CLAIMS:

1. An artificial turf system defining a playing area, the system comprising:

an artificial turf layer;

an air distribution layer beneath the turf layer, by which air can be distributed throughout the playing area, the air distribution layer being closed at edge regions defining a periphery of the playing area;

an air supply in fluid communication with the air distribution layer; and

a flow regulating layer between the air distribution layer and the turf layer, wherein the flow regulating layer is a backing layer having artificial grass fibres directly attached thereto by weaving or tufting to form the turf layer and a plurality of openings being arranged through the backing layer to allow permeation of air through the turf layer within the playing area wherein the openings in the backing layer are between 0.5 mm and 7 mm in size and are spaced from each other by less than 50 mm but more than 5 mm.

2. The system according to claim 1, wherein the air distribution layer comprises a rigid, open construction.

3. The system according to claim 1, wherein the air distribution layer comprises a plastic crate type structure.

4. The system according to claim 1, wherein the air distribution layer comprises an open, resilient layer.

5. The system according to claim 1, wherein the air distribution layer has a height of between 0.5 cm and 50 cm, preferably between 4 cm and 20 cm.

6. The system according to claim 1, wherein the flow regulating layer is a backing layer in which the artificial grass fibres are woven to form the turf layer.

7. The system according to claim 1, wherein the openings in the flow regulating layer are between 1 mm and 3 mm in size and more preferably between 1 mm and 2 mm in size.

8. The system according to claim 1, wherein the openings in the flow regulating layer are spaced from each other by less than 30 mm and more preferably by less than 20 mm.

9. The system according to claim 1, wherein the flow regulating layer is a woven layer.

10. The system according to claim 1, wherein the flow regulating layer is a non-woven into which the artificial grass fibres are tufted.

11. The system according to claim 1, wherein the air supply comprises one or more blowers and ducting to connect the one or more blowers to the air distribution layer.

12. The system according to claim 11, wherein the one or more blowers is reversible to allow air flow both through the openings to the air distribution layer and vice versa.

13. The system according to claim 11, wherein the air distribution layer is divided into a plurality of separate regions within the playing area and the ducting connects to the separate regions.

14. The system according to claim 1, wherein the air supply comprises a heating arrangement.

15. The system according to claim 1, wherein the air supply comprises a cooling arrangement.

16. The system according to claim 1, wherein the air distribution layer is closed at its edge regions by a curb.

17. A method of active cooling of a playing area in an artificial turf system according to claim 1, the method comprising:

providing an air distribution layer, by which air can be distributed throughout the playing area, the air distribution layer being closed at edge regions defining a periphery of the playing area;

providing a flow regulating layer over the air distribution layer, the flow regulating layer being provided with a plurality of openings arranged to allow passage of air and having artificial grass fibres directly attached thereto by weaving or tufting to form an artificial turf layer;

connecting an air supply in fluid communication with the air distribution layer; and

operating the air supply to cause air to flow through the air distribution layer and through the openings to cool the playing area.

18. The method of claim 17, comprising operating the air supply to cause a flow outwards through the openings at an average rate over the playing area of between 0.001 m/s and 0.5 m/s, preferably between 0.05 m/s and 0.25 m/s and more preferably between 0.01 m/s and 0.1 m/s.

19. The method of claim 17, comprising operating the air supply to cause a flow inwards through the openings at an average rate over the playing area of between 0.001 m/s and 0.5 m/s, preferably between 0.05 m/s and 0.25 m/s and more preferably between 0.01 m/s and 0.1 m/s.

20. The method of claim 17, comprising maintaining an overpressure within the air distribution layer, with respect to atmospheric pressure, of between 0.01 and 5 bar, more preferably between 0.05 and 1 bar.