

|                                              | Core University Tunnel Membership                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | Affiliate University Tunnel Membership                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
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|                                              | LEVEL 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | LEVEL 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| How to become a member:                      | <p><b><u>Invite only</u></b></p> <p>Based on the 5-year funding cycle, call outs for new facilities and EOIs for core membership are advertised and reviewed every 5 years, 12 – 18 months before its end.</p> <p>Proposals that fit the membership requirements are invited to join (aligned with membership period beginning in August).</p> <p>Current facilities are reviewed every 2 years at October AB and MB meetings to ensure that they are adhering to requirements and responsibilities.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | <p><b><u>Relegation</u></b></p> <p>Level 1 facilities are reviewed at April AB and MB meetings. If they don't reach membership requirements, they are released to Level 2 membership. Terms are the same except that Level 2 don't get NWTF funding.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| Membership requirements and responsibilities | <p><b>Essential to become part of NWTF:</b></p> <ul style="list-style-type: none"> <li>Facilities must be strategically important and/or unique.</li> <li>Institution is actively involved in the wind tunnel or CFD community.</li> <li>Researchers are open to using facilities outside of their host university.</li> <li>Facility aims to become self-sustaining from external usage fees.</li> </ul> <p><b>Essential to remaining level 1:</b></p> <ul style="list-style-type: none"> <li>Regular attendance of management board meetings.</li> <li>Share tunnel usage data quarterly.</li> <li>Actively make facilities available to external users for minimum 10% of the 'on time' each year with an aim to reach 25% external usage.</li> <li>Good uptake of EE and IE usage ( EE: external researcher with external funding; IE: internal researcher with external funding).</li> <li>New facilities will have 3 years to reach 'good uptake'.</li> <li>Host minimum of one training workshop for external researchers every 3 years.</li> <li>Offer/advertise minimum 3 days free access to early-career external researchers per year using FEC+ income.</li> <li>Actively involved with NWTF community (subgroups, workshops, conference etc.)</li> <li>Pay membership fee on time.</li> </ul> | <p><b>Essential to remain part of NWTF:</b></p> <ul style="list-style-type: none"> <li>Same as Level 1.</li> </ul> <p><b>Essential to returning to level 1: (Same as Level 1)</b></p> <ul style="list-style-type: none"> <li>Regular attendance of management board meetings.</li> <li>Share tunnel usage data quarterly.</li> <li>Actively make facilities available to external users for minimum 10% of the 'on time' each year with an aim to reach 25% external usage.</li> <li>Host minimum of one training workshop for external researchers every 3 years.</li> <li>Offer/advertise minimum 3 days free access to early-career external researchers per year using FEC+ income.</li> <li>Actively involved with NWTF community (subgroups, workshops etc.)</li> <li>Pay membership fee on time.</li> </ul> |



|                                                           | Core University Tunnel Membership                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Affiliate University Tunnel Membership                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
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|                                                           | LEVEL 1                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | LEVEL 2                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Not reaching membership requirements and responsibilities | <p>Core facilities that aren't reaching NWTF membership requirements and responsibilities will be released to level 2 for one year to allow opportunity to improve. If not improved, facility will be relegated to level 2 permanently or released.</p> <p>Facilities will be reviewed and graded by the Advisory board based on:</p> <ul style="list-style-type: none"><li>Usage statistics (especially external usage)</li><li>Meeting attendance (MB &amp; Subgroups)</li><li>Number of workshops hosted</li><li>Free access for early-career researchers</li><li>Membership fee payment on time</li></ul>                                                                                           | <p><b>Relegation of level 1:</b></p> <p>Core tunnels that aren't reaching NWTF core membership requirements will be released to level 2 and reassessed after one year. If improved, they will move back to level 1. If no improvement, facility will be released from NWTF membership and possibly replaced, unless of very high strategic importance, in which case they will remain at level 2.</p> <p>Facilities will be reviewed and graded by the Advisory board based on:</p> <ul style="list-style-type: none"><li>Usage statistics (especially external usage)</li><li>Meeting attendance</li><li>Number of workshops hosted</li><li>Free access for early-career researchers</li><li>Membership fee payment on time</li></ul> |
| Membership fee                                            | £2,100 per tunnel per year                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | £2,100 per tunnel per year                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Membership benefits                                       | <ul style="list-style-type: none"><li>• <b>Inclusion in group funding applications for facilities, equipment, instrumentation, tunnel managers, tunnel usage fees for external researchers.</b></li><li>• Included in marketing and promotion of facilities, expertise, research outputs.</li><li>• One management board representative and one deputy representative that can help shape UK wind tunnel strategy.</li><li>• Invite to industry/academia forums and subgroup.</li><li>• Group lobbying to ensure non-closure of strategically important facilities.</li><li>• Ability to apply for use of ETW through NWTF group applications.</li><li>• Access to group software repository.</li></ul> | <p><b>Same as level 1 except <u>no</u> access to NWTF funding</b></p> <ul style="list-style-type: none"><li>• Included in marketing and promotion of facilities, expertise, research outputs.</li><li>• One management board representative and one deputy that can help shape UK wind tunnel strategy.</li><li>• Invite to industry/academia forums and subgroup.</li><li>• Group lobbying to ensure non-closure of strategically important facilities.</li><li>• Ability to apply for use of ETW through NWTF group applications.</li><li>• Access to group software repository.</li></ul>                                                                                                                                           |

| Core Tunnel Membership |                                       | Affiliate Tunnel Membership |                           |                         |
|------------------------|---------------------------------------|-----------------------------|---------------------------|-------------------------|
| LEVEL 1                |                                       | LEVEL 2                     |                           |                         |
| Birmingham             | TRAIN rig                             | Imperial<br>Oxford          | Hypersonic Gun Tunnel     | Kept for strategic cap. |
| Birmingham             | ABL tunnel                            |                             | Low Density tunnel        | Kept for strategic cap. |
| Bristol                | Aeroacoustic Wind Tunnel              |                             |                           |                         |
| Bristol                | Boundary Layer Wind Tunnel            |                             |                           |                         |
| Bristol                | Pressure-Neutral Acoustic Wind Tunnel |                             |                           |                         |
| Cambridge              | Supersonic Tunnels 1 & 2,             |                             |                           |                         |
| City                   | Transonic/Supersonic T5 Tunnel        |                             |                           |                         |
| City                   | Low Turbulence Wind Tunnel            |                             |                           |                         |
| Cranfield              | Low Speed 8x6 Wind Tunnel             |                             |                           |                         |
| Cranfield              | Low Speed Icing Tunnel                |                             |                           |                         |
| Glasgow                | Low Speed 9x7 Wind Tunnel             | Released from Membership    |                           |                         |
| Imperial               | Low Speed 10x5 Low Speed Wind Tunnel  | Cranfield                   | Low Speed 8x4 Wind Tunnel | Released Oct '21        |
| Imperial               | Supersonic Wind Tunnel                |                             |                           |                         |
| Loughborough           | Automotive Tunnel                     |                             |                           |                         |
| Manchester             | Hypersonic Tunnel                     |                             |                           |                         |
| Manchester             | Human Flow Interactions Wind Tunnel   |                             |                           |                         |
| Oxford                 | T6 Free Piston Reflected Shock Tunnel |                             |                           |                         |
| Oxford                 | High Density tunnel                   |                             |                           |                         |
| Southampton            | R.J. Mitchell Wind Tunnel             |                             |                           |                         |
| Southampton            | Anechoic Wind Tunnel                  |                             |                           |                         |
| Southampton            | Tow Tank                              |                             |                           |                         |
| Surrey                 | EnFlo                                 |                             |                           |                         |