The first floor of the building is proposed to be at an elevation of 13 NGVD, and the second floor is proposed at 29 feet NGVD (where the base flood elevation is 8 feet). This will allow for the raising of the finished floor of the ground floor in the future if the surrounding roads are raised. The Project is therefore not anticipated to be excessively impacted by Sea Level Rise in the timeframe included in the Sea Level Rise projection.

Additionally, a substantial seawall also protects the Property from storm wave impact from the Atlantic Ocean.

The Project is therefore not anticipated to be impacted by Sea Level Rise in the timeframe included in the Sea Level Rise projection.

6) <u>The ground floor, driveways, and garage ramping for new construction shall be adaptable to the raising</u> of public rights-of-way and adjacent land, and shall provide sufficient height and space to ensure that the entry ways and exits can be modified to accommodate a higher street height of up to three additional feet in height.

According to the Survey and Plans, Project elevations are well above road elevations.

7) <u>As applicable to all new construction, all critical mechanical and electrical systems shall be located above base flood elevation. All redevelopment projects shall, whenever practicable and economically reasonable, include the relocation of all critical mechanical and electrical systems to a location above base flood elevation.</u>

All critical mechanical and electrical systems will be located above base flood elevation and on roofs when available. Some mechanical systems are located below base flood elevation and are flood-proofed.

8) <u>Existing buildings shall be, where reasonably feasible and appropriate, elevated to the base flood</u> <u>elevation, plus City of Miami Beach Freeboard.</u>

The existing buildings will be demolished as part of the Proposed Project.

9) <u>When habitable space is located below the base flood elevation plus City of Miami Beach Freeboard, wet</u> or dry flood proofing systems will be provided in accordance with Chapter of 54 of the City Code.

There are no habitable spaces located below the base flood elevation.

10) As applicable to all new construction, stormwater retention systems shall be provided.

Although no significant impact on water retention at the Property is anticipated by virtue of the Project, Applicant will work with Staff to ensure that feasible and appropriate water retention systems are provided.

11) Cool pavement materials or porous pavement materials shall be utilized.

Cool pavement materials have been utilized.

12) The design of each project shall minimize the potential for heat island effects on-site.

The Proposed Project eliminates the existing surface parking lot, and relocates the parking to a parking garage, which is partially below grade, to minimize the heat island effect. Hardscape areas will be limited. Landscaped areas will be planted with green lawns, bushes and trees for shade.

We submit to the Planning Board that the proposed Project meets all of the conditional use review criteria as detailed herein. We respectfully request the Planning Board's favorable review of the Project.

Sincere

Neisen O. Kasdin

Exhibit 1

Proposed Operational Plan 5333 Collins Avenue

The valet operator will staff the valet stand 24 hours a day with an adequate number of valet attendants so that queues do not extend onto public right-of-way. The ground floor retail will be open from 9:00 AM to 9:00 PM daily. 24 hour security will be provided at the property.

The Applicant has narrowed the choice of manufacturer of the mechanical parking systems to either Klaus or ParkPlus and the specifications for each system are included in <u>Exhibit A</u>. There will be a generator to operate the mechanical lifts in the case of power failure. The mechanical parking lifts are also able to be operated by hand in the event of an extended loss of power. The mechanical parking systems will be inspected and certified as safe and in good working condition by a licensed mechanical engineer at least once a year and a written report certifying the same shall be provided to the Planning Director and Building Official. Regarding emergency procedures, each mechanical lift is equipped with a security key on the push button board so authorized personnel only can operate the equipment, an emergency stop button on top of the push button board and mechanical locking stopper devices on the platform to ensure the platform stops within the same 1-inch level every time.

Deliveries and trash pick-up times will be restricted to the hours of 8:00 AM to 5:00 PM on weekdays and no earlier than 10:00 AM on weekends. Trash will be collected in the trash room located in the parking structure.

Exhibit A



www.parkplusinc.com

DRAWING NOT TO SCALE





G61 Befestigungspunkte



REVISIONS BY				
[CVL/DVJ]	PARKING SYSTEMS ATLANTIC, INC.	Miami, FL 33178 Phone: (305) 807-0064 Fax: (305) 418-8291	E-mail: klausflorida@comcast.net www.klausparking.com	
Date				
Scale				
Drawn				
Job				
Sheet				
Of			Sheets	

SECTION 14452 MECHANICAL PARKING EQUIPMENT

Part 1 – General

1.01 WORK INCLUDED

- A. Provide mechanical car stackers at locations shown on contract drawings.
- B. This section specifies equipment to be furnished and installed that will provide non-automatic vertically stacked automobile parking. The Mechanical Parking Equipment (MPE) subcontractor shall provide multiple two-level, two post automobile parking machines in the locations shown on the Contract drawings. The MPE Subcontractor shall provide electro-hydraulic power units and control systems. The MEP Subcontractor shall provide all necessary electrical piping and wiring (beyond power supply to power units at locations shown on contract electrical drawings as being provided by electrical subcontractor) and provide all hydraulic piping and hydraulic fluid for proper installation of the equipment.
- C. Stacked Parking System operation must be in accordance with manufacturer's requirements and must be operated by trained attendants. Self-parking is not permitted.
- D. Related Work Specified Elsewhere:
 - 1. Section 0330 Cast-in-Place Concrete
 - 2. Division 15 Plumbing
 - 3. Division 16 Electrical

1.02 RELATED WORK

- A. Requirements for electrical equipment installation.
- B. Related Work by Others:
 - 1. 3 Phase 208 volts and 30 amp Fused disconnects on wall at locations indicated on electrical drawings.

1.03 CODES AND PERMITS

- A. Work shall be in accordance with Local Building Codes, National Electric Code and electrical parts are listed and labeled by UL.
- B. Pump motors and control panels shall be UL listed for wet locations. Alternatively UL listed motors may be housed in US listed for wet location enclosures.

1.04 SUBMITTALS

- A. Product Data. Submit manufacturer's product specifications, standard details, lifting capacities power requirements, installation instructions and general recommendations for stacked parking system installation.
- B. Shop Drawings: Submit shop drawings clearly detailing layout of stacked parking system bays showing actual clearances and dimensions. Show required piping, and wiring connections and conduit runs for wiring. Coordinate with architect's drawings with details.
- C. Operating and Maintenance documents/manuals for stacked parking system lifts, including operation and maintenance instructions, parts listing with sources indicated, recommended parts inventory listing, emergency instructions, and similar information. Include all diagnostic and

repair information available to manufacturer and installer's maintenance personnel. Submit for Owner's information at project closeout as specified in the Contract Documents.

- D. Schedule: Contractor shall submit schedule of fabrication, delivery, installation, and testing within 30 days after award of contract. Update schedules at 30-day intervals.
- E. Samples: Submit samples if required to be selected by Contracting Officer within 30 days after approval of the contract. Approval/selections will be returned to Contractor within 30 days of submittal.
- F. Operating Documentation: Prior to the initiation of the field testing and training, the Contractor shall deliver operations manuals and maintenance manuals: minimum of eight (8) copies of each.
- G. Record Drawings: Provide the Contracting Officer with a reproducible set of drawings and a CAD file in AutoCAD format showing any modifications for clarifications not present on original Contract Drawings including electrical circuitry and service schematics.

QUALITY ASSURANCE

- A. Minimum qualifications:
 - 1. Manufacturer Qualifications:

A minimum of TEN (10) years experience manufacturing with model proposed for installation on this project.

Installer Qualifications: shall have a minimum of FIVE (5) years experience installing and maintaining car stackers in Florida.

- B. Allow Contracting Officer free access to the facility at any time to observe the installation process.
- C. Comply with the following
 - 1. City of Miami Beach Parking Lift Ordinance.
- D. Provide 7 days notice to the Contracting Officer to review completed installation prior to acceptance testing.
- E. Provide equipment incorporating features which minimize maintenance and meet the following requirements:
 - 1. Provide for ease of performance verification and failure detection while minimizing effort required for adjustment.
 - 2. Provide unobstructed access to equipment components.
 - 3. Minimize requirements for special tools and test equipment.
 - 4. Provide for easy removal and replacement of components.
- F. Provide a system and components, which have a minimum service life of 25 years and specify periodic maintenance requirements in the maintenance manual to meet that life expectancy. Minimum life based upon minimum twenty five (25) lift cycles per day.
- G. If the Contractor elects to integrate components from different manufacturers, the Contractor shall be responsible for insuring that all specified features are provided and full operating when system is turned over to Contracting Officer for testing and acceptance.

1.05 PROJECT CONDITIONS

- A. Do not deliver stacked parking system equipment until building is enclosed.,other construction within spaces where equipment will be installed is substantially complete, and installation of equipment is ready to take place.
- B. Protect equipment from damage during delivery, handling, storage, and installation.
- C. Store equipment from damage during delivery, handling storage, and installation.
- D. Equipment Storage:
 - 1. On site storage of lifts and accessories will not be permitted without written approval of the Owner. Lifts and accessories delivered to the site and not immediately installed shall be protected from the weather. Provide a well venetiated, waterproof covering over the equipment.

1.06 TIME OF COMPLETION

A. Contractor shall coordinate the time required by the parking lift representative for installation and testing of equipment so that parking lift representative may begin operation of equipment at time parking facility is opened for use.

1.07 WARRANTY

- A. General: Contractor shall warrant equipment and installation (100% parts and labor) in each phase for period of 1 year from date of final acceptance and shall provide extension warranty for twenty four (24) additional years. Contractor shall warrant structural frame including lift platform for period of twenty five (25) years from date official acceptance of that phase by Contracting Officer. Contractor shall repair or replace, at his expense, including parts and labor, any component that fails due to defect or normal wear and tear during this warrant period. Contractor is not responsible for repair caused by vehicle damage, vandalism, fire or flood. The system shall be maintained and serviced under contract against any and all malfunctions due to manufacturing or installation defects during warranty period. Maintenance shall include preventive maintenance per manufacturer's recommendations, or as necessary to keep equipment in good working order. Lift contractor shall be responsible for performing all maintenance and repair during the warranty period, including all preventive maintenance and repair task. Lift Contractor shall keep a log of all maintenance, preventive maintenance and repair work performed under warranty to be given to contracting officer at the end of the warranty period.
- B. Lift contractor shall provide two preventative maintenance and safety inspections concurrently with the warrant period. These inspections shall include checking for proper cooperation of the lifts, checking all safety devices, lubricating any components requiring lubrication and making any necessary repairs or adjustments. Also inspect hydraulic pump units.
- C. Warranty Period: Warranty period shall begin after lift contractor has demonstrated satisfactory performance of car stackers without breakdowns or repair for 10 days of operation use.
- D. Initial Maintenance Service: Beginning at Final Completion, provide 12 months full maintenance service by skilled, competent contractor of the car stacker installer. Include semi-annually preventive maintenance repair or replacement of worn or defective components, lubrications, cleaning, and adjusting as required for proper operation and capacity. Use parts and supplies as used in the manufacturer and installation of original equipment.

E. Continuing Maintenance Service: Provide a continuing maintenance proposal from installer to Owner, in the form of a standard yearly (or other period) maintenance agreement, starting on date initial maintenance service is concluded. State services, obligations, conditions, and terms for warranty period and for future renewal options.

2.1 MANUFACTURER

A. In order to establish design intent the manufacturer named has been approved for use as minimum standards; manufacturers that may be substituted where products proposed are in compliance with the requirements and equal to or better than the approved product.

Klaus Parking Equipment or Wohr Parking Equipment

2.2 PARKING LIFT UNIT (CAR STACKER):

- A. Basic Equipment Design: Provide non-automatic "car stacker" parking equipment that provides additional "dependent" parking spaces by lifting one car on a platform vertically so that a second car can park underneath the first. In order to retrieve a car from the lifted platform that car that is parked beneath that platform must be moved.
- B. Lift shall meet or exceed the features of Klaus Model G61 car stacker.
- C. Shall be commercial duty, designed to meet international building code requirements for wind loadings, meet the specification as applicable, of City of Miami Beach.
- D. Shall be designed for installation in exterior locations which could be subject to rain, snow, wind and salt air.
- E. Shall be galvanized steel. Components that are not galvanized may be painted with a high quality powder-coat finish. Lifts whose steel components are not either galvanized steel or painted with a high quality powder coat finish are not acceptable.
- F. Have a minimum rated lift capacity of 4,400 pounds. The platform shall be designed to safely lift and hold up to 6,600 pounds.
- G. Utilize a hydraulic lift mechanism with a shared power supply. Lift mechanism may not use cables as part of the lift mechanism. Lifting mechanism shall utilize one or more hydraulic cylinders which are directly attached to the lifting platform. The lifting mechanism shall be designed to safety lift at least 6,600 pounds.
- H. Safety Device: Each unit shall have redundant mechanical locking mechanism to prevent lowering of the upper vehicle due to loss of power or loss of hydraulic fluid. Provide a redundant mechanical or electromechanical safety device that shall mechanically lock the platform in the raised position. This device shall prevent any un-commended downward movement of the lift in the event of partial or complete hydraulic system failure. The safety device shall automatically engage as the lift nears the top of its upward travel, and shall disengage only when an operator specifically signals for downward travel.
- I. Hydraulic fluid shall be non-flammable and bio-degradable.
- **J.** Platform must be at least 8 feet 0 inches wide and 16 feet 0 inches long and fully sealed to prevent dripping on car below. Lift car by solid, antiskid lifting platform mechanism under

vehicles tires. Lifting platform shall be solid and continuously load bearing without gaps or holes in the platform. The platform shall be designed to catch any rain, melting snow, or other fluids dripping off a car on the platform so that these fluids do not drip on the car below. Minimum platform support length = 16 feet. Minimum usable platform width = 8 feet 0 inches. Designs which lift vehicles by their frame in lieu of under their tires are unacceptable. **NO BOLT ON DRIP PANS ALLOWED.**

- K. Level Platform: Provide design that will ensure that the platform stays level from side to side and front to back during the entire lifting travel.
- L. Car stacker shall have wheel stop mechanism to alert valet before driving too far onto lift mechanism
- M. The machine shall be a two-leg design with the legs located toward the rear of the machine allowing easy egress from a car parked on or below that platform. <u>A four post configuration is not acceptable.</u>
- N. Legs. Provide substantial steel legs that support and guide the platform as it is being lifted. Legs shall be made of galvanized steel. Legs shall have suitable bases for mounting on the floors and shall be securely bolted to the floor. Heavy duty-guides shall be nylon or roller and shall not require external grease or oil lubrication that might provide a problem by rubbing off on users or falling on to the floor or platform.
- O. Units shall have an overall width of 9 feet maximum.
- P. Units shall have a minimum drive through width of 7 feet 6 inches.
- Q. Be constructed in multi-units of at lest four stackers where the parking layout will allow such construction.
- R. Be capable of operating with a minimum vertical clearance of 10'-6".
- S. Be capable of increasing stored height of upper platform in areas with additional vertical clearance. Units shall be capable of providing lifted platform storage heights at 60" to 84" above grade.
- T. Lifting Chains shall be designed with a factor of safety of at least eight.
- U. Chain Pulleys and Sprockets. Chain pulleys or sprockets shall be steel and have heavy-duty bushings or bearings with provisions for grease-gun lubrication.
- V. Pivot points shall utilize heavy duty bushings or bearing with provisions for lubrication, if required, during the service life of the bushing or bearing.

2.3 POWER UNIT

- A. Provide a heavy-duty hydraulic power unit. The power unit shall contain a heavy-duty electric motor, a hydraulic pump, a pressure gauge, an adjustable automatic pressure relief valve, a steel hydraulic fluid reservoir, and a return fitting. The pump shall be contained inside the reservoir to reduce noise. The units shall be wall mounted with a rubber bonded-to-metal mounting. Utilize 5.0 to 7.5 horsepower, 208 Volt, three phase motors. The unit shall be touch-safe: no gears, pulleys, belts or fans shall be accessible when covers are in place.
- B. UL approved for Wet Location installation.
- C. Shall be capable of running a minimum of 10 car stackers.

D. Shall be capable of lifting and lowering a vehicle in less than 30 seconds.

2.4 CONTROL SYSTEM:

- A. Provide an electrical control system in a wall-mounted NEMA 12 cabinet. The system shall include a motor starter, motor overload, transformer, and clearly marked terminal blocks for all field connections. The system shall provide control signals for the safety-devices and operators stations. The system shall be UL listed as an "Industrial Control Panel". Provide a clear electrical and hydraulic schematic in a pocket on the door of the control enclosure.
- B. Hydraulic Piping or Tubing: Provide suitable hydraulic piping, tubing, or hose from the power unit to each machine. Piping, tubing or hose must be rated for the maximum operating and relief pressure of the system. Install the piping in a manner that eliminates, as much as practical, the possibility of damage from persons, automobiles, or other normal operations of the garage.
- C. Controls for Individuals Car Stacker shall be located at the drive aisles end of the stacker and be located such that attendant does not have to go between moving platforms to activate the lift. Key switch type is required, No push button allowed.
- D. Operator's Station. Provide an electrically operated control station on an arm or pedestal or mounted on a building column. Mount the operator control station in a location that shall allow complete unobstructed view of the machine during operation. The operator's station shall contain an up/down key-switch and an emergency stop switch with a red mushroom head. Provide key-switches that are identically keyed. The intent of the key is to prevent unauthorized operation during hours when the stackers are not in use.
- E. Provide engraved or laminated operating instructions adjacent to each operator's station. Provide clear numbering or identification of the machines and operator's station so that there can be no confusion as to what station operators which machine.
- F. Electrical Piping and Wiring. Providing suitable electrical piping and wiring for the car stackers. Wiring to the machines and to the operator's stations shall be enclosed in conduit. Install the wiring in a manner that eliminates, as much as practical, the possibility of damage from persons, automobiles, or other normal operations of the garage.

2.5 ANCHOR BOLTS OR BASE PLATES:

- A. Comply with car stackers manufacturer's instructions and recommendations. Install lifts on a concrete pad or level slab and anchored securely with sufficient anchorages to withstand load stresses.
- B Anchor bolts shall be zinc coated or stainless steel for outdoor use.

PART 3 – EXECUTION

3.1 PROJECT COORDINATION

A. General: Meet with Contracting Officer, and General Contractor within 30 days of contract Award to confirm all details of car stacker installation. Schedule, as related to work done Under General Contract must be achieved with adequate time for hookup, testing, and trial Period as specified herein. B. Submittals: Provide those responsible for related work with:

3.2 INSPECTION OF WORK BY OTHERS

A. Upon written notice from car stacker representative that the entire work or an agreed portion There is complete, Contracting Officer and/or its representative(s) and car stacker Representatives shall make the final inspection of Work. The Contracting Officer and/or Contracting Officer's representative will then notify the car stacker representative in writing of all particulars in which the Work has been found incomplete or defective. The car stacker representative shall immediately take such measures as are necessary to remedy such deficiencies.

3.3 INSTALLATION OF CAR STACKERS

- a. Install Car Stacker in accordance with manufacturer's recommendations and approved Shop Drawing.
- b. Inspect the jobsite before delivery of the equipment. Advice the Contracting Officer of any deficiencies in the work required prior to the installation. Perform the installation with trained personnel. Advise the Contracting Officer two days prior to completion. Inspect the equipment with the Contracting Officer and receive his approval prior to putting the car stacker into service. Provide a minimum of two hours training to the Contracting officer's representative at the time of commissioning.
- c. Installation and Start-up: Car Stacker Representative shall be responsible for installation of all control and communication wiring and Contractor supplied equipment and its interfacing and interconnection with Contracting Officer supplied equipment. The car stacker representative shall authorize and accept responsibility for application of power to the equipment and initiation of operation, by responsible for running all initial diagnostic and system generation programs necessary to provide complete working system.
- 3.4 Training Provide minimum four hours training for Operators personnel, up to eight staff members. Training shall include proper operation of equipment and performance of any routine or preventative maintenance.

00130/jc/part 1.doc



<17'9" (for vehicle up to 17'1" long)>



Туре	H	DH	Suitable for	Maximum vehicle dimensions
G 61-160	10'6"	5'3"	upper: standard passenger cars & station wagons, max. veh. height 4'11" lower: standard passenger cars & station wagons, max. veh. height 4'11"	Length 16'5" <17'1"> Height see "Suitable for"
G 61-170	10'10"	5'7"	upper: standard passenger cars & station wagons, max. veh. height 4'11" lower: standard passenger cars & station wagons, max. veh. height 5'3"	Width 6'3" Weight 2,000 kg
G 61-180	11'2"	5'11"	upper: standard passenger cars & station wagons, max. veh. height 4'11" lower: standard passenger cars & station wagons, max. veh. height 5'8"	Wheel load 500 kg
G 61-190	11'6"	6'3"	upper: standard passenger cars & station wagons, max. veh. height 4'11" lower: standard passenger cars & station wagons, max. veh. height 5'12"	
G 61-200	11'10"	6'7"	upper: standard passenger cars & station wagons, max. veh. height 4'11" lower: standard passenger cars & station wagons, max. veh. height 6'3"	
G 61-210	12'2"	6'11"	upper: standard passenger cars & station wagons, max. veh. height 4'11" lower: standard passenger cars & station wagons, max. veh. height 6'7"	

If dimension height "H" is increased by customer, correspondingly higher vehicles may be parked on the upper platform(s).

Widths - Basement Garage

Series G 61 (Horizontal)

All space requirements are minimum finished dimensions in cm

	Single Platform (EB)	Twin Unit (2 x EB)	Triple Unit (3 x EB)		
Dividing Walls	EB B1	EB EB	EB EB EB B1 B1 Carriageway in accordance with local regulations		
Internal Columns	EB EB B2 B3 min. 8"	EB EB EB EB B2 B3 min. 8"	EB EB EB EB EB EB B2 B3 min. 8" Carriageway in accordance with local regulations		
External Columns	EB EB B4 B5 min. 8"	EB EB EB EB B4 B5 min. 8"	EB EB EB EB EB B4 B5 min.8" Carriageway in accordance with local regulations		

	Usable Platform Width	Dividing Walls	Internal Columns		External Columns	
		B1	B ₂	B₃	B 4	B₅
EB	7'7"	8'7"	8'5"	8'3"	8'3"	7'11"
	7'11"	8'11"	8'9"	8'7"	8'7"	8'3"
	8'3"	9'3"	9'1"	8'11"	8'11"	8'7"
2 x EB	7'7"	17'1"	16'11"	16'9"	16'9"	16'6"
	7'11"	17'9"	17'7"	17'5"	17'5"	17'1"
	8'3"	18'5"	18'3"	18'1"	18'1"	17'9"
3 x EB	7'7"	25'8"	25'6"	25'4"	25'4"	24'12"
	7'11"	26'7"	26'5"	26'3"	26'3"	25'12"
	8'3"	27'7"	27'5"	27'3"	27'3"	26'11"

Standard width = parking space width 7'7"

PLEASE NOTE:

- End parking spaces are generally more difficult to drive into. Therefore we recommend for end parking spaces our wider platforms.
- Parking on standard width platforms with larger vehicles may make getting into and out of the vehicle difficult. This depends on type of vehicle, approach and above all on the individual driver's skill.

Widths - Garage with door in front of the car parking system

Series G 61 (Horizontal)

All space requirements are minimum finished dimensions in inch



	Usable Platform Width	DF	L	S
	7'7"	7'10"	5"	10"
EB	7'11"	8'3"	5"	10"
	8'3"	8'3"	6"	12"
2 x EB	7'7"	15'7"	9"	1'6"
	7'11"	16'6"	8"	1'4"
	8'3"	17'1"	8"	1'4"

DF = door entrance width

Door dimensions require coordination with door supplier.





Units are bolted to the floor. Drilling depth approx. 6".

Installation Data

Garage ventilation, drainage, heating, electrical wiring



Electrical Data

Generally to be effected by customer:

- electrical wiring 5 x 2.5 mm² per unit
- delayed-action mains fuse 3 x 16 A per unit
- "EMERGENCY-OFF"/main power supply switch, lockable, per unit

Electrical wiring:

Electrical wiring is carried out by the customer or by the local agency of Klaus in accordance with our circuit diagram/s. (Please see the respective quotation at hand)

Cable conduits and recesses for operating element

dimensions in inch

Series G 61 (Horizontal)



Technical Data as of issue 06/98:

We reserve the right to change this specification without further notice.

Stamp

Units

Low-noise power units mounted to rubber-bonded-to-metal mountings are installed. Nevertheless we recommend to build the parking system's garage separately from the dwelling house.

Safety railings

Any safety railings which become necessary due to the installation of the system at access points, walkways, traffic lanes etc. will have to be provided/paid for by customer.

The following documents can be supplied upon request: wall recess plans

test sheet on airborne and solid-borne sound



Service Overview

- <u>Preventive Maintenance</u>:
 - Lubricate Chain
 - Lubricate Locking Mechanism
 - Remove contaminated grease on vertical rails
 - Apply new grease on vertical rails
 - Spray conditioner on lift hydraulic hoses
 - Spray conditioner on hydraulic pump hoses
 - Clean lift platform

Inspection of main components:

- Inspect chain for stretch or abnormalities
- o Inspect and adjusted locking mechanism for proper operation
- Inspect locking mechanism for damage or excessive wear
- Inspect hydraulic hoses for cracks or excessive wear
- Inspect hydraulic lines for leaks, damage, and rust
- o Inspect hydraulic fittings for leaks, damage, and rust
- Inspect hydraulic pump for leaks and proper function
- Inspect telescoping pistons for leaks or damage
- Inspect protective piston cover
- Inspect electrical platines and rail boxes for damage
- Inspect electrical conduit for damage and/or rust
- Inspect key switch for damage and proper function
- Inspect horizontal side rails for damage
- Inspect orange end protector for damage
- Inspect structural concrete anchors
- Inspect structural hardware



Project Name Owner's Name Owner's Address City, State Zip Code

WARRANTY- QTY (00) G61 Vehicle Lifts & (00) Power Pack

Seller warrants its equipment and all of the parts or components thereof to be free from defects in materials and workmanship for a period of twenty-five (25) years while FULL annual service is provided by KLAUS. The first year of annual service is provided by KLAUS Parking Systems Atlantic, Inc., free of cost during time period through **End Date**.

During the 25 years of this Warranty Period Seller's Warranty includes the replacement cost of parts or components and the expense of labor, and all other expenses required for such replacement pursuant to the terms and conditions set forth herein and in the Agreement between the parties and in the Schedules annexed hereto. Annual service provided by KLAUS Parking Systems Atlantic, Inc. keeps this warranty in effect. If service is discontinued with KLAUS Parking Systems Atlantic, Inc. then warranty is null and void.

Notwithstanding the foregoing, no liability or responsibility whatsoever shall be attached to Seller under this Warranty until the equipment, in its entirety, is installed at the Location of Installation and is paid for in accordance with the Agreement. No extension as to the period or periods of Warranty or terms of the within Warranty will be effective and binding upon Seller unless said Extension is made in writing by Seller and duly executed by an Officer of Seller or by an authorized Agent of Seller.

THIS WARRANTY IS EXPRESSLY MADE BY SELLER AND ACCEPTED BY THE PURCHASER IN LIEU OF ALL OTHER WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, WHETHER WRITTEN, ORAL, EXPRESSED, IMPLIED OR STATUTORY.

Klaus Parking Systems Atlantic, Inc. Bruce E. Roden, Sr. Mechanical Engineer, President

Toll Free Service: 1-844-552-8775

TRAINING CHECKLIST FOR PARKLIFT SYSTEM OPERATOR

1. System Familiarization for System Operator:

a) Review function of motor, tank, pump, hydraulic lines/fluid, cylinders, solenoids, key switch, red emergency button.

b) Review emergency lowering procedure.

2. System Maintenance for System Operator:

a) Review specific servicing requirements for model of lift installed.

b) Review troubleshooting guide.

c) Review warranty. Warranty void if system not serviced properly.

d) Review Klaus service policy.

3. System Management for System Operators:

a) Always assign spaces to users.

b) Train individual Users with Training Checklist for Individual Parklift System Users.

c) Always assist a User on the first drive-in. Ride the platform to verify that there is at least 2 inches clearance at all locations, e.g. ceiling, front of car, rear of car.

177

d) Adjust wheel stop to fit car.

e) Keep platforms clean. Platforms will be damaged if lowered onto debris.

f) Have User sign liability release.

g) Advise Users of any conflicts with HVAC ducts, etc.

4. Basic System Cautions:

a) Keep people, especially children, away from Parklift gears, movable parts.

b) Do not use platforms for storage.

c) Do not use lifts as a hoist for car repairs.

d) Do not let untrained persons use the systems.

e) Be alert for oil leaks, unusual noises and/or lift malfunction.

f) Maximum weight is 4,400 pounds per car.

Above items above reviewed with System Operator/Owner on ______.

Klaus Representative:_____.

Owner/Operator Representative:______.

TRAINING CHECKLIST FOR INDIVIDUAL PARKLIFT SYSTEM USERS

1. The undersigned Parklift User acknowledges that he/she has been trained in the use of the Parklift system and is aware of the following items:

a) All Parklifts use must be in accordance with the factory Operating Instructions.

b) Maximum vehicle weight is 4,400 pounds; maximum wheel load is 1,100 pounds.

c) Use only the assigned parking space. Review allowable auto dimensions and particular conflicts for individual spaces.

d) <u>To operate platform</u>: Observe surroundings. Keep all persons well back from the lift. If all clear, step back, watch feet and insert key into key switch, turn and hold key to bring platform into proper position for parking.

e) <u>Parking</u>: Before driving onto the platform, verify that the platform is at the proper height. Platforms sometimes lower slightly over time. If platform is not at proper height, do not use lift and notify System Operator. Unload baggage, groceries, children, and pets prior to driving on to platform. Watch for antennas, racks on top of cars, etc. Drive forward to wheel stop and set brake. Walk out and watch for limited headroom.

f) <u>Driving out:</u> Drive out slowly, watch for obstructions or people.

g) Advise User who to call for problems.

2. Basic System Cautions:

a) Keep people, especially children, away from Parklift gears, movable parts.

b) Do not use platforms for storage.

c) Do not use lifts as a hoist for car repairs.

d) Do not let a stranger or guest use a parking stall

e) Be alert for oil leaks, unusual noises and/or lift malfunction.

f) Be aware of varying heights of lifts and conflicts at individual lifts.

g) Maximum weight is 4,400 pounds per car.

3. Liability Release:

I hereby confirm that I have been fully instructed and understand the Operating Instructions and the above checklist for the safe operation of the Klaus Parklift.

<u>I agree to indemnify and hold harmless the building owner and Klaus Parking Systems</u> <u>Atlantic, Inc. from any and all claims, actions, suits, procedures, costs, expenses, damages and</u> <u>liabilities, including attorney's fees brought as a result of use of the Klaus Parklifts</u>.

	Apartment #		
Parklift User		Date	
Vehicle: Make	Model	Year	-



Certificate concerning the examination of conformity

Certificate no:	KP 005/1
Certification body:	TÜV SÜD Industrie Service GmbH Zertifizierungsstelle für Produkte der Fördertechnik Gottlieb-Daimler-Str. 7 70794 Filderstadt - Germany
Applicant / Certification holder:	KLAUS Multiparking GmbH Hermann-Krum-Str. 2 88319 Aitrach - Germany
Date of application:	2014-09-30
Manufacturer:	KLAUS Multiparking GmbH Hermann-Krum-Str. 2 88319 Aitrach - Germany
Product:	Equipment for power driven parking of motor vehicles
Туре:	SingleVario 2061 EB 2.000 kg SingleVario 2061 EB 2.500 kg
Test laboratory:	TÜV SÜD Industrie Service GmbH Prüflaboratorium für Produkte der Fördertechnik Prüfbereich Maschinen der Fördertechnik Gottlieb-Daimler-Str. 7 70794 Filderstadt – Germany
Date and	2014-11-20
mark of conformity:	KP 005/1
Test specifications:	- 2006 / 42 / EC, Annex I - DIN EN 14010
Validity:	This Certificate is valid until 2019-11-30
Result:	The equipment fulfills the requirements of the test specifications for the respective scope of application stated in the annex (page 1) of this certificate, keeping the mentioned conditions.
Date of issue:	2014-12-01
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Certification body for lifts and cranes

Chadi Noureddine

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Annex to the certificate concerning the examination of conformity No. KP 005/1 dated 2014-12-01, mark of conformity KP 005/1

1. Scope of application

Two parking levels, each with one parking space in (EB).Max. load carrying capacity / parking spaceEB: 2.500 kgSet value pressure control valve24,0 MPaMax. operating speed0,15 m/s

2. Conditions

- 2.1 Access is only possible from the entrance side.
 - 2.2 In case of outdoor installation the site of installation is protected against wind according to DIN EN 1991-1-4.
 - 2.3 In case of outdoor installation snow depth of more than 20 cm do not occur or this snow is cleared constantly according to DIN EN 1991-1-3.
 - 2.4 The performance data as well as the project-relevant operating instructions are adhered.
 - 2.5 Before initial commissioning an inspection by the official expert is necessary. In addition, the expert has to determine to what extent local danger areas need to be safeguarded. The following documents are required for this inspection:

Overview drawing:					
EB 2,0to / 2,5to	No. 58512910	dated	2012-07-16		
	Access to the drawings administration of t program EtPro				
Load diagram:	No. 58660520-001	dated	2014-10-28		
Hydraulic circuit diagram:	No. 58511940	dated	2008-05-15		
Electric circuit diagram:	No. 58503340 No. 58551840	dated dated	2009-11-24 2009-11-24		
Short operating instructions:	SingleVario 2061				

3. Remarks

- 3.1 A sign with particulars for identification of the safety component, containing the name of the manufacturer, the sign of the EC type-examination and the type specification must be attached at the product.
- 3.2 The certificate concerning the examination of conformity may be used only in connection with the pertinent Annex.



Office of Technical Programs and Coordination Activities / Nationally Recognized Testing Laboratory Program

Nationally Recognized Testing Laboratory Program

Welcome to the Nationally Recognized Testing Laboratory (NRTL) Program. Workplace product safety is a critical component of workplace safety and both the construction and general industry OSHA electrical standards contain requirements for certain products to be tested and certified by an NRTL. NRTLs are private sector organizations that are recognized by OSHA to perform this certification. Each NRTL has a scope of test standards that they are recognized for, and each NRTL uses its own unique registered certification mark(s) to designate product conformance to the applicable product safety test standards. After certifying a product, the NRTL authorizes the manufacturer to apply a registered certification mark to the product. If the certification is done under the NRTL program, this mark signifies that the NRTL tested and certified the product, and that the product complies with the requirements of one or more appropriate product safety test standards. Users of the product can generally rely on the mark as evidence that the product complies with the applicable OSHA approval requirement(s) and is safe for use in the workplace.

Program Resources

- Nationally Recognized Testing Laboratory Program Improvement Project
- Frequently Asked Questions (FAQs)
- Information on Submitting an Application
- NRTL Program Regulations
- NRTL Program Policies, Procedures, and Guidelines (NRTL Directive CPL 01-00-003 CPL 1-0.3) (PDF)
- Fee Payment Instructions and Information (PDF)
- Current List of Appropriate Test Standards Under the NRTL Program
- Current List of Removed Test Standards
- Type of Products Requiring NRTL Approval
- Specific References to OSHA Standards Requiring NRTL Approval
- Typical Registered Certification Marks
- Organizations or Sites No Longer Recognized

Organizations Currently Recognized by OSHA as NRTLs

The pages below include information about the NRTL (such as the list of standards, sites, and programs that OSHA has recognized for the NRTL).

- Canadian Standards Association (CSA)
- Curtis-Straus LLC (CSL)
- FM Approvals LLC (FM)
- Intertek Testing Services NA, Inc. (ITSNA)
- MET Laboratories, Inc. (MET)
- Nemko-CCL (CCL)
- NSF International (NSF)
- QPS Evaluation Services Inc. (QPS)
- SGS North America, Inc. (SGS)
- Southwest Research Institute (SWRI)
- TUV Rheinland of North America, Inc. (TUV)
- TUV Rheinland PTL, LLC (TUVPTL)
- TÜV SÜD America, Inc. (TUVAM)
- TÜV SÜD Product Services GmbH (TUVPSG)
- Underwriters Laboratories Inc. (UL)

*Accessibility Assistance: Contact OSHA's Directorate of Technical Support and Emergency Management at (202) 693-2300 for assistance accessing PDF materials.

Nationally Recognized Testing Laboratories (NRTLs)

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