

Proximity

Developer Notes

Proximity is a tool that can allow radial effects to be applied to Pawns from building items or from terrain. These effects are either manipulation of the statistics values using offsets or in the format of a hediff being applied.

The mechanics are associated with the pawn, who checks their immediate vicinity based on applied comp values associated with them, they will do this within a certain tick period (every 2 seconds) and to a maximum range of 10 cells.

Note that, where relevant, buildings that are broken down, forbidden, switched off, out of fuel or without power the effects can be disabled.

To enable behaviour however, there is a significant **mod extension** that you can use to attach to buildings through their thingDef or to a TerrainDef for terrain that denotes what effects are applied. The majority, if not all the XML definitions to include in the mod extension are completely optional:

```
<modExtensions>
  <li Class="Proximity.ProximityDefs">
    ...
  </li>
</modExtensions>
```

But in order to get the desired behaviour you will need to configure the values accordingly and attach them to the associated building thingDef or terrain TerrainDef, either directly or by patching (xpath).

Stat Values

The stat values are stats you can include as offsets that add extra values into the stat process, these are **cumulative**, so you will get additions based on the number of buildings or terrain cells as applicable.

Hediff Values

The Hediff values are whether a hediff (defName) will be applied and the severity amount to be applied per tick period (every 2 seconds). Otherwise you will need to use the hediff settings as normal to control the behaviour associated with it. Hediff behaviour will not apply to Mechanoids.

The full list of variables are as follows:

General Stats:	Type	Default	Limited?
<ProxGlobalLearningFactorOffSet />	float	0.0	
<ProxMoveSpeedOffSet />	float	0.0	
<ProxNegotiationAbilityOffSet />	float	0.0	
<ProxPsychicSensitivityOffSet />	float	0.0	
<ProxSocialImpactOffSet />	float	0.0	
<ProxToxicSensitivityOffSet />	float	0.0	
<ProxComfyTemperatureMinOffSet />	float	0.0	
<ProxComfyTemperatureMaxOffSet />	float	0.0	
Combat Stats:			
<ProxAimingDelayFactorOffSet />	float	0.0	
<ProxMeleeDodgeChanceOffSet />	float	0.0	Limited*
<ProxMeleeHitChanceOffSet />	float	0.0	Limited*
<ProxShootingAccuracyPawnOffSet />	float	0.0	Limited*
Medical Stats:			
<ProxImmunityGainSpeedOffSet />	float	0.0	
<ProxMedicalOperationSpeedOffSet />	float	0.0	
<ProxMedicalSurgerySuccessChanceOffSet />	float	0.0	
<ProxMedicalTendQualityOffSet />	float	0.0	Limited*
<ProxMedicalTendSpeedOffSet />	float	0.0	
Work efficiency Stats:			
<ProxAnimalGatherSpeedOffSet />	float	0.0	
<ProxAnimalGatherYieldOffSet />	float	0.0	Limited*
<ProxButcheryFleshEfficiencyOffSet />	float	0.0	Limited*
<ProxButcheryFleshSpeedOffSet />	float	0.0	
<ProxButcheryMechanoidEfficiencyOffSet />	float	0.0	Limited*
<ProxButcheryMechanoidSpeedOffSet />	float	0.0	
<ProxConstructionSpeedOffSet />	float	0.0	
<ProxConstructSuccessChanceOffSet />	float	0.0	Limited*
<ProxCookSpeedOffSet />	float	0.0	
<ProxDrugCookingSpeedOffSet />	float	0.0	
<ProxDrugSynthesisSpeedOffSet />	float	0.0	
<ProxEatingSpeedOffSet />	float	0.0	
<ProxFixBrokenDownBuildingSuccessChanceOffSet />	float	0.0	Limited*
<ProxHuntingStealthOffSet />	float	0.0	Limited*
<ProxMiningSpeedOffSet />	float	0.0	
<ProxPlantHarvestYieldOffSet />	float	0.0	Limited*
<ProxPlantWorkSpeedOffSet />	float	0.0	
<ProxResearchSpeedOffSet />	float	0.0	
<ProxSculptingSpeedOffSet />	float	0.0	
<ProxSmeltingSpeedOffSet />	float	0.0	
<ProxSmithingSpeedOffSet />	float	0.0	
<ProxSmoothingSpeedOffSet />	float	0.0	
<ProxTailoringSpeedOffSet />	float	0.0	
<ProxTameAnimalChanceOffSet />	float	0.0	Limited*
<ProxTrainAnimalChanceOffSet />	float	0.0	Limited*
<ProxUnskilledLaborSpeedOffSet />	float	0.0	
<ProxWorkSpeedGlobalOffSet />	float	0.0	

Limited* = Limited by other mechanics either by maximums and minimums or by post evaluation of the statistics along an acceptable curve of values.

Hediff:	Type	Default
<ProxHediff />	string	""
<ProxHediffSev />	float	0.0

Behaviour Characteristics:

<ProxRoomOnly />	bool	false
<ProxRange />	int	0
<ProxQuality />	bool	false
<ProxDisabled />	bool	false
<ProxDrafted />	bool	false
<ProxComposMentis />	bool	false
<ProxColonist />	bool	false
<ProxOutsider />	bool	false
<ProxAlly />	bool	false
<ProxNeutral />	bool	false
<ProxHostile />	bool	false
<ProxPrisoner />	bool	false
<ProxAnimal />	bool	false
<ProxInsectoid />	bool	false
<ProxMechanoid />	bool	false
<ProxEquipped />	List<string>	null

In the case of a list variable then this will equate to a listing in the XML.

E.g: <ProxEquipped>

```

    <li>AThingDef1</li>
    <li>AThingDef2</li>
</ProxEquipped>

```

Behaviour

- 1) **<ProxRoomOnly />** if added as **true** will only have effects apply if the pawn is in the same room as the building or terrain. (Outside spaces are considered as rooms since they can equally have enclosed spaces or bordered by the map boundary).
- 2) **<ProxRange />** “needs” to have a value to denote the effective range of the applied effects from the building otherwise this will be 0. (Note that the mod applies an effective maximum of 10). With an effective range of 0 however this will ensure that only the current tile a pawn is standing on will be applied in the case of terrain.
- 3) **<ProxQuality />** If set to **true** then if the associated building has the comp property of quality then it will apply a factor to any stat values applied. The factors are as follows:
[Awful: 0.8, Poor: 0.9, Normal: 1.0, Good: 1.1, Excellent: 1.2, Masterwork: 1.4, Legendary: 1.65.]
- 4) **<ProxDisabled />** if set to **true**, where a building has properties that it is forbidden, is broken down, is switched off, out of fuel or without power then the effects are disabled.
- 5) **<ProxDrafted />** denotes whether the effects apply when a pawn is drafted.
- 6) **<ProxComposMentis />** if set to **true** will only effect a pawn if the pawn is in a capable state; i.e. not burning, isn't downed, is awake, not in a mental state and not requiring medical attention.
- 7) **<ProxColonist />** add this value as **true** if you want to effect colonists.
- 8) **<ProxOutsider />** **<ProxAlly />** **<ProxNeutral />** **<ProxHostile />** refer to faction relations and are not limited to the colony faction. This means that similar behaviour can be conferred to non-player factions and their relationships with other factions. The values are only valid when the faction of the building is dissimilar from the faction of the pawn. In the case of terrain the faction is derived from the faction who owns the map.

The **<ProxOutsider />** value when set to **true** will apply regardless of the kind of relationship and is an override to the other values, when **false** or not set however, it will then check to see if any of the **<ProxAlly />**, **<ProxNeutral />** or **<ProxHostile />** are set to true and apply to pawns that have this kind of relationship to the building.*
- 9) **<ProxPrisoner />** will apply to prisoners.*
- 10) **<ProxAnimal />** will be applied to animals.*
- 11) **<ProxInsectoid />** will be applied to insects.*
- 12) **<ProxMechanoid />** will be applied to Mechanoids.*
- 13) **<ProxEquipped />** if there is a value entered here, then for the effects to apply, the pawn must have this item equipped. The value refers to a list of ThingDef DefNames of the equipped items you want to check for.

*Note that with some of the behaviour you will need to specify multiple behaviour values to get it to apply to the target concerned: e.g. to apply to hostile mechanoids you would need to set both the **<ProxMechanoid />** and **<ProxHostile />** to true.

E.g. (Patch Operation)

```
<Operation Class="PatchOperationFindMod">
<mods>
  <li>Medical Supplements</li>
</mods>
<match Class="PatchOperationSequence">
<operations>
<li Class="PatchOperationAdd">
<xpath>/Defs/ThingDef[defName="DrugCabinet"]</xpath>
<value>
  <modExtensions>
    <li Class="Proximity.ProximityDefs">
      <ProxImmunityGainSpeedOffSet>+0.02</ProxImmunityGainSpeedOffSet>
      <ProxToxicSensitivityOffSet>-0.05</ProxToxicSensitivityOffSet>
      <ProxHediff>HedProxTest</ProxHediff>
      <ProxHediffSev>1.0</ProxHediffSev>
      <ProxRoomOnly>true</ProxRoomOnly>
      <ProxRange>5</ProxRange>
      <ProxDrafted>true</ProxDrafted>
      <ProxColonist>true</ProxColonist>
    </li>
  </modExtensions>
</value>
</li>
<li Class="PatchOperationAdd">
<xpath>/Defs</xpath>
<value>
  <HediffDef>
    <defName>HedProxTest</defName>
    <hediffClass>HediffWithComps</hediffClass>
    <label>Proximity Test</label>
    <defaultLabelColor>(1,1,1)</defaultLabelColor>
    <scenarioCanAdd>false</scenarioCanAdd>
    <maxSeverity>1.0</maxSeverity>
    <isBad>false</isBad>
    <comps>
      <li Class="HediffCompProperties_SeverityPerDay">
        <severityPerDay>-24.00</severityPerDay>
      </li>
    </comps>
    <stages>
      <li>
        </li>
    </stages>
  </HediffDef>
</value>
</li>
<li Class="PatchOperationAdd">
<xpath>/Defs</xpath>
<value>
  <ThoughtDef>
    <defName>Thought_ProxTest</defName>
    <workerClass>ThoughtWorker_Hediff</workerClass>
    <hediff>HedProxTest</hediff>
    <validWhileDespawned>true</validWhileDespawned>
    <stages>
      <li>
        <label>Proximity Test</label>
        <description>Liking the test</description>
        <baseMoodEffect>5</baseMoodEffect>
      </li>
    </stages>
  </ThoughtDef>
</value>
</li>
</operations>
</match>
</Operation>
```

E.g. (Direct Application)

```
<ThingDef ParentName="RimPlasFurnitureBase">
  <defName>RimPlas_PlantPot</defName>
  <label>RimPlas Plant Pot</label>
  <description>Plant decorative flowers here to improve the mood of people nearby.</description>
  <thingClass>Building_PlantGrower</thingClass>
  <graphicData>
    <texPath>Things/Building/Furniture/RimPlas_PlantPot/RimPlas_PlantPot</texPath>
    <graphicClass>Graphic_Single</graphicClass>
    <shadowData>
      <volume>(0.55, 0.35, 0.3)</volume>
      <offset>(0, 0, -0.28)</offset>
    </shadowData>
    <damageData>
      <rect>(0.2,0.2,0.6,0.6)</rect>
    </damageData>
  </graphicData>
  <altitudeLayer>Building</altitudeLayer>
  <passability>PassThroughOnly</passability>
  <fillPercent>0.20</fillPercent>
  <statBases>
    <MaxHitPoints>100</MaxHitPoints>
    <WorkToBuild>220</WorkToBuild>
    <Mass>1.5</Mass>
  </statBases>
  <costList>
    <RimPlas>20</RimPlas>
  </costList>
  <comps>
    <li Class="CompProperties_Forbiddable"/>
  </comps>
  <fertility>1.0</fertility>
  <designationHotKey>Misc9</designationHotKey>
  <leaveResourcesWhenKilled>>false</leaveResourcesWhenKilled>
  <building>
    <defaultPlantToGrow>Plant_Daylily</defaultPlantToGrow>
    <sowTag>Decorative</sowTag>
  </building>
  <rotatable>>false</rotatable>
  <uilconOffset>(0, -0.05)</uilconOffset>
  <modExtensions>
    <li Class="Proximity.ProximityDefs">
      <ProxPlantWorkSpeedOffSet>+0.05</ProxPlantWorkSpeedOffSet>
      <ProxRoomOnly>true</ProxRoomOnly>
      <ProxRange>1</ProxRange>
      <ProxQuality>true</ProxQuality>
      <ProxColonist>true</ProxColonist>
      <ProxComposMentis>true</ProxComposMentis>
      <ProxAlly>true</ProxAlly>
      <ProxNeutral>true</ProxNeutral>
    </li>
  </modExtensions>
</ThingDef>
```

E.g. Patch Terrain

```
<Operation Class="PatchOperationFindMod">
<mods>
    <li>Proximity</li>
</mods>
<match Class="PatchOperationSequence">
<operations>
    <li Class="PatchOperationAdd">
        <xpath>/Defs/TerrainDef[defName="RimicaTile"]</xpath>
        <value>
            <modExtensions>
                <li Class="Proximity.ProximityDefs">
                    <ProxToxicSensitivityOffSet>-0.10</ProxToxicSensitivityOffSet>
                    <ProxImmunityGainSpeedOffSet>+0.02</ProxImmunityGainSpeedOffSet>
                    <ProxMedicalOperationSpeedOffSet>+0.02</ProxMedicalOperationSpeedOffSet>
                    <ProxMedicalSurgerySuccessChanceOffSet>+0.05</ProxMedicalSurgerySuccessChanceOffSet>
                    <ProxMedicalTendQualityOffSet>+0.05</ProxMedicalTendQualityOffSet>
                    <ProxMedicalTendSpeedOffSet>+0.02</ProxMedicalTendSpeedOffSet>
                    <ProxResearchSpeedOffSet>+0.05</ProxResearchSpeedOffSet>
                    <ProxDrugCookingSpeedOffSet>+0.05</ProxDrugCookingSpeedOffSet>
                    <ProxDrugSynthesisSpeedOffSet>+0.05</ProxDrugSynthesisSpeedOffSet>
                    <ProxRoomOnly>true</ProxRoomOnly>
                    <ProxRange>0</ProxRange>
                    <ProxColonist>true</ProxColonist>
                    <ProxDrafted>true</ProxDrafted>
                    <ProxAlly>true</ProxAlly>
                    <ProxNeutral>true</ProxNeutral>
                </li>
            </modExtensions>
        </value>
    </li>
</operations>
</match>
</Operation>
```