I claim:

1. A high flow low pressure suction device comprising:

    - a base plate, wherein the interior surface of the base plate comprises subdivided flow sections physically created therein (physical zones);

    - sucking fan(s) or rotating impeller(s) attached with the base plate facing towards vacuum chamber;

    - wherein the sucking fan(s) sucks air or fluid or slurries into the device and into the base plate from the periphery of the base plate, where the interior geometrical design by way of subdivided flow sections of the base plate controls flow speed of air or fluid or slurries; and

    - wherein the suction device does not need to contact the sucked surface.

2. The suction device as claimed in claim 1, wherein the base plate comprises multiple subdivided flow sections selected from acceleration zone, turbulence zone and smooth zone.

3. The suction device as claimed in claim 2, wherein the multiple subdivided flow sections present at the interior surface of the base plate comprises one turbulence zone and one smooth zone.

4. The suction device as claimed in claim 2, wherein the multiple subdivided flow sections present at the interior surface of the base plate comprises one acceleration zone, one turbulence zone and one smooth zone.

5. The suction device as claimed in claim 2, wherein the multiple subdivided flow sections present at the interior surface of the base plate comprises two acceleration zones, one turbulence zone and one smooth zone.

6. The suction device as claimed in claim 2, wherein the smooth zone of the device comprises a flow diverter.

7. The suction device as claimed in claim 6, wherein the flow diverter need not touch the surface to be sucked.

8. The suction device as claimed in claim 1, wherein the vacuum chamber is uniquely designed to operate without any seal between the chamber and the surface.

9. The suction device as claimed in claim 2, wherein the acceleration zone when present, forms the outer perimeter of the suction device, which helps to increase the velocity of the incoming air or fluid or slurries and also may induce some turbulence into the air or fluid or slurries and finally feeds the high speed or fast-moving air or fluid or slurries to turbulence zone.

10. The suction device as claimed in claim 2, wherein the turbulence zone induce turbulence in the fast-moving air or fluid or slurries from the acceleration zone or from periphery of the device when acceleration zone is absent which causes a decrease in fluid energy which decreases the fluid pressure and maximise turbulence and boundary layer separation.

11. The suction device as claimed in claim 2, wherein the subdivided flow sections in particular the turbulence zone present at the interior surface of the base plate has multiple undulations and can be of geometrical design selected from:

    (a) semi-toroid followed by a back-step or axisymmetric undulations;
    (b) non-axisymmetric undulations comprising a number of protrusions;
    (c) non-axisymmetric undulations comprising wavy geometry;
    (d) bristle structures; and
    (e) flexible structures.

12. The suction device as claimed in claim 11, wherein the turbulence zone may vary in design or shape with multiple undulations or uneven notchy surface to induce turbulence which creates turbulence in a thin space located close to the perimeter of the device.

13. The suction device as claimed in claim 2, wherein the surface structure of the smooth zone has a special geometry that minimizes the change of the area of cross-section for the flowing air or fluid or slurries at design height wherein change in height will compromise this condition but velocity changes should remain less than 40%.

14. The suction device as claimed in claim 13, wherein the ideal shape of the smooth zone is an axis-symmetric shape with design height of device from sucked surface is inversely proportional to the radial distance from the centre for a given finite design height.

15. The suction device as claimed in claim 13, wherein the constant cross section condition throughout the flow path at design height is fulfilled by the flow diverter present in the smooth zone.

16. The suction device as claimed in claim 1, wherein the device works by pulling the air or fluid or slurries into the vacuum chamber, accelerating the air or fluid or slurries, creating turbulence in the air or fluid or slurries in order to cause a drop in pressure, maintaining pressure over a large bottom area and finally exhausting the air or fluid or slurries through the fan(s) or rotating impeller(s).

17. The suction device as claimed in claim 1, wherein the basic overall geometrical structure of the suction device may be circular or polygonal or free-form shape.

18. The suction device as claimed in claim 1, wherein the device can be used as a suction apparatus or can be used in a suction apparatus which can work with fluids and slurries including gasses (e.g. air), liquids (e.g. water), or combination thereof, and gas or liquid having solids and particulates dispersed through.

19. The device or apparatus as claimed in claim 1, wherein the sucking fan(s) or impeller(s) can be radial fan or axial fan or combinations of both, wherein the driveshaft of the fan(s) or impeller(s) can be powered directly or indirectly by connecting belts from the driving source, optionally the shaft provided with gears to allow rotation in reverse direction or to allow control fan(s) or impeller(s) speed.

20. The device or apparatus as claimed in claim 18, wherein the sucking fan(s) or impeller(s) can be radial fan or axial fan or combinations of both, wherein the driveshaft of the fan(s) or impeller(s) can be powered directly or indirectly by connecting belts from the driving source, optionally the shaft provided with gears to allow rotation in reverse direction or to allow control fan(s) or impeller(s) speed.

21. The device or apparatus as claimed in claim 19, wherein the power source can be AC or DC electric motors, gas or fuel combustion motors, steam power, compressed gas or air, flywheel or a mechanical winder device or other water, wind or magnetic arrangements.

22. The device or apparatus as claimed in claim 20, wherein the power source can be AC or DC electric motors, gas or fuel combustion motors, steam power, compressed gas or air, flywheel or a mechanical winder device or other water, wind or magnetic arrangements.

23. A high flow low pressure suction device, wherein

- sucking fan(s) or rotating impeller(s) attached with a base plate, facing towards a vacuum chamber formed interior of the base plate sucks air or fluid or slurries from the environment through the perimeter of the device, where the interior geometrical design of the base plate by way of three subdivided flow sections comprises acceleration zone, turbulence zone and smooth zone;

    - wherein the air or fluid or slurries from the perimeter of the device enters straight into the acceleration zone where the air or fluid or slurries is accelerated and then goes to the turbulence zone wherein the air or fluid or slurries experiences a sharp drop in pressure owning to the huge amount of energy loss due to turbulence created in zone and then after the air or fluid or slurries continues into the smooth zone wherein by the help of a flow diverter present at the center of the smooth zone which need not touch the sucked surface, diverts and controls flow and enables a constant cross section condition throughout the flow path faced by the air or fluid or slurries and wherein the smooth zone maintains the pressure over a large bottom area surface structure and finally the flow is sucked by the fan(s) and exhausted back into the surroundings (or the sump); thereby the device creates suction and sucks the surface;

    - wherein the suction device does not need to contact the sucked surface.

24. A high flow low pressure suction device, wherein

- sucking fan(s) or rotating impeller(s) attached with a base plate, facing towards a vacuum chamber formed interior of the base plate sucks air or fluid or slurries from the environment through the perimeter of the device, where the interior geometrical

design of the base plate by way of two subdivided flow sections comprises turbulence zone and smooth zone;

- wherein the air or fluid or slurries from the perimeter of the device enters directly into the turbulence zone which accelerates and creates turbulence to the air or fluid or slurries and experiences a sharp drop in pressure owning to the huge amount of energy loss due to turbulence created in zone and then after the air or fluid or slurries continues into the smooth zone wherein by the help of a flow diverter present at the center the smooth zone which need not touch the sucked surface, diverts and controls the flow and enables a constant cross section condition throughout the flow path faced by the air or fluid or slurries and wherein the smooth zone is designed so to keep the turbulence to a minimum and maintains the pressure over a large bottom area surface structure; and finally the flow is sucked by the fan(s) and exhausted back into the surroundings (or the sump); thereby the device creates suction and sucks the surface;

- wherein the suction device does not need to contact the sucked surface.

25. A high flow low pressure suction device, wherein

- sucking fan(s) or rotating impeller(s) attached with a base plate, facing towards a vacuum chamber formed interior of the base plate sucks air or fluid or slurries from the environment through the perimeter of the device, where the interior geometrical design of the base plate by way of four subdivided flow sections comprises two acceleration zones, one turbulence zone and one smooth zone;
    - wherein the air or fluid or slurries from the perimeter of the device enters straight into the first acceleration zone where the air or fluid or slurries is accelerated and then goes to the turbulence zone wherein the air or fluid or slurries experiences a sharp drop in pressure owning to the huge amount of energy loss due to turbulence created in zone then again flows into a second acceleration zone and then after the air or fluid or slurries continues into the smooth zone, wherein by the help of a flow diverter present at the center of the smooth zone which need not touch the sucked surface, diverts and controls flow and enables a constant cross section condition throughout the flow path faced by the air or fluid or slurries and wherein the smooth zone maintains the pressure

over a large bottom area surface structure and finally the flow is sucked by the fan(s) and exhausted back into the surroundings (or the sump); thereby the device creates suction and sucks the surface;

- wherein the suction device does not need to contact the sucked surface.